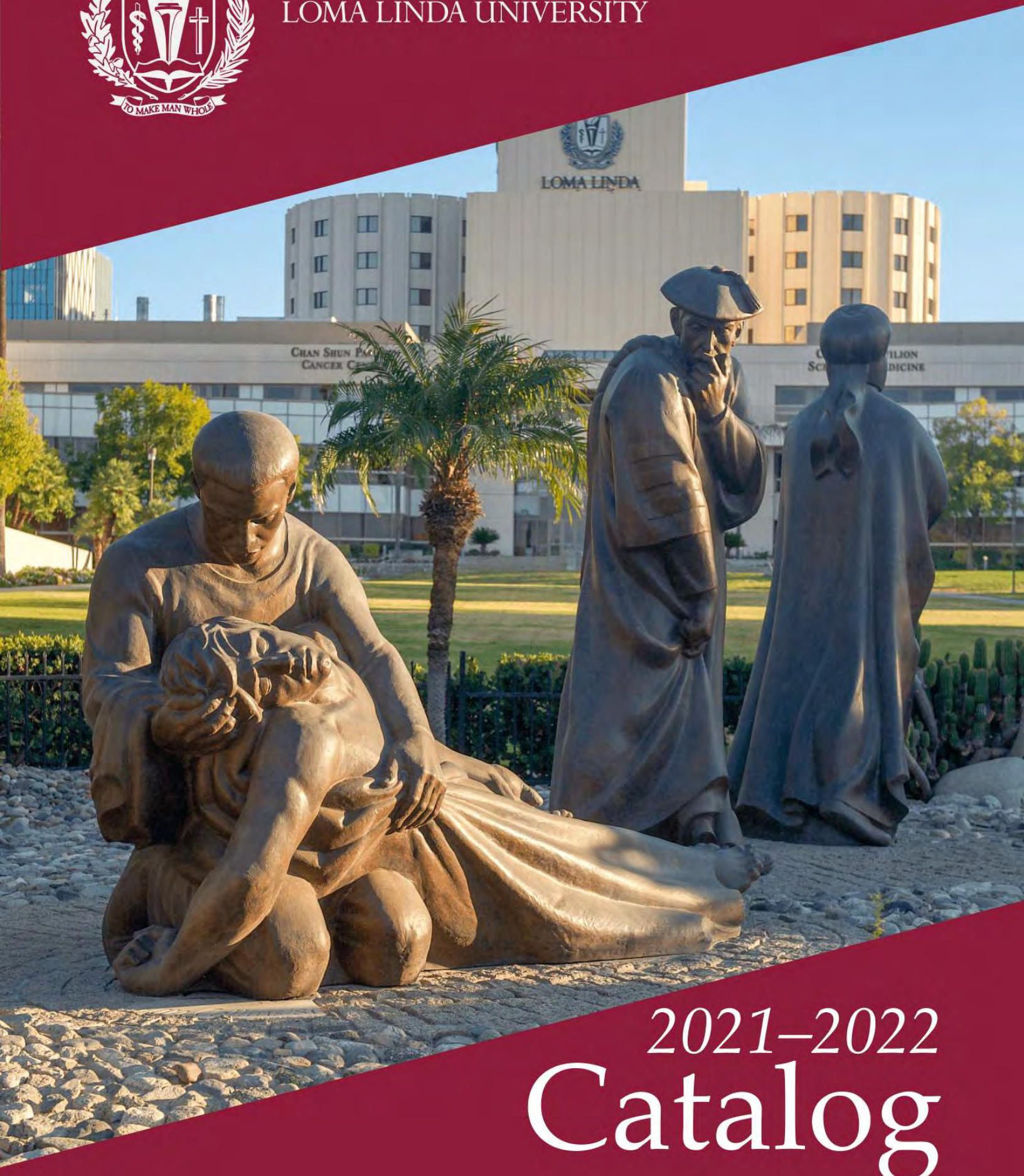
LOMA LINDA UNIVERSITY




# 2021–2022 Catalog

# LOMA LINDA UNIVERSITY

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2021-2022

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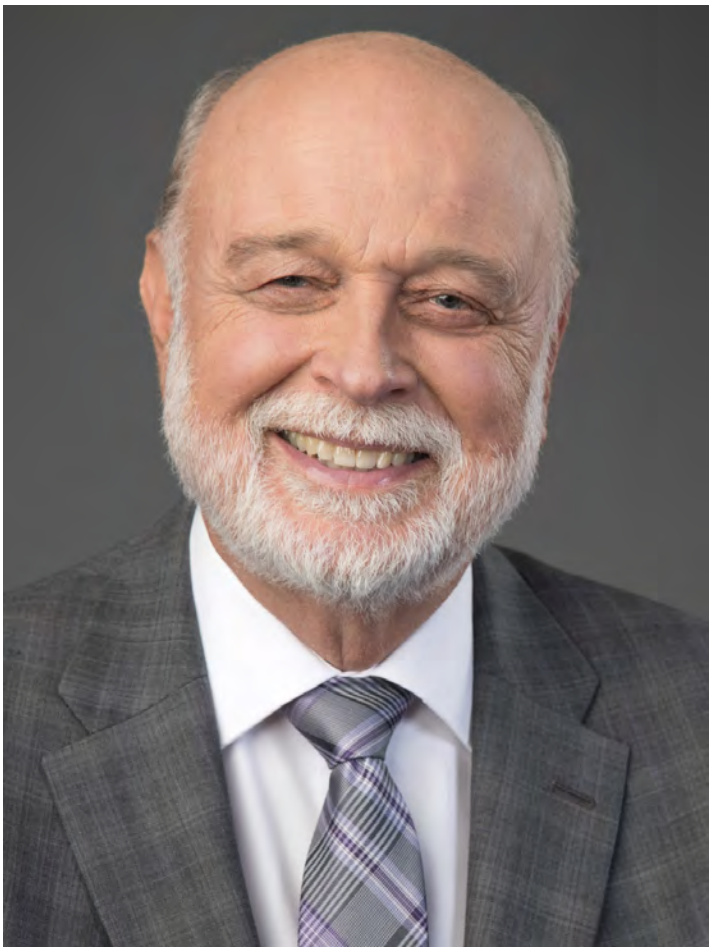
# INTRODUCTION

Loma Linda University (LLU) (http://www.llu.edu/) is a Seventh-day Adventist educational health sciences institution located in Southern California. With more than 4,500 students, its eight schools comprise the University organization. More than 100 academic degree programs are offered by the Schools of Allied Health Professions (http://www.llu.edu/allied-health/), Behavioral Health, (http://www.llu.edu/behavioral-health/) Dentistry (http://www.llu.edu/dentistry/), Medicine (http://www.llu.edu/medicine/), Nursing (http://www.llu.edu/nursing/), Pharmacy (http://www.llu.edu/pharmacy/), Public Health (http://www.llu.edu/public-health/), and Religion (http://www.llu.edu/religion/). Curricula offered range from certificates of completion and Associate in Science degrees to Doctor of Philosophy and professional doctoral degrees. Students from more than 75 countries around the world and virtually every state in the nation are represented in Loma Linda University's student body. The University also offers distance education. For a list of programs, see <https://home.llu.edu/education/office-of-provost/educational-effectiveness/online-programs> (https://home.llu.edu/education/office-of-provost/educational-effectiveness/online-programs/).

# President's Welcome



It is a privilege to welcome you to Loma Linda University. This is a unique place—one that balances on the twin foundations of faith and science. Being a student here will expose you to a group of faculty and staff members who have chosen to be part of this experience we call Loma Linda. They have chosen to work here because they share in the belief that this is a special place.

We emphasize what we call mission-focused learning. This means that what we offer centers on more than producing knowledgeable professionals because we believe that *who* you are is even more important than *what* you know. To assist in this lifelong process, we are encouraging the enculturation of our seven core values, known by the acronym JCWHITE. These values are Justice, Compassion, Wholeness, Humility, Integrity, Teamwork, and Excellence. I encourage each of you to search your own heart and find ways to strengthen these virtues in everything you do.

You also will find an incredible mixture of cultural diversity on our campus. Revel in our similarities and differences, and use each interaction to help you understand the issues that separate us. With understanding comes acceptance. And with acceptance come peace and fellowship. Use your time at Loma Linda to seek out those from other countries and cultures from whom you can learn and gain greater understanding. We will all be better as we tear down those barriers that often separate us.

All this uniqueness is centered on the profound belief that God is here, active in the lives and experiences of each of us. Through our weekly University at Worship, the prayers of faculty members in class, and the daily interchanges across campus, I invite you to join me in getting to know Him better. Place your future in His hands. Have confidence in His leading. Seek out opportunities to fellowship and grow in His love.

Thank you for joining our campus family. I hope it will become as special to you as it has for so many of our 55,800 alumni.

Cordially yours,

Richard H. Hart, M.D., Dr.P.H.
President
Loma Linda University

# Programs, Degrees, and Certificates

The degree and certificate curricula at Loma Linda University are under continuous review and are, therefore, subject to change and improvement without prior notice, as the need occurs. The University also offers nondegree and short courses throughout the United States and globally to meet the continuing education and extension program needs of alumni, health professionals, and lay persons in the Church and in the community. Most degree courses are approved for continuing education credit.

School-specific certificates are awarded upon completion of organized programs of study at the postsecondary level. Students register for courses through the Office of University Records; but certificates are issued by the school, which maintains records of the certificates and their awarding. Financial aid is not available to students registered in school-specific programs. See school programs in each school for a listing of school-specific certificates available.

The Faculty of Graduate Studies oversees Ph.D. and research master's degrees, as well as combined degrees programs.

## KEY TO CODES

| | |
|---|---|
| AH | School of Allied Health Professions |
| BH | School of Behavioral Health |
| PH | School of Public Health |
| SD | School of Dentistry |
| SM | School of Medicine |
| SN | School of Nursing |
| SP | School of Pharmacy |
| SR | School of Religion |
| FGS | Faculty of Graduate Studies |
| IS | Interdisciplinary Studies (LLU diploma, across schools/ faculties) |
| UG | Undergraduate |
| PB | Postbaccalaureate |
| PD | Post-D.D.S. or Post-D.M.D. |
| PM | Post-master's |
| PMD | Post-M.D. |
| PP | Postprofessional |

| Program | School | Degrees/Certificates Offered |
|---|---|---|
| Anatomy | SM | M.S., Ph.D. |
| Biology | SM | M.S., Ph.D. |
| Bioethics | SR | M.A., PB certificate |
| Biomedical Sciences | SM | M.M.S. |
| Cancer, Developmental and Regenerative Biology | SM | M.S., Ph.D. |
| Cardiac Electrophysiology Technology | AH | A.S. (online) |
| Chaplaincy | SR | M.S.Chap. |
| Child Life Specialist | BH | M.S. |
| Clinical Leadership | BH | D.S.W. (online) |
| Clinical Laboratory Science | AH | B.S. (formerly: Medical Technology) |
| Coding Specialist | AH | Certificate (online) |
| Communication Sciences and Disorders | AH | B.S., M.S., Transitional M.S. |
| Counseling | BH | M.S. |
| Counseling, School | BH | PM certificate (See: School Counseling) |
| Criminal Justice | BH | M.S. |
| Denominational Studies for Chaplains | SR | Certificate (online) |
| Dental Hygiene | SD | B.S. |
| Dentistry, General | SD | D.D.S. |
| Dentist Program, International | SD | D.D.S. |
| Diagnostic Cardiac Sonography | AH | Certificate |
| Diagnostic Medical Sonography | AH | B.S. |
| Drug and Alcohol Counseling | BH | PB certificate (online) |
| Earth Science | SM | Ph.D. |
| Endodontics | SD | M.S., M.S.D., PD certificate |
| Environmental Sciences | SM | B.S. |
| Epidemiology | PH | M.P.H. (on campus and online), Ph.D. |
| Geology | SM | B.S., M.S. |
| Gerontology | BH | M.S. |
| Global Health | PH | M.P.H. |
| Health-Care Administration | AH | B.S. (online) |
| Health-Care Administration | PH | M.H.A. (on campus and online) |
| Health Education | PH | Dr.P.H. (on campus and online) |
| Health Education and Wellness Coaching | PH | M.P.H. (on campus and online) |
| Health Geoinformatics | PH | PB certificate (online) |
| Health Informatics | AH | M.S. (on campus and online) |
| Health Information Management | AH | B.S. (on campus and online), PB certificate (on campus and online) |
| Health Policy and Leadership | PH | Dr.P.H. (on campus and online) |
| Health Professions Education | AH | M.S. (on campus and online), PB certificate (on campus and online) |
| Implant Dentistry, Advanced | SD | M.S., M.S.D., PD certificate |
| Infection, Immunity, and Inflammation | SM | M.S., Ph.D. |
| International Dentist Program | SD | (See: Dentist Program, International) |
| Marital and Family Therapy | BH | M.S. (on campus and online), D.M.F.T. (online) |
| Maternal and Child Health | PH | PB certificate |
| Medical Dosimetry | AH | Certificate |

| | | |
|---|---|---|
| Medical Radiography | AH | A.S. |
| Medical Scientist | SM | M.D./Ph.D. |
| Medicine | SM | M.D. |
| Natural Sciences | SM | M.S. |
| Neuroscience, Systems Biology, and BioEngineering | SM | M.S., Ph.D. |
| Nuclear Medicine Technology | AH | B.S. |
| Nursing | SN | B.S. (RN to B.S. online), M.S. (on campus and off-campus Thailand), D.N.P. (online), Ph.D. |
| Nutrition | PH | M.P.H., Ph.D. (See: Plant-Based Nutrition) |
| Nutrition and Dietetics | AH | B.S., M.S. |
| Occupational Therapy | AH | M.O.T., O.T.D. (online) |
| Oral and Maxillofacial Surgery, Advanced | SD | PD certificate |
| Orthodontics and Dentofacial Orthopedics | SD | M.S., PD certificate |
| Orthotics and Prosthetics | AH | M.S.O.P. (on campus, hybrid) |
| Pathologists' Assistant | SM | M.H.S. |
| Pediatric Dentistry, Advanced | SD | M.S., M.S.D., PD certificate |
| Periodontics, Advanced | SD | M.S., M.S.D., PD certificate |
| Pharmacy | SP | Pharm.D. |
| Physical Therapist Assistant | AH | A.S. |
| Physical Therapy | AH | D.P.T. (entry-level and postprofessional), Ph.D. |
| Physician Assistant | AH | M.P.A. |
| Plant-Based Nutrition | PH | M.S. (online) |
| Play Therapy | BH | PM certificate (online) |
| Polysomnography | AH | Certificate |
| Population Medicine | PH | M.P.H. (on campus and online) |
| Preventive Care | PH | Dr.P.H. (on campus and online) |
| Prosthodontics, Advanced | SD | M.S., M.S.D., PD certificate |
| Psychology | BH | M.A. |
| Psychology, Clinical | BH | Psy.D., Ph.D. |
| Radiation Sciences | AH | B.S. (online), M.S.R.S. (online) |
| Radiation Therapy Technology | AH | B.S. |
| Radiologist Assistant | AH | M.S.R.S. (online) |
| Rehabilitation Science | AH | Ph.D. |
| Religion and Society | SR | M.A. |
| Respiratory Care | AH | B.S. traditional (on campus), B.S. postprofessional (online), M.S.R.C. (on campus and online) |
| School Counseling | BH | PM certificate, PPS credential |
| Social Policy and Social Research | BH | Ph.D. |
| Social Work | BH | M.S.W. (on campus and online) |
| Special Imaging: CT | AH | Certificate (on campus and online) |
| Special Imaging: CVI | AH | Certificate |
| Special Imaging: MRI | AH | Certificate |
| Speech-Language Pathology | AH | S.L.P.D. (online) |
| Systems, Families, and Couples | BH | Ph.D. |

# Accreditation Overview

The University is accredited as a degree-granting institution by the Western Association of Schools and Colleges (WASC) Senior College and University Commission (WSCUC). Schools' programs are accredited by appropriate accrediting agencies, and graduates are eligible to take qualifying examinations of the respective state and national licensing or registration bodies and to join professional organizations. Details of accreditations are given in the individual programs and in Section VI of this CATALOG.

Founded as the College of Evangelists in 1905-06, the University was chartered as College of Medical Evangelists by the state of California on December 13, 1909; and was accredited by Northwest Association of Secondary and Higher Schools on April 7, 1937. Accredited by WASC (prior to January 1962, Western College Association) on February 24, 1960, it became Loma Linda University on July 1, 1961.

## Accrediting agencies

Loma Linda University is fully accredited by WSCUC, which may be contacted at:

WASC Senior College and University Commission (WSCUC)
985 Atlantic Avenue, Suite 100
Alameda, CA 94501
Phone: 510/748-9001
FAX: 510/748-9797
website: <https://www.wscuc.org (https://www.wscuc.org/)>
email: <https://www.wscuc.org/contact (https://www.wscuc.org/contact/)>

WSCUC is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Commission on Recognition of Postsecondary Accreditation.

Loma Linda University is also accredited by the Adventist Accrediting Association (AAA) of the Seventh-day Adventist Church Department of Education.

In addition to WSCUC and AAA, the following organizations accredit specific University schools or programs:

Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics
Accreditation Council for Occupational Therapy Education (ACOTE)
Accreditation Council for Pharmacy Education (ACPE)
Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA)
American Registry of Radiologic Technology (ARRT)
Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy (AAMFT)
Commission on Accreditation for Respiratory Care (CoARC)
Commission on Accreditation of Allied Health Education Programs (CAAHEP)
Commission on Accreditation in Physical Therapy Education (CAPTE)
Commission on Accreditation (CoA) of the American Psychological Association (APA)
Commission on Accreditation (COA) of the Council on Social Work Education (CSWE)
Commission on Collegiate Nursing Education (CCNE) of the American Association of Colleges of Nursing (AACN)
Commission on Dental Accreditation (CODA) of the American Dental Association (ADA)
Committee composed of the American Society of Cytopathology (ASC), College of American Pathologists (CAP), American Society for Clinical Pathology (ASCP), and American Society of Cytotechnology (ASCT), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)
Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA)
Council on Accreditation (COA) of Nurse Anesthesia Educational Programs
Council on Education for Public Health (CEPH)
Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)
Joint Review Committee on Education in Radiologic Technology (JRCERT)
Liaison Committee on Medical Education (LCME), sponsored by the Association of American Medical Colleges (AAMC) and the Council on Medical Education of the American Medical Association (AMA)
National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
National Commission on Orthotic and Prosthetic Education (NCOPE), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)

The following organizations also approve specific University schools or programs:

Approval Committee for Certificate Programs (ACCP), a joint committee established by the Association for Healthcare Documentation Integrity (AHDI) and the American Health Information Management Association (AHIMA)
California Department of Public Health (CDPH) Laboratory Field Services (LFS)
California Department of Public Health (CDPH) Radiologic Health Branch (RHB)
California Board of Registered Nursing (BRN)
Commission on Teacher Credentialing (CTC)

For a current list of accrediting agencies, please contact the Office of the Provost.

# Affirmative Action

The University routinely monitors its educational and employment practices regarding women, minorities, and the disabled to ensure compliance with the law and University policy. The University's affirmative action policy is to provide equal access to admissions, educational programs and activities, financial aid, student services, and employment.

In compliance with Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973, a grievance procedure has been established to process student complaints alleging violation of these regulations or of the University's policy of nondiscrimination based on gender or disability. Inquiries concerning Title IX may be directed to the Title IX coordinator. Employment-related discrimination complaints, including those filed by student employees, are processed in conformity with the provisions outlined in existing staff personnel policies. Complaints related to discrimination in academic areas are

reviewed in conformity with the procedures established by the academic administration.

# Accommodation for Disability

Loma Linda University is in compliance with the Americans with Disabilities Act, Sec. 504 of the Rehabilitation Act, as well as with local and state requirements. The University is committed to providing education—including support services and reasonable accommodations for disabilities—to qualified applicants for whom such accommodation does not fundamentally alter the chosen program or create an undue burden.

For information regarding accommodation for disability, the student should consult the office of the dean of the school to which application for admission is being made.

Following acceptance, the student may be asked if they have a disability requiring accommodation. A student who desires accommodation for a disability (e.g., physical, learning, or psychological), identified after acceptance, should consult the office of the dean regarding a request for accommodation, which must be submitted in writing on the designated form. The completed form and required supporting documentation will be evaluated by appropriate University entities to determine whether or not the applicant can be expected to perform the essential functions of the program. All discussions will remain confidential.

# Nondiscrimination Policy

Loma Linda University was established by the Seventh-day Adventist Church as an integral part of its teaching ministry. The University affirms that Christian principles are incompatible with various forms of discrimination that have divided societies, and that all persons are of equal worth in the sight of God and should be so regarded by all His people. Therefore, the University is committed to equal education and employment opportunities for men and women of all races, and does not unlawfully discriminate on the basis of veteran status, handicap, gender identity, sexual orientation, race, color, or national origin in its educational or admissions policies, financial affairs, employment programs, student life and services, or any University-administered program.

To this end, the University is in compliance with Titles VI and VII of the Civil Rights Act of 1964 as amended, and is in substantial compliance with Title IX of the Education Amendments of 1972 (34 CFR 106 et seq.), Sections 503 and 504 of the Rehabilitation Discrimination in Employment Act of 1967, and Section 402 of the Vietnam Era Veterans Adjustment Act of 1974. The University does not discriminate against any employees or applicants for employment on the basis of age or because they are disabled veterans or veterans of the Vietnam era. In addition, the University administers student programs without discrimination on the basis of age—except in those programs where age is a bona fide academic qualification for admission—in accordance with the provisions of the Age Discrimination Act of 1975.

The University reserves constitutional and statutory rights as a religious institution and employer to give preference to Seventh-day Adventists in admissions and employment, including but not limited to 42 U.S.C. Secs. 2000e-1, 2000e-2; Sec. 6-15 of Federal Executive Orders 11246 and 13279; 41 CFR Sec. 60-1.5(5); 20 U.S.C. Sec. 1681 (a)(3); 34 CFR Secs. 106.12 (a)(b), 106.21, 106.31, 106.39, 106.40, 106.51, and 106.57; California Government Code Sec. 12926 (d)(1); Title II, Division 4, Chapter 2, Sec. 7286.5 of the California Code of Regulations; the First Amendment to the United States Constitution; and Article 1, Sec. 4, of the California Constitution. The University believes that Title IX regulations are subject to constitutional guarantees against unreasonable entanglement with or infringements on the religious teachings and practices of the Seventh-day Adventist Church.

# The Academic Calendar

Academic dates for Faculty of Graduate Studies (FGS) and the Schools of:

| | |
|---|---|
| AH | Allied Health Professions |
| BH | Behavioral Health |
| SD | Dentistry |
| SM | Medicine |
| SN | Nursing |
| SP | Pharmacy |
| PH | Public Health |
| SR | Religion |

For the most current event information, visit the University's Event Calendar (https://home.llu.edu/events/).

## 2021

### January

| | | |
|---|---|---|
| 4 | U | Winter Quarter begins (standard-term programs) |
| 4 | SD | Winter Term begins (DDS, DH, IDP)) |
| 11 | U | Last day to register with a late fee (standard-term programs) |
| 11-15 | U | Week of Renewal |
| 18 | U | Martin Luther King, Jr. Day (holiday) |
| 19 | U | Last day to drop without a “W” (standard-term courses) |

### February

| | | |
|---|---|---|
| 15 | U | President's Day (holiday) |

### March

| | | |
|---|---|---|
| 1 | U | Last day to drop with a "W" (standard-term courses) |
| 8 | U | Spring registration opens (standard-term programs) |
| 18 | SD | Winter Term ends (DDS, DH, IDP) |
| 19 | U | Winter Quarter ends (standard-term programs) |
| 20-28 | U | Spring Recess |
| 23 | SD | Grades due by 4:00 p.m. |
| 24 | U | Standard-term grades due by 4:00 p.m. |
| 29 | U | Spring Quarter begins (standard-term programs) |

### April

| | | |
|---|---|---|
| 5 | U | Last day to register with a late fee (standard-term programs) |
| 5-9 | U | Week of Renewal |
| 12 | U | Last day to drop without a “W” (standard-term courses) |

### May

| | | |
|---|---|---|
| 24 | U | Last day to drop with a "W" (standard-term courses) |
| 29 | U | SM/SP/SD Baccalaureate services |
| 30 | U | SM/SP/SD Commencement services |
| 31 | U | Memorial Day (holiday) |

### June

| | | |
|---|---|---|
| 1 | U | Summer registration opens (standard-term programs) |
| 11 | SD | Spring Quarter ends (DDS, DH, IDP) |
| 11 | U | Spring Quarter ends (standard-term programs) |
| 12 | U | AH/BH/PH/SN/SR Baccalaureate services |
| 13 | U | BH/PH/SN/SR Commencement services |
| 14 | AH | Commencement services |
| 15 | SD | Standard-term grades due at 4:00 p.m. |
| 16 | U | Standard term grades due at 4:00 p.m. |
| 17 | U | Last day to register without a late fee (standard-term programs) |
| 18 | U | First day of $200 late registration fee (standard-term programs) |
| 21 | U | Summer Quarter begins (standard-term programs) |
| 28 | U | Last day to register with a late fee (standard-term programs) |

### July

| | | |
|---|---|---|
| 4 | U | Independence Day |
| 5 | U | Independence Day (observed) |
| 6 | U | Last day to drop without a "W" (standard-term courses) |
| 6 | SD | Summer Term begins (DDS, DH, IDP) |
| 27 | U | First 5-week Summer Session ends |
| 28 | U | Second 5-week Summer Session begins |

### August

| | | |
|---|---|---|
| 9-13 | SP | Orientation Week |
| 16 | U | Last day to drop with a "W" (standard-term courses) |
| 16 | SP | Block A begins |

### September

| | | |
|---|---|---|
| 3 | U | Second 5-week Summer Session ends |
| 3 | U | Summer Quarter ends (standard-term programs) |
| 6 | U | Labor Day (holiday) |
| 7 | U | Autumn registration opens (standard-term programs) |
| 9 | U | Standard-term grades due at 4:00 p.m. |
| 21 | SD | Grades due by 4:00 p.m. |
| 23 | U | Last day to register without a late fee (standard-term programs) |
| 24 | U | First day of $200 late registration fee (standard-term programs) |
| 27 | U | Autumn Quarter begins (standard-term programs) |
| 27 | U | University-wide orientation and Welcome Back Bash |

### October

| | | |
|---|---|---|
| 4 | U | Last day to register with a late fee (standard-term programs) |

| | | |
|---|---|---|
| 4-8 | SP | Block A exam week |
| 11-15 | U | Week of Renewal |
| 11 | U | Last day to drop without a "W" (standard-term courses) |
| 11 | SP | Block B begins |

### November

| | | |
|---|---|---|
| 24-26 | U | Thanksgiving Recess |
| 29 | U | Last day to drop with a "W" (standard-term courses) |
| 29 | U | Winter registration opens (standard-term programs) |

### December

| | | |
|---|---|---|
| 6-10 | SP | Block B exam week |
| 16 | U | Last day to register without a late fee (standard-term programs) |
| 17 | U | Autumn Quarter ends (standard-term programs) |
| 17 | U | First day of $200 late registration fee (standard-term programs) |
| 18–January 2 | U | Christmas Recess |
| 21 | SD | Standard-term grades due by 4:00 p.m. |
| 22 | U | Standard-term grades due by 4:00 p.m. |

## 2022

### January

| | | |
|---|---|---|
| 3 | SD | Winter Quarter begins (all programs) |
| 3 | U | Winter Quarter begins (standard-term programs) |
| 3 | SP | Block C begins |
| 10 | U | Last day to register with a late fee (standard-term programs) |
| 10–14 | U | Week of Renewal |
| 17 | U | Martin Luther King, Jr. Day (holiday) |
| 18 | U | Last day to drop without a “W” (standard-term courses) |

### February

| | | |
|---|---|---|
| 21 | U | President's Day (holiday) |
| 21-25 | SP | Block C exam week |
| 28 | U | Last day to drop with a "W" (standard-term courses) |
| 28 | SP | Block D begins |

### March

| | | |
|---|---|---|
| 7 | U | Spring registration begins (standard-term programs) |
| 14–17 | SD | Winter Quarter final examinations |
| 17 | SD | Winter Quarter ends (DDS, DH, IDP) |
| 18 | U | Winter Quarter ends (standard-term programs) |
| 19–25 | U | Spring Recess |
| 21–22 | SD | IDP orientation |
| 22 | SD | Grades due by 4:00 p.m. |
| 23 | U | Standard-term grades due by 4:00 p.m. |
| 24 | U | Last day to register without a late fee (Spring Quarter standard-term programs) |
| 25 | U | First day of $200 late registration fee (Spring Quarter standard-term programs) |
| 28 | SD | Spring Quarter begins (all programs) |
| 28 | U | Spring Quarter begins (standard-term programs) |

### April

| | | |
|---|---|---|
| 4 | U | Last day to register with a late fee (standard-term programs) |
| 4–8 | U | Week of Renewal |
| 11 | U | Last day to drop without a “W” (standard-term courses) |
| 25-29 | SP | Block D exam week |

### May

| | | |
|---|---|---|
| 23 | U | Last day to drop with a “W” (standard-term courses) |
| 28 | U | SD/SM/SP Baccalaureate Services |
| 29 | U | SD/SM/SP Commencement Services |
| 30 | U | Memorial Day (holiday) |
| 31 | U | Summer Registration Opens (standard-term programs) |

### June

| | | |
|---|---|---|
| 10 | U | Spring Quarter ends (standard-term programs) |
| 11 | U | SAHP/SBH/SN/SPH/SR Baccalaureate Services |
| 12 | U | SAHP/SBH/SN/SPH/SR Commencement Services |
| 15 | U | Standard-term grades due at 4:00 p.m. |
| 16 | U | Last day to register without a late fee (standard-term programs) |
| 17 | U | First day of $200 late registration fee (standard-term programs) |
| 20 | U | Summer Quarter Begins (standard-term programs) |
| 27 | U | Last day to register with a late fee (standard-term programs) |

### July

| | | |
|---|---|---|
| 4 | U | Independence Day (holiday) |
| 5 | U | Last day to drop without a “W” (standard-term courses) |
| 26 | U | 1st 5-week Summer Session ends |
| 27 | U | 2nd 5-week Summer Session begins |

### August

| | | |
|---|---|---|
| 15 | U | Last day to drop with a “W” (standard-term courses) |

### September

| | | |
|---|---|---|
| 2 | U | 2nd 5-week Summer Session ends |
| 2 | U | Summer Quarter ends (standard-term programs) |
| 5 | U | Labor Day (holiday) |
| 6 | U | Autumn registration opens (standard-term programs) |
| 8 | U | Standard-term grades due at 4:00 p.m. |

| | | |
|---|---|---|
| 22 | U | Last day to register without a late fee (standard-term programs) |
| 23 | U | First day of $200 late registration fee (standard-term programs) |
| 26 | U | Autumn quarter begins (standard-term programs) |
| 26 | U | University-wide orientation and Welcome Back Bash |

## October

| | | |
|---|---|---|
| 3 | U | Last day to register with a late fee (standard-term programs) |
| 10 | U | Last day to drop without a “W” (standard-term courses) |
| 10-14 | U | Week of Renewal |

## November

| | | |
|---|---|---|
| 23–27 | U | Thanksgiving Recess |
| 28 | U | Last day to drop with a “W” (standard-term courses) |
| 28 | U | Winter registration opens (standard-term programs) |

## December

| | | |
|---|---|---|
| 15 | U | Last day to register without a late fee (standard-term programs) |
| 16 | U | Autumn Quarter ends (standard-term programs) |
| 16 | U | First day of $200 late registration fee (standard-term programs) |
| 21 | U | Standard-term grades due at 4:00 p.m. |
| 19–January 2 | U | Christmas Recess |

# ABOUT THE UNIVERSITY

## University foundation

### History

Loma Linda University is part of the Seventh-day Adventist system of higher education. In 1905, the University (formerly College of Medical Evangelists) was founded—through a series of divine providences—at Loma Linda, California, by the Seventh-day Adventist Church. The School of Nursing began in 1905. In 1909, the College of Medical Evangelists received its charter as a medical school with the express purpose of preparing physicians who could meet the needs of the whole person. Both schools emphasized the need for healthful living as a part of medical care—a revolutionary concept in 1905.

The University was designated by the Seventh-day Adventist Church as a center for educating health professionals. The original schools—Nursing and Medicine—have been joined by Allied Health Professions, Behavioral Health, Dentistry, Pharmacy, Public Health, and Religion; and the Faculty of Graduate Studies. University curricula are approved by their respective professional organizations. From its small beginnings, the University has achieved widespread recognition, having sent more of its graduates into international service than has any other university. It remains committed to the vision of its founders and is sustained by its close association with the church.

From 1913 to 1962, the University operated within health facilities in two cities: Loma Linda and Los Angeles. In September 1962, all health professional education was consolidated at Loma Linda. In 1967, Loma Linda University Medical Center opened in its new three-tower facility —a landmark cloverleaf structure. The medical center continues on the cutting edge of health care, providing excellent service for patients and expanding educational opportunities for students.

In 1990, the Board of Trustees designated Loma Linda University a health sciences university—part of a complex that includes Loma Linda University Medical Center, faculty practice plans, and affiliated institutions. The University is a leader in the field of health sciences education, research, and service.

The most current campus census figures (Spring 2021) indicate that the core of the combined faculties consists of 2,175 full-time faculty. Part-time and voluntary faculty (1,287—largely clinicians in the professional curricula) bring the total to 3,462. As of Autumn Quarter 2020, 579 students from 78 countries outside the United States are represented in the enrollment of 4,514.

### A century of service

Today, the original 1905 property is part of an expanding health sciences campus that includes:

- Six medical facilities, licensed for approximately 1,076 beds—
  - Loma Linda University Medical Center (LLUMC), 1966;
  - Loma Linda University Children's Hospital (LLUCH), 1993;
  - Loma Linda University Medical Center East Campus Hospital (LLUECH), 2003; licensed under LLUMC as Loma Linda University Community Medical Center (LLUCMC), 1993—formerly known as Loma Linda Community Hospital;
  - Loma Linda University Heart and Surgical Hospital (LLUHSH), 2009;
  - Loma Linda University Behavioral Medicine Center (LLUBMC)—an acute psychiatric care facility—1991;
  - Loma Linda University Medical Center-Murrieta, 2011.
- Twelve Loma Linda University Health (LLUH) institutes, two LLUH-related research centers, and various school-related research centers (see Learning Environment (p. 20)).
- Loma Linda University (on campus, distance education, and online degree programs through the Schools of Allied Health Professions, Behavioral Health, Dentistry, Medicine, Nursing, Pharmacy, Public Health, and Religion; and the Faculty of Graduate Studies.
- San Bernardino Campus - San Manuel Gateway College.

| | |
|---|---|
| 1905 | School of Nursing |
| 1909 | The institution was named College of Medical Evangelists (CME) |
| 1922 | Department of Dietetics* |
| 1937 | School of Medical Technology* |
| 1941 | School of Physical Therapy* |
| 1945 | Radiologic Technology Program* |
| 1948 | School of Tropical and Preventive Medicine (reorganized as School of Public Health, 1964) |
| 1953 | School of Dentistry |
| 1954 | Graduate School (restructured as Faculty of Graduate Studies, 2005) |
| 1958 | Dental Hygiene Program |
| 1959 | Occupational Therapy Program* |
| 1963 | Medical Records Administration Program* |
| 1966 | Schools/Programs (see * above) consolidated as the School of Allied Health Professions |
| 1967 | Loma Linda University campus merges with La Sierra College |
| 1968 | Loma Linda University Medical Center dedicated |
| 1990 | Loma Linda and La Sierra campuses become two separate universities; Loma Linda University designated a health sciences university |
| 1997 | Loma Linda University and Medical Center (corporately linked together through Loma Linda University Adventist Health Sciences Center—LLUAHSC) |
| 2002 | School of Pharmacy |
| 2003 | School of Science and Technology |
| 2007 | School of Religion |
| 2012 | School of Science and Technology closed |
| 2012 | School of Behavioral Health |
| 2015 | Corporation name changed from Loma Linda University Adventist Health Sciences Center (LLUAHSC) to Loma Linda University Health (LLUH) |

# Vision and Mission

## Vision

Transforming lives through education, health care, and research

# Mission

Loma Linda University—a Seventh-day Adventist Christian, health sciences institution—seeks to continue the teaching and healing ministry of Jesus Christ "to make man whole" by:

**Educating** ethical and proficient Christian health professionals and scholars through instruction, example, and the pursuit of truth;

**Expanding** knowledge through research in the biological, behavioral, physical, and environmental sciences; and applying this knowledge to health and disease;

**Providing** comprehensive, competent, and compassionate health care for the whole person through faculty members, students, and alumni.

***In harmony with our heritage and global mission:***

- We encourage personal and professional growth through integrated development of the intellectual, physical, social, and spiritual dimensions of each member of the University community and those we serve;
- We promote an environment that reflects and builds respect for the diversity of humanity as ordained by God;
- We seek to serve a worldwide community by promoting healthful living, caring for the sick, and sharing the good news of a loving God.

***To achieve our mission, we are committed to:***

## Our students

Our primary responsibility is the education of students who come from diverse ethnic and cultural backgrounds, enabling them to acquire the foundation of knowledge, skills, values, attitudes, and behaviors appropriate for their chosen academic or health-care ministry. We nurture their intellectual curiosity. We facilitate their development into active, independent learners. We provide continuing educational opportunities for our alumni and professional peers. We encourage a personal Christian faith that permeates the lives of those we educate.

## Our faculty, staff, and administration

We respect our faculty, staff, and administration who, through education, research, and service, create a stimulating learning environment for our students. They contribute to the development of new understandings in their chosen fields. They demonstrate both Christian values and competence in their scholarship and professions.

## Our patients and others we serve

We provide humanitarian service through people, programs, and facilities. We promote healthful living and respond to the therapeutic and rehabilitative needs of people. We seek to enhance the quality of life for individuals in local, regional, national, and world communities.

## Our God and our Church

We believe all persons are called to friendship with a loving God, both now and throughout eternity. We support the global mission of the Seventh-day Adventist Church by responding to the need for skilled Christian health professionals and scholars. We seek to honor God and to uphold the values of the Seventh-day Adventist Church and its commitment to awakening inquiry. We are drawn by love to share the good news of God, expressed through the life and gospel of Jesus Christ, and to hasten His return.

*A Seventh-day Adventist health sciences institution*

# University Philosophy

As implied by its motto, "To make man whole," the University affirms these tenets as central to its view of education:

> God is the Creator and Sustainer of the universe;
>
> Mankind's fullest development entails a growing understanding of the individual in relation to both God and society;
>
> The quest for truth and professional expertise, in an environment permeated by religious values, benefits the individual and society, and advances the ministry of the Seventh-day Adventist Church.

"Wholeness means the lifelong, harmonious development of the physical, intellectual, emotional, relational, cultural, and spiritual dimensions of a person's life, unified through a loving relationship with God and expressed in generous service to others."

> *Quoted from "The Grace of Wholeness" by Gerald R. Winslow, Ph.D.,* SCOPE, *Spring 1999. Also quoted as the adopted definition of wholeness in the Loma Linda University Wholeness Inventory.*

# Core Values of Loma Linda University

The University affirms these values as central to its view of education:

## Compassion

**Value definition:** Reflects the love of God with respect, mercy, and empathy
**Behavioral attributes**

- Listens to others with kindness and concern
- Consistently treats others with courtesy
- Encourages an environment that is inclusive
- Anticipates and responds to the needs and suffering of others

## Excellence

**Value definition:** Exceeds expectations with effectiveness, reliability, and efficiency.
**Behavioral attributes**

- Carefully analyzes and balances all aspects of each decision
- Establishes high standards for exceptional Mission-Focused Learning and quality health care
- Participates in education and clinical care that is evidence-based
- Takes all necessary measures to ensure personal and collective safe practices

## Humility

**Value definition:** Puts self-importance aside for the greater good of others
**Behavioral attributes**

- Relates to others with selfless caring
- Learns from teachable moments
- Treats everyone with thoughtfulness and patience
- Lives life with a commitment to service

## Integrity

**Value definition:** Carries out actions with honesty and trustworthiness

**Behavioral attributes**

- Builds dependability through honest communication with others
- Respects personal and academic freedom
- Follows through on commitments
- Holds self and others accountable for actions

### Justice

**Value definition:** Commits to diversity, equity and inclusion
**Behavioral attributes**

- Considers how one's actions will affect others and the environment around
- Calls out actions that are in conflict with our values
- Supports efforts to remove systemic barriers
- Protects the dignity and worth of all individuals
- Works toward quality healthcare access for all

### Teamwork

**Value definition:** Collaborates to achieve a shared purpose
**Behavioral attributes**

- Recognizes, understands, and celebrates the unique strengths of all team members
- Shares knowledge and learning opportunities for team growth
- Recognizes the contributions of others and affirms their successes
- Participates willingly whenever needs arise

### Wholeness

**Value definition:** Loved by God, growing in health, living with purpose in community
**Behavioral attributes**

- Supports the spiritual value of faith-based education and health care
- Demonstrates a positive, peaceful, and hopeful attitude
- Promotes Christ's healing ministry through prayer, positive relationships, and a healthy lifestyle
- Lives a life that is morally sound and moderate in all things

# Institutional Learning Outcomes

Loma Linda University's institutional learning outcomes (ILOs) for students are assessed throughout the degree programs within the University appropriate for the discipline and degree. The Office of Educational Effectiveness works with these programs to guide their assessment. For more in-depth information about LLU's ILO assessment, please see <http://www.llu.edu/central/assessment>. (http://www.llu.edu/central/assessment/)

- **Critical thinking:** Students demonstrate critical thinking through examination of ideas and evidence before formulating an opinion or conclusion.
- **Information literacy**: Students demonstrate the ability to identify, locate, evaluate, utilize, and share information.
- **Oral communication**: Students demonstrate effective oral communication skills in English.
- **Quantitative reasoning**: Students demonstrate the ability to reason and develop evidence-based decisions using numerical information.
- **Written communication**: Students demonstrate effective written communication skills in English.

## Mission-focused learning outcomes

Loma Linda University's three mission-focused learning outcomes (MFLOs) are firmly rooted in its mission, vision, and values (p. 18). Because mission-focused learning is LLU's culture, the University is developing specialized assessment processes to ensure integration of these outcomes over time.

- **Wholeness**: Students integrate wholeness in their personal and professional lives: Loved by God, growing in health, living with purpose in community.
- **Values**: Students integrate LLU's Christ-centered values in their personal and professional lives.

# University Mace, Coat of Arms, and Seal

Traditionally, the ceremonial mace represents the authority vested in the highest officer of a governing body. In an educational institution, the authority symbolized by the mace is derived from respect for the authority of knowledge, and for the rights and value of the individual. Thus, the leader of an academic community assumes the obligation and challenge to ensure, for its members, a climate conducive to growth in knowledge and grace.

The construction of the ceremonial mace of Loma Linda University evokes further ideas. Two metals—bronze and aluminum—suggest the value of lessons both ancient and contemporary. Rather than lying prone—an instrument to be wielded, this mace stands upright in celebration of the human spirit. Open construction implies free exposure to questions, ideas, and conflict. Eight vertical supporting elements (at three points bound together representing strength and stability in unity) uphold a graceful oval that points outward to the universe—the province of inquiry.

Within the oval, the University seal appears to float unfettered. The basic design of the coat of arms and the seal of Loma Linda University—established in 1905 as the College of Medical Evangelists—is a contemporary modification of the shield, a heraldic device.

Within the seal, the Christian cross—a universal symbol—acknowledges the role of Jesus Christ as Savior and Redeemer.

The lighted torch—part of our logo since 1959—suggests the illuminating power of knowledge and the central role of the Holy Spirit in teaching and healing. It also references the institution's call to serve as a light to the world.

The ancient staff of Aesculapius, long associated with medicine—and part of our logo since the 1920s—represents in the modern and broad sense the combined services of all the healing arts and sciences.

Across the base of the shield, the open book symbolizes the Word of God—the foundation of all truth, the source of the Christ-centered commission, and the inspiration for all endeavor of humanity for humanity.

Framing the shield are, on the left, the branch of oak leaves and acorns, presented in ancient times to honor the civic contribution of one who had saved his brother-citizen's life; and, at the right, the laurel branch, presented to honor personal achievement. Shown together, the oak and laurel branches form a wreath—suggesting that the life-saving and life-

enhancing work of the health sciences brings with it an obligation to act honorably, courageously, and selflessly.

The emblems of the seal imply that one who has the privilege of learning also has the obligation of valor and honor. On the scroll below the shield is the motto—adopted in 1955 on the occasion of the fiftieth anniversary of this institution—"To Make Man Whole."

# A Unique University

Loma Linda University has always combined a devotion to academic excellence with a concern for spiritual values and a high sense of mission. The motto of the University, "To make man whole," illustrates the sense of destiny felt in the University community to act its part in God's ongoing plan for healing and restoring human beings to live with Him in wholeness, both now and in eternity.

While Loma Linda University has changed in many ways since its beginning in 1905, the biblical principles that provide its foundation have remained unchanged.

## Seventh-day Adventist heritage

Loma Linda University is owned and operated by the Seventh-day Adventist Church and has deep commitment to respecting the rich diversity of its student body. Students come from many different faiths, and respect and sensitivity for all people—regardless of their culture or ethnicity—are viewed as a part of true Christianity. This University has a tradition of religious liberty, and it highly respects students' religious values that differ from those of this academic community. The various perspectives of spiritually committed students are considered to be enriching to this campus and its educational environment.

## Our unique features

Two distinctive features of the Seventh-day Adventist Church, which are a part of the Loma Linda experience, become evident to first-time students. The first is the concept of Sabbath rest, which reminds us of God as Creator. Adventists realize this in part by celebrating Saturday as the Sabbath from sundown Friday to sundown Saturday. During these hours, University offices, laboratories, libraries, study halls, and recreation facilities are closed to give time for physical and spiritual renewal and worship.

A second distinctive feature worth noting is the emphasis on health and wellness. Students will be able to exercise in our recreation and wellness center, a health-and-fitness complex that received a national award for excellence in utility and design. Cafeterias on campus feature well-prepared vegetarian meals. Note also that the University holds that a drug-, alcohol-, and tobacco-free lifestyle is essential for achieving the goal of "wholeness." This means that all students agree to refrain from the use of tobacco, alcohol, and other "recreational" drugs while enrolled at the University.

# Spiritual Life

Worship experiences represent a critical dimension of the educational experience at Loma Linda University and are available to the student multiple times throughout the week. In addition to regular Friday evening and Saturday services, many class, school, club, and University activities include a component of worship and praise to God.

## University at Worship services

In keeping with the commitment of our mission, Loma Linda University students have special requirements, such as University at Worship attendance each Wednesday morning in the University Church. These programs provide a variety of opportunities to integrate faith and learning. Undergraduates who live in the residence halls are also expected to attend worships in the residence halls each week.

## Religion classes

Classes in religion are part of the core curriculum in each of the University's schools and programs. These classes deal with the study of the Bible, ethics, clinical ministry (which concentrates on ways to understand and meet the spiritual needs of patients in a manner that is noninvasive and individually appropriate), and a variety of other issues related to the student's field of study and personal spiritual journey.

All students who choose Loma Linda as their university make a commitment to conduct their lives in a manner that reflects their sense of responsibility for the honor and integrity of the University and of themselves as members of its community.

# Learning Environment

Loma Linda University is dedicated to creating a learning environment that promotes the lifelong pursuit of knowledge, wisdom, and skills used for selfless service to humankind. Through intentional educational strategies, Loma Linda University interweaves its vision, mission, and core values within its student learning outcomes. The University's mission of wholeness gives focus to a learning environment that balances mind, body, and spirit (psycho-social-physical-spiritual) and gives meaning to the motto of mission-focused learning. In this health-care institution, critical and analytical thinking skills in the health, behavioral, and natural sciences are blended with a commitment to spiritual and moral development.

Loma Linda University pledges to students, staff, faculty, alumni, and the local and global communities its commitment to upholding integrity, valuing diversity, engaging with the community in service learning scholarship, and honoring the process of ongoing self-assessment for the purpose of continuous quality improvement. The University and each of its schools, programs, and classes provide clearly defined student learning outcomes and measurable performance indicators to create a learning atmosphere that is clear and focused.

The University is engaged in systematic academic program review. Curricular maps are maintained for each program to assure alignment between student learning outcomes and planned academic activities. Program review follows carefully developed schedules as outlined in school-specific assessment matrices.

Loma Linda University is committed to using assessment data to guide academic and fiscal master planning for the University.

The total resources of the University offer a wealth of opportunity to the student with initiative and a willingness to develop individual capacity to the fullest extent. The academic resources, affiliated clinical facilities, and community agencies constitute a rich educational environment both in classroom instruction and in guided experience. Major facilities utilized for clinical affiliations and internships include the University Medical Center; the Jerry L. Pettis Memorial Veterans Medical Center; and numerous other hospitals and agencies located in the Redlands, San Bernardino, Riverside, and Los Angeles areas; as well as throughout the

United States and abroad. In addition, students find varied opportunities for service and learning in the immediate University community, in clinical and research electives, and in diverse volunteer programs.

# University student mission-focused learning opportunities

## SAC Health System (SACHS)

SAC Health System (SACHS) is a federally qualified health center (FQHC) affiliated with Loma Linda University Health, and is the largest specialty-based and single-site teaching FQHC in the nation. It provides low-cost health services at nine sites in the Inland Empire, including school-based clinics in San Bernardino and Rialto as well as clinics within Coachella Valley Rescue Mission, the largest homeless shelter in Riverside County. The new San Bernardino campus and the established SAC Norton campus are the main sites for clinical education and training. These clinical facilities provide educational opportunities for more than 400 students and 225 residents from Loma Linda, enabling them to become involved with patient care and community initiatives. This clinic network provides a wide spectrum of primary and specialty medical and dental care as well as mental health services, and is an ideal site for working cross-culturally to develop an understanding of diverse populations. Patient families experience tremendous obstacles to care, including homelessness, lack of insurance, education, transportation, as well as high rates of violence, crime, poverty, cultural challenges, and other barriers. Approximately 98 percent of patients report income levels below the federal poverty line, 79 percent are minorities, and 5 percent are homeless. The San Manuel Gateway College is an integral part of the San Bernardino campus, providing certificate-level programs to local high school graduates as a way to enter the health-care workforce. Loma Linda University students interact with and assist in these training programs.

## Community-Academic Partners in Service (CAPS)

Community-Academic Partners in Service (CAPS) is a Loma Linda University program directed by the Institute for Community Partnerships. The program serves as the on-campus hub for connecting students and staff with volunteer opportunities in the San Bernardino area that are mutually beneficial and sustainable, that meet needs expressed by the local community, and that develop in students a lifelong passion for service. The numerous short-term and long-term community-engagement opportunities range from mentoring high school students, after-school tutoring, health education, college preparation, adult job skills, children's ministry, and a family soccer league. In addition to directly coordinating several programs, CAPS also works closely with local organizations to provide volunteer support for programs and events, and also facilitates students' service learning and community service placement needs.

To serve, students create a volunteer interest profile and list interests and availability on the CAPS online volunteer system. They can sign up for upcoming service opportunities, or they will be notified when opportunities in line with their interests are available. More information on volunteer opportunities can be found by visiting the CAPS website: <caps.llu.edu (http://caps.llu.edu/)>; by calling (909) 651-5011; or by visiting the CAPS office in the Councilors Student Pavilion, Room 1402.

# Del E. Webb Memorial Library

The main library supporting LLUH is the Del E. Webb Memorial Library. The library began in 1907 as a small collection in a room of the old Loma Linda Sanitarium. The growing collection moved to its own building in 1953. In 1981, funded by a Del E. Webb Foundation grant, construction increased the floor space of the library to 87,670 square feet. As of the fall of 2020, the recorded statistics of the library collection included 138,037 physical book titles; 16,097 ebooks; 4,954 physical serial titles; 18,228 electronic serial titles; and 71 databases.

For more detailed statistical information, consult the library's website at <https://library.llu.edu/about/statistics (https://library.llu.edu/about/statistics/)>.

## Library mission

The mission of the Del E. Webb Memorial Library is to stimulate and support the information needs of the University's instructional, research, and service programs. To this end, the library provides a full range of information support services and resources including, but not limited to, collaborative and flexible information literacy instruction, information technology training, reference, specialized research support, document delivery, traditional print and digital book and journal collections, a computer laboratory, and welcoming physical spaces for group and individual study.

## Access to resources

The Del E. Webb Memorial Library catalog (http://catalog.llu.edu/) provides access to all of the library's resources. In addition to the collections of the Del E. Webb Memorial Library, other collections include the Ethics Library, Religion Library, and those belonging to the Geoscience Research Center.

The library participates in national and regional networks such as the National Network of the Libraries of Medicine (NNLM), founded by the National Library of Medicine. The national network is divided into eight regions, one of which is the Pacific Southwest Region. The library is the designated Resource Library for the NNLM in this area of the Pacific Southwest Region. As a resource library for the NNLM, the library maintains deep information resources in the health sciences and further expands its offerings through multiple cooperative agreements with varied local and national groups such as Southern California Electronic Library Consortium (SCELC) and Link+ (http://linkencore.iii.com/), a book-request service and union catalog of over 60 libraries throughout California and Nevada.

## Department of Archives and Special Collections

The Department of Archives and Special Collections is the central repository for information on the history of Loma Linda University, Adventist health work around the globe, the history of the health sciences, and the history and development of the Seventh-day Adventist church. Included in the department's collections are the congressional papers of Jerry L. Pettis and Shirley N. Pettis. Jerry Pettis was the first Seventh-day Adventist congressional representative and a former College of Medical Evangelists employee. Shirley N. Pettis assumed her husband's congressional seat after his tragic death in 1975. Through departmental purchases and donations large and small, the department now houses one of the significant research collections of Adventist source materials worldwide. Recent collecting efforts made possible by the generous James F. Barnard Endowment have focused on building on an already substantial collection related to biblical prophecy. The collections house materials in all formats: print, microform, sound recordings, photographic, manuscript, and digital.

The department houses significant collections of materials in all areas of the health sciences, in multiple languages, including a significant collection in the history of nursing that came as a donation from the New York Academy of Medicine. Recent years have focused on

areas where Loma Linda University, the history of the health sciences, and the Seventh-day Adventist Church intersect, such as nineteenth century health reform, diet, vegetarianism, the development of Adventist sanitariums, hydrotherapy, and other relevant topics.

### University Archives

The purpose of the original Historical Records Office was to preserve those archival records deemed important to the founding and history of the College of Medical Evangelists. This work is being continued by the official University Archives, which is also under the direction of and housed within the Department of Archives and Special Collections. Loma Linda University Archives houses official documents and files for all Loma Linda University schools, departments, administrative offices, and other entities. This includes board minutes, president's papers, provost/chancellor files, University committees, departmental files, photographs of University events, people, buildings, and more. The archives collect and preserve copies of all University publications, such as bulletins, course catalogs, journals, periodicals, departmental newsletters, flyers, posters, and more. Additionally, the archives maintain the copy of record of all theses and dissertations produced by Loma Linda University students. The archives actively seeks the papers of current and former faculty, staff, and students that add to the story of Loma Linda University Health.

### Ellen G. White Estate Branch Office

The Ellen G. White Estate Branch Office, while a separate organizational entity, is physically located within the University Libraries, Del E. Webb Memorial Library, and, along with the Department of Archives and Special Collections and University Archives, forms part of the Heritage Research Center. The mission of the branch office is to preserve, promote, guide, and facilitate an understanding of Ellen G. White's life, writings, and role within the history of the Seventh-day Adventist church and Loma Linda University. Ellen G. White was one of the founders of the College of Medical Evangelists and was firmly committed to seeing the Adventist medical institution grow, thrive, and fulfill the mission of continuing the teaching and healing ministry of Jesus Christ. Thus, her legacy is an important part of the University's history and future developments. The branch office houses and makes accessible Ellen White's letters, manuscripts, articles, and published works.

## Learning resources

On the campus, many learning resources for the student offer various opportunities for academic study and research. Each school center is listed with its most closely affiliated school.

### LLUH (Loma Linda University Health) institutes

- Behavioral Health Institute
- Cancer Center (Institute)
- Global Health Institute
- Institute for Community Partnerships
- Institute for Genetics and Translational Genomics
- Institute for Health Policy and Leadership
- Loma Linda International Heart Institute
- Perinatal Institute
- Primary Care Institute
- Rehabilitation, Orthopaedic, and Neurosciences Institute
- Resiliency Institute for Childhood Adversity
- Transplant Institute
- Wholeness Institute

### LLUH centers

- Center for Christian Bioethics
- Center for Global Surgery
- Center for Whole Person Care

### LLUMC centers

- Advanced Lung Disease Center
- Comprehensive Stroke Center
- Digestive Disease Center
- James M. Slater, M.D., Proton Treatment and Research Center
- Spine Center

### LLU centers

- Center for Dental Research (School of Dentistry)
- Center for Environmental Studies and Stewardship (School of Medicine)
- Center for Health Disparities and Molecular Medicine (School of Medicine)
- Center for Health Promotion (School of Public Health)
- Center for Health Research (School of Public Health)
- Center for Interprofessional Education and Practice (Provost)
- Center for Joint Replacement (School of Medicine)
- Center for Neuroscience Research (School of Medicine)
- Center for Research Imaging (School of Medicine)
- Lawrence D. Longo, M.D., Center for Perinatal Biology (School of Medicine)
- Neurosurgery Center for Research, Training, and Education (School of Medicine)
- William Johnsson Center for Understanding World Religions (School of Religion)

# Admission Policies and Information

## Personal qualities

Loma Linda University was established to provide professional health education in a Christian environment, preparing well-qualified, dedicated health science professionals committed to fulfilling the mission of the university to serve humanity. Students at Loma Linda University are expected to uphold the Christian ethical and moral standards of this Seventh-day Adventist Church-related institution while on and off campus.

The university's emphasis on health and the health professions, as well as the practices of the supporting church, preclude admission of applicants who use tobacco, alcoholic beverages, or narcotics. The rights of the individual are recognized and respected; however, any conduct that is contrary to the principles governing a healthful and moral lifestyle is not acceptable for a Loma Linda University student. The prospective student has the freedom to accept or reject these principles and practices prior to applying. Once application is made to this university, the applicant has chosen to abide by these principles and practices.

In selecting students for entrance to programs in the schools, admissions committees look for evidence of personal integrity, academic achievement, healthful lifestyle, self-discipline, self-direction, and service to others. An applicant accepted to a school must possess capabilities to complete the full curriculum in the allotted time at the levels of competence required.

While preference is given to Seventh-day Adventist Church members, anyone interested in studying at Loma Linda University and willing to live by the institution's standards is encouraged to apply.

Many programs require faculty interviews. Acceptance of an applicant into any curriculum is contingent upon the recommendation of the department conducting the program.

## Applications and admissions

### Where to apply

It is important to know the specifics of the application process and to begin this process well in advance of the date of anticipated or desired entrance. Application procedures and application materials can be found online at <www.llu.edu/apply (http://www.llu.edu/apply/)>.

### Application review process

All completed applications are reviewed by the appropriate admissions committee, which recommends the final decision regarding acceptance.

### Applicant's records

The application and all supporting records and documents become the property of the university.

## Application deferral

Applicants are accepted for a specified entering term. If the applicant does not enter the program at the time stated for admission, the application will become inactive unless the school receives a written request to defer the application. Not all programs permit an applicant to defer an application; however, for those programs for which this is permitted, an application may not be deferred for more than one year. After one year, a new application must be submitted. Accepted applicants who wish to reactivate their acceptances at a later date must apply to the school for reactivation. Previous acceptance does not guarantee acceptance at a later time. Individuals must meet admission and graduation requirements that are in effect for the school year during which they first register.

## Re-entrance

See Continuous enrollment policy (p. 36).

## Combined degree programs

Information regarding combined degree programs, their curricula, pre-entry requirements, distribution of instruction, graduation requirements, finances, and additional information may be obtained from the school and program directors responsible for the programs. Options are found in the combined degrees (p. 403) section of the catalog.

## Admissions classifications

Applicants are admitted under one of three classifications and must be approved for acceptance by the department(s) in which they propose to do their major concentration. Acceptance into a specific program is required before any credit earned can be applied to a degree or certificate.

### Regular

Regular status is given to a student who has met all entrance requirements and is registered for a standard course of study leading toward a degree or certificate in one of the schools of the university.

### Provisional

Provisional status may be given to a student who has been accepted for admission but has not yet received regular status, either because of qualitative or quantitative deficiencies in the academic record.

### Nondegree

Nondegree status may be granted to a student who has not been admitted to a degree or certificate program, but who is registered for selected courses in one of the schools of the university. Nondegree students are limited to a total of 12 units (cumulative) of courses that are applicable to a degree program at this university.

## Admission requirements

The following components of the application process are university admission requirements. Additional school and program specific admission requirements may be found in the program-specific pages of this catalog.

### Online application

The LLU application is only available online and can be found at <llu.edu/apply (http://www.llu.edu/apply/)>.

### Letters of recommendation

Three letters of recommendation are required. Some programs specify individuals from whom these recommendations should come. For programs requiring specific recommenders, information can be found on the respective program pages of this catalog.

### Official transcripts

The university accepts only official transcripts sent directly to Loma Linda University from the college, university, or high school issuing it. Transcripts submitted by the student are not considered official.

Applicants not applying through a central application service (e.g., AAMCAS, AADSAS, OTCAS, CASPA) must provide official transcripts of all postsecondary education prior to offers of admission; including those that are not yet final. International applicants (non-U.S. citizens and non-permanent residents) must meet all admission requirements for the chosen program before an offer of acceptance can be issued, whether or not the program uses a central application service. Official final transcripts documenting completion of all coursework must be submitted to the University immediately upon completion.

Applicants to undergraduate programs of the university are required to furnish evidence (transcripts, GED, CHSPE, or equivalent) of completion of high school in order to be granted admission. The final transcript must include the date of graduation or completion. Applicants who hold an associate's degree from a regionally accredited college/university upon admission do not need to furnish a high school transcript, unless required to validate specific coursework. Applicants expecting an associate's degree to be awarded before matriculation at Loma Linda University must provide documentation (e.g., letter sent from registrar to the university) showing expected degree completion. Otherwise, evidence of completion of high school will be required for acceptance.

Final transcripts showing the awarding of a bachelor's degree are required for applicants to programs that require a bachelor's degree. If the degree is not yet posted on the transcript the applicant must submit documentation (e.g., letter mailed from registrar to the university) verifying completion of bachelor's degree prior to matriculation. Continuing enrollment is contingent upon the receipt of all official final transcripts.

Degrees earned from a recognized degree-granting college or university accredited by a regional association, including those institutions which have been awarded “candidacy” status by a U.S. regional accrediting body during the period the institution held this status, and degrees earned at an international institution recognized as a degree-granting institution by its government.

Applicants who have attended international schools are required to submit official transcripts (mark sheets) in the original language, which convey the grades and credits earned in each subject; and an English translation of their transcripts, if not already in English.

Official education transcripts (or mark sheets), degrees earned from international institutions, or professional credentials must be sent to an evaluation center approved by Loma Linda University. The specified center reports the evaluation results directly to the Office of University Admissions.

Transcripts and evaluation results received by the university become the property of the university and will not be released to the student or forwarded to any other institution.

### English proficiency

Regardless of nationality or citizenship, an applicant whose native language is not English or whose secondary education has been obtained outside the U.S. is required to pass an approved test of English proficiency. Additionally, any applicant whose English competency is uncertain in regards to their professional success at Loma Linda University may be required to pass a test of English proficiency. The minimum required score for each of the following tests is:

- International English Language Testing System (IELTS) – 6.5
- Michigan English Language Assessment Battery (MELAB) – 77
- Pearson Test of English-Academic (PTE Academic) – 60
- International Test of English Proficiency, Academic-Plus (iTEP Academic-Plus) – 3.5
- Duolingo English Test (DET) – 105
- Test of English as a Foreign Language (TOEFL), internet-based – 80
- Test of English as a Foreign Language (TOEFL), paper-based – 550

The TOEFL score is valid for two years from the test date. If it has been more than two years since the examinee last took TOEFL, the test must be taken again to have the scores reported. Visit the TOEFL website at <http://www.ets.org/toefl (http://www.ets.org/toefl/)> for the most up-to-date information and examination registration.

## Pre-entrance requirements

Some programs require official pre-entrance examination results. Specific instructions are available online.

### Health care

Operating under Loma Linda University Health, the Center for Health Promotion's Student Health Service is committed to providing quality health care to the students within our University community. Our physicians and staff are dedicated to promoting a lifestyle that encourages a balance of physical, spiritual, emotional, and social well-being.

For needs that arise while a student is enrolled at Loma Linda University, Student Health Service is the primary source of care. Potential students should complete any routine medical and dental care and/or elective surgery needs prior to arriving on campus.

### Pre-entrance health requirements

Prior to enrolling in classes, newly admitted students must fulfill specific health requirements, as outlined on the New Student Health Requirements page. Unmet requirements are listed in the New Student Portal. Loma Linda University is committed to protecting the health of our students, the University community, and our patient population. These health requirements not only promote health, but also accustom new students to the responsibilities of a health-care professional. A completed pre-entrance health requirements form (available on the web at <http://home.llu.edu/new-student-health> (http://home.llu.edu/new-student-health/)), with all necessary documentation, should be submitted at least three weeks prior to the beginning of registration in order to register or attend classes.

- MMR (measles, mumps, rubella): Documentation of two MMR vaccinations given after age 1, or submitted positive blood titer reports for each disease (must be quantitative IgG antibody titers).
- Tuberculosis Screening:
    1. All students will complete the check boxes on the “TB screening form” within the pre-entrance health requirements form.
    2. All students must provide TB skin test results or IGRA results (quantitative or qualitative). The date of testing must be no more than six months prior to the start of the program.
        a. For negative results, submit current documentation.
        b. For positive results, submit PPD or IGRA documentation and a copy of a chest-x-ray report taken within the past year.

- Tdap (tetanus, diphtheria, pertussis): A Tdap dose within the past ten years *or* a Tdap dose within the past ten years and 1 dose of Tdap after age 18 years.
- Varicella (chickenpox): Documentation of two Varicella vaccinations given after age 1, *or* submit a positive blood titer report (must be quantitative IgG antibody titer).
- Hepatitis B: Documentation of a complete series (three immunizations required), *or* submit a positive blood titer report (must be quantitative hepatitis B surface antibody).
- Please note: Some schools will require titers in addition to immunizations.

For further information, visit the Student Health Service website at <http://home.llu.edu/student-health (http://home.llu.edu/student-health/)> or contact Student Health Service at 909/558-8770. For additional information on the communicable diseases policy, consult the *Student Handbook* at <llu.edu/student-handbook (http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf)>, University Policies: Communicable Disease Transmission Prevention..

### Background check

After students are accepted and confirmed, they will receive a link on their New Student Portal that will allow them to get a required university-specific background check. Other background checks will not be accepted.

### Advisement

Upon admission into a degree program, each student is assigned an academic advisor who serves as the student's first line of communication in addressing professional and personal successes and potential challenges.

Academic advisors are prepared to discuss career opportunities, academic policies, academic problems, curricula, and personal circumstances.

It is the student's responsibility to consult with their advisor in planning the program of study. Thereafter, advisees should schedule counseling sessions with their advisors to monitor progress and assure completion of degree requirements. When questions arise relating to curriculum or policy requirements, students should always refer first to the catalog and their own program curriculum outlines. Next, they may seek counsel from their academic advisor. Questions arising after discussion with the advisor should be referred to the department chair or the academic dean.

Orientation and advisement sessions are scheduled for all new students. These sessions provide general guidance regarding student services, health care, library resources, safety and security, registration procedures, and academic policies.

## International students

International applicants (non-U.S. citizens and non-U.S. permanent residents) must meet all admissions requirements for the chosen program before an offer of acceptance can be issued. This includes all official postsecondary transcripts (or mark sheets) and degree certificates, official evaluations of non-U.S. coursework, English proficiency, and admission examination requirements, as detailed below.

After acceptance into the chosen program, the Office of International Student and Scholar Services will contact international applicants and guide them through the appropriate procedures for obtaining student visas, which include providing evidence of their financial ability to meet estimated living expenses and all financial obligations to the University that will occur during their programs. For questions, please contact International Student and Scholar Services at 909/558-4955.

### Pre-entrance examination results

All official pre-entrance test scores (e.g., TOEFL, GRE) as required by each program must be sent directly to the Office of University Admissions by the testing organization.

### International evaluations

All international (non-U.S.) transcripts, including high school, must be submitted to one of the LLU-approved evaluation services. See <llu.edu/central/apply/intltrans.page (http://www.llu.edu/central/apply/intltrans.page)> for a list of approved companies.

### Finances and employment

United States immigration regulations and Loma Linda University require that international students must be prepared to provide an advance deposit as well as documentation that additional funds will be forthcoming to meet school expenses. The deposit will be held by the University during the program of study and will be applied to the last quarter's tuition charge. Alternatively, the deposit may be refunded, less any outstanding balance on the account, if the student is denied a visa or terminates their program.

Scholarships and assistantships for international students are scarce. The student should contact the Loma Linda University Financial Aid office and speak with a financial aid advisor regarding availability and application information.

F- and J-visa international students must obtain written authorization from International Student and Scholar Services before accepting any on-campus employment. Off-campus employment requires prior issue of a work permit by the U.S. Citizenship and Immigration Services. F- and J-visa students must limit their employment to 20 or fewer hours per week while registered for courses and while classes are in session. Regulations allow full-time work (40 hours or fewer per week) during school breaks and summer vacations (if a student's program allows summer quarters off). For questions, please call International Student and Scholar Services at 909/558-4955.

### Visas

#### F-1 student visas

Loma Linda University is authorized by the United States Department of Homeland Security to issue F-visa applications (i.e., I-20 forms). The F-1 student visa is the visa of choice for most international students coming to Loma Linda University. This visa allows some non-degree study (certificates and internships). Degree-earning students are subject to study load requirements and are allowed limited on-campus employment.

The I-20 is issued after a student has:

- Been accepted into a program and all official transcripts (mark sheets) have been appropriately evaluated and received by the University;
- Paid the advance deposit, as required by their program;
- Documented their financial plan for the chosen program.

International Student and Scholar Services can be contacted at 909/558-4955 for further information regarding the F-1 student visa and regulations governing this visa.

### J-visa exchange program

Loma Linda University has an approved exchange visitor program under the U.S. Department of State. This J-visa exchange program is authorized to sponsor/host degree-earning students, non-degree (continuing education) students, student interns, short-term scholars, visiting professors, and research scholars. A J-visa application form (DS-2019) is issued after an exchange visitor has been accepted into a program, scholar position, or professor position; and documented their financial plan (including health insurance for the J-1 and all J-2 dependents).

Loma Linda University also hosts exchange visitors who are sponsored by other organizations (e.g., Fulbright scholars). As a hosting institution, Loma Linda University has limited authority over these exchange visitors since the authority resides with the sponsoring organization.

Under current exchange visitor regulations, J-2 dependents are allowed to enroll part or full time at Loma Linda University. Also, their credits earned can either be degree or non-degree applicable.

J-1 exchange visitors are allowed to work—but employment guidelines differ, depending on the exchange category. Contact International Student and Scholar Services at 909/558-4955 for further information and regulations governing the exchange visitor program.

### Other visas

International students may enter the U.S. on a wide variety of visas. However, a visa may have to be changed before a student can commence academic studies at this University. For further information regarding regulations and study options for specific visa types, contact International Student and Scholar Services at 909/558-4955.

## Transfer students

International students currently attending other schools in the United States who have either an I-20 or a DS-2019 and who wish to attend Loma Linda University must complete a school-to-school transfer. The timing of a transfer is critical in order to maintain visa status; therefore, it is important to consult with an international advisor at each school as soon as the acceptance letter is received.

## Study load

Both the F- and J-student-visa regulations require the successful completion of a full study load during each quarter of every academic year (as defined by each program). A minimum of 12 units per quarter is usually considered full time for an undergraduate program; eight units per quarter is considered full time for a graduate program. In any quarter in which there will be a reduced study load, prior approval is needed from an international student advisor in International Student and Scholar Services.

# Division of General Studies

## General education requirements

The Division of General Studies offers general education courses that contribute to the fulfillment of requirements that apply to the Bachelor of Science degree programs in the Schools of Allied Health Professions, Dentistry, and Nursing. In addition, these schools offer a variety of general education courses that are open to students across all schools. The Division of General Studies also provides oversight for courses that may be selected to enrich a student's academic experience but that do not fulfill Loma Linda University general education requirements.

## Loma Linda University philosophy of general education

As a Seventh-day Adventist health sciences institution, Loma Linda University seeks to exemplify a life of service and sensitivity beyond the requirements of academic excellence within a professional discipline. With its rich spiritual heritage, the University places special emphasis on educating its students for a life of service in a global community.

General education at Loma Linda University consists of courses, lectures, programs, and activities coordinated with the intent to integrate faith and learning. In addition to the basics of cultural heritage and diversity, scientific inquiry and analysis, communication, and wellness, the curriculum emphasizes the University's spiritual heritage; as well as moral and ethical decision making that is grounded in Christian principles.

Thus, a general education is considered to be the cornerstone upon which students begin cultivating their abilities to:

1. Present the fundamental Christian principles and Adventist heritage that undergird Loma Linda University;
2. Make informed moral and ethical decisions;
3. Incorporate critical thinking skills into personal and professional experience;
4. Value individuals with diverse capabilities and ideological, ethnic, gender, and generational perspectives;
5. Communicate effectively;
6. Undertake scientific inquiry and analysis;
7. Appreciate the contributions of the arts and humanities to society;
8. Examine the historical basis of the health sciences professions;
9. Develop self-awareness through balance of mental, physical, social, and spiritual aspects of daily living;
10. Model servant leadership in health care as exemplified by Jesus of Nazareth.

The Loma Linda University philosophy of general education creates a unique learning environment committed to the concept of human wholeness. Faculty members are selected who embrace the spirit as well as the specifics of general education. In addition, they purpose to extend these general education goals into all aspects of University life—from the residence hall programs to the core of professional studies—thus adding an invisible curriculum to the required course offerings. This spirit, in tandem with the specifics of a liberal arts education, inspires students to achieve academic excellence, value diversity, pursue lifelong learning, and live to bless others.

## Loma Linda University criteria for general education courses

- The course assists the health sciences student in cultivating abilities in one or more of the preceding 10 aspects described in the Loma Linda University philosophy of general education for baccalaureate degrees.
- The primary focus of the course contributes to the relevant knowledge and understanding of a subject area within one of the following domains described in the Loma Linda University general education requirements for baccalaureate degrees.
- The course is based upon appropriate prerequisites, particularly when offered at the upper division level.

- The course is open to all baccalaureate degree students of Loma Linda University for general education credit.
- Courses transferred to Loma Linda University for general education credit from another accredited institution must fall within one of the domains described in Loma Linda University's general education requirements for the baccalaureate degree.

# Course requirements

## Loma Linda University general education requirements (68 quarter units)

In harmony with its commitment to wholeness, Loma Linda University requires all students graduating with a baccalaureate degree to complete a minimum of 68 quarter units of general education, which are integrated into the entire undergraduate program. Requirements are organized into five domains, as outlined in the following:

### Domain 1: Religion and Humanities (28–32 quarter units)

**The study of religion** must include an average of four units of religion coursework for every 48 quarter units earned while attending a Seventh-day Adventist college or university. For students who did not earn all their credit at a Seventh-day Adventist college or university, the required religion units will be prorated based on the number of credits earned at a Seventh-day Adventist college or university (i.e., one unit for every 12 units taken at a Seventh-day Adventist institution). All students earning a bachelor's degree, including those who have met the preceding requirements, must take at least one course in religion from Loma Linda University (see following paragraph). All required credits in religion must be earned from a Seventh-day Adventist institution, but it is strongly recommended that students at other institutions include some religion as part of the overall requirement for Domain 1.

One religion course dealing with the spiritual heritage of the philosophy and mission of Loma Linda University is required of all graduates and must be taken from Loma Linda University. Courses that fulfill this requirement are: RELT 406 Adventist Beliefs and Life, RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, and RELT 437 Current Issues in Adventism.

Students whose required units in religion from a Seventh-day Adventist institution have been prorated (reduced) are encouraged to make up the additional units in Domain 1 (28 quarter units) with further religion courses and/or additional units in humanities from Loma Linda University.

**The study of humanities** must include a minimum of 12 units. The credits in humanities must be selected from at least three of the following areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed four quarter units), philosophy, or general humanities elective.

### Domain 2: Scientific Inquiry and Analysis (24–32 quarter units)

Scientific inquiry and analysis encompass both the natural and social sciences. The study of natural sciences must include a minimum of 12 units. The units in natural sciences must be selected from two of the following content areas: biology, chemistry, geology, mathematics, physics, and statistics. At least one natural science course must include a lab component.

The study of social sciences must include a minimum of 12 units. Units in social sciences must be selected from two of the following content areas: anthropology, economics, geography, political sciences, psychology, and sociology. One course (or components integrated into several courses) dealing specifically with issues of human diversity is required.

### Domain 3: Communication (9–13 quarter units)

Coursework in communication must include a complete sequence in English composition that meets the baccalaureate degree requirements of a four-year college or university. Other areas of study in communication may include courses in computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2–6 quarter units)

To encourage the pursuit of lifelong leisure activities and wellness, the study of health and wellness must include at least two separate physical activity courses totaling a minimum of one quarter unit; and one course in personal health or nutrition. Additional units may include other areas of health, nutrition, and physical fitness.

### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units.

# LLU courses

General education courses offered by the schools are listed below in Domains 1–4. Courses are also available through the Online Consortium of Independent Colleges and Universities (OCICU (p. 562)).

Descriptions for general education courses are available in Section IV—The Courses—of this CATALOG.

## Domain 1: Religion and Humanities (28–32 quarter units)

| | | |
|---|---|---|
| **Humanities** | | |
| AHCJ 225 | History of Radiation and Imaging 1890-1940 | 3 |
| AHCJ 226 | History of Radiation and Imaging 1940-Present Day | 3 |
| AHCJ 324 | Psychosocial Models and Interventions | 2 |
| AHCJ 422 | History of Disability | 3 |
| CMSD 217 | Beginning Sign Language | 3 |
| **Religion** | | |
| RELE 455 | Christian Understanding of Sexuality | 2 |
| RELE 456 | Personal and Professional Ethics | 3 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RELR 404 | Christian Service | 1,2 |
| RELR 408 | Christian Perspectives on Marriage and the Family | 2 |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RELR 427 | Crisis Counseling | 2 |
| RELR 429 | Cultural Issues in Religion | 2 |
| RELR 475 | Whole Person Care | 2 |
| RELT 404 | New Testament Writings | 2 |
| RELT 406 | Adventist Beliefs and Life | 3 |
| RELT 415 | Christian Theology and Popular Culture | 2 |
| RELT 416 | God and Human Suffering | 2 |
| RELT 423 | Loma Linda Perspectives | 2 |
| RELT 436 | Adventist Heritage and Health | 2 |
| RELT 437 | Current Issues in Adventism | 2 |
| RELT 440 | World Religions | 2 |
| RELT 464 | Paul's Message in Romans | 2 |

### Domain 2: Scientific Inquiry and Analysis (24–32 quarter units)

| | | |
|---|---|---|
| **Natural sciences** | | |
| AHCJ 101 | Introductory Chemistry | 4 |
| AHCJ 102 | Introductory Organic Chemistry | 4 |
| AHCJ 103 | Introductory Biochemistry | 4 |
| AHCJ 111 | Introductory Physics | 4 |
| AHCJ 112 | Introductory Physics | 4 |
| AHCJ 241 | Microbiology | 2.5 |
| AHCJ 242 | Microbiology | 2.5 |
| AHCJ 250 | Human Anatomy and Physiology I | 5 |
| AHCJ 251 | Human Anatomy and Physiology II | 5 |
| AHCJ 402 | Pathology I | 4 |
| AHCJ 403 | Pathology II | 3 |
| AHCJ 418 | Physiology I | 4 |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| CMSD 376 | Anatomy of Speech-Hearing Mechanism | 4 |
| DNHY 390 | Introductory Statistics | 2 |
| **Social sciences** | | |
| AHCJ 228 | Hispanic Culture for Allied Health Professionals | 4 |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| AHCJ 315 | Psychosocial Aspects of Health Care | 3 |
| AHCJ 323 | Economics and Business Management | 3 |
| AHCJ 324 | Psychosocial Models and Interventions | 2 |
| AHCJ 328 | Wholeness Portfolio I | 1 |
| AHCJ 331 | Human Resource Management | 3 |
| AHCJ 407 | Financial Management | 2 |
| AHCJ 498 | Wholeness Portfolio II | 1 |
| ANTH 315 | Cultural Anthropology [1] | 4 |
| DNHY 414 | Personal Finance | 2 |
| PSYC 101 | Introduction to Psychology | 4 |
| PSYC 226 | Life-Span Development | 4 |
| PSYC 305 | Psychological Foundations of Education | 4 |
| PSYC 460 | The Exceptional Individual | 3 |
| PSYC 479 | Human Neuropsychology | 4 |

[1] Fulfills cultural diversity requirement

### Domain 3: Communication (9–13 quarter units)

| | | |
|---|---|---|
| AHCJ 308 | Professional Communications | 1-2 |
| AHCJ 426 | Introduction to Computer Applications | 2 |
| AHCJ 465 | Seminars in Leadership | 2 |

### Domain 4: Health and Wellness (2–6 quarter units)

| | | |
|---|---|---|
| DTCS 301 | Human Nutrition | 3 |
| DTCS 311 | Human and Clinical Nutrition for Nursing | 4 |
| DTCS 312 | Clinical Nutrition for Nursing | 2 |
| PEAC 110 | Independent Activities | 1 |
| PEAC 128 | Recreation Swimming | 1 |

### Domain 5: Electives

Electives from Domains 1-4 may be selected to complete the general education minimum requirements of 68 quarter units.

## Loma Linda University general education courses—online

A complete listing of courses offered each academic term at this University to meet general education domain requirements is included on the Loma Linda University website at <http://www.llu.edu/students/> under the course schedules.

# Student Life

The current *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies than does this section of the CATALOG. It is available to each registered student. Students need to familiarize themselves with its contents. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

## From University to student

Loma Linda University was established to provide education in a distinctively Christian environment. Students are expected to respect the standards and ideals of the Seventh-day Adventist Church. Prospective students have the freedom to choose or reject University or school standards, but the decision must be made before enrollment. Application to and enrollment in Loma Linda University constitute the student's commitment to honor and abide by the academic and social practices, and regulations stated in announcements, bulletins, handbooks, and other published materials. Matriculated students are expected to maintain a manner that is mature and compatible with the University's function as a professional institution of higher learning.

The student will come under question if academic performance is below standard, student duties are neglected, social conduct is unbecoming, or attitudes demonstrate deficiencies such as poor judgment, moral inadequacy, or other forms of immaturity.

Procedures for evaluation of academic and nonacademic performance—as well as for the student to exercise their right of appeal—are described in the current CATALOG and in each school's section of the *Student Handbook*. Grievances regarding both academic and nonacademic matters must be processed according to these published grievance procedures. After a student files an appeal or grievance, the faculty assesses the student's fitness for a career in the chosen profession and recommends to the dean appropriate action regarding the student's continuance or discontinuance.

Prospective students who have questions concerning the University's expectations should seek specific information prior to enrollment.

## Whole-person health

The University regards the student from a cosmopolitan and comprehensive point of view. It is cosmopolitan in that historically the University's global mission has promoted bonds and opportunities in education and service without regard to gender or to national, racial, or geographical origin. It is comprehensive in that the University's concern for the welfare of the student traditionally has been an integrated concern for assisting the student toward whole-person health—balanced development of spiritual, social, physical, and mental health. Cultivating

the health of any one part enhances the health of all parts. Neglecting or abusing the health of one harms the health of all. Before one can experience whole-person health, there must be a practical appreciation of the interdependent interaction of each part of the whole.

Students from all schools of Loma Linda University may congregate and participate in the multifaceted programs offered that involve the holistic concept of social, intellectual, physical, emotional, and spiritual wellness. These programs support Loma Linda University's motto, "To make man whole."

### Spiritual health

In addition to personal quiet times, opportunities for the student's spiritual development are provided through scheduled religious activities, informal association with others who cherish spiritual values, required religion courses, and required chapel services.

### Social health

Situated within easy access of the ocean, mountains, and desert, the University provides numerous opportunities for students to complement their formal learning through participation in a wide variety of recreational, cultural, and other activities. A variety of University-, school-, and group-sponsored events encourage students to relax and become better acquainted with one another. Through these activities and events, students can enrich their group interaction and leadership experiences, increase their enjoyment of and interest in fields outside their profession, develop their talents, enhance wholesome and memorable association with others, and cultivate supportive and lifelong social relationships.

### Mental health

The University promotes mental health by encouraging students to study and practice principles of sound psychological health and to access state-of-the-art counseling and mental health services, as needed.

### Physical health

The University promotes physical fitness by encouraging recreational interests and by providing courses in field exercises, body building, and health instruction. An effort is exerted to encourage each student to engage in some recreational and health-building activity that may be carried over to enhance future life.

## Immunizations

As a member of a health science university, whether we are directly involved in patient care or not, we are responsible for the well-being of others. As a result, Loma Linda University requires that all students receive the flu vaccine annually.

## Recreation and wellness: Drayson Center

Drayson Center serves as the hub for recreation and wellness at Loma Linda University. Encompassing 100,000 square feet indoors, the facility offers numerous fitness and wellness options to promote physical, intellectual, social, emotional, and spiritual wholeness.

The center showcases a 21,000-square-foot gymnasium that can accommodate three full-size basketball courts, five volleyball courts, or nine badminton courts. Circling the gym is an elevated three-lane running track. Four indoor racquetball courts, five outdoor tennis courts, and four permanent pickleball courts are available for play. Two aerobics studios are used for a variety of the latest fitness classes, taught by certified instructors. The cardio and weight rooms provide opportunities for strength training, sports conditioning, bodybuilding, and more.

The outdoor aquatics center includes a heated, ten-lane lap pool, leisure pool, and jacuzzi as well as a 22-foot waterslide. Saunas are available in the fully-equipped men's and women's locker rooms. Summer Swim offers Red-Cross-based swim classes for all ages, promoting water safety for everyone. The 400,000-square-foot outdoor multipurpose recreational Superfield hosts soccer, softball, flag football, ultimate frisbee, and more, with organized seasonal intramural leagues. Two beach volleyball courts feature high-quality beach sand. Next to the pool deck, a grassy area is ideal for picnics and includes the "Hammock Hideout," which serves as a venue for not only hammocks but evening student events around the fire.

Drayson Center offers personal training, medical massage therapy, wellness education, and a variety of family-oriented leisure classes —including ballet and taekwondo. Conference rooms are available for classes, meetings, and banquets. This full-service facility promotes health and wellness for Loma Linda University students, employees, family members, and the surrounding communities. Visit <Drayson.llu.edu (https://drayson.llu.edu)> for more information.

## Student Health Service

Operating under Loma Linda University Health, the Center for Health Promotion's Student Health Service is committed to providing quality health care to the students within our University community. Our providers and staff are dedicated to promoting a lifestyle that encourages a balance of physical, spiritual, emotional, and social well-being. Services provided include primary care, women's health, immunizations, laboratory testing, health education, counseling, and referrals to specialty services. Enrollment in the Risk Management Student Health Plan is required to receive the comprehensive coverage of services.

Student Health Service is located in Evans Hall, Suite 111, at the corner of Anderson and Stewart streets. To schedule an appointment or for more information, call 909/558-8770.

## Loma Linda University Student Health Plan

The University-sponsored Student Health Plan is designed to provide comprehensive medical coverage for the student and their eligible dependent(s). It is not an insurance program. The plan includes coverage for hospital care, surgery, emergency care, prescription drugs, limited dental, and more. Generally, to be eligible for reimbursement under the provisions of the plan, expenses must be incurred while coverage is in effect. Expenses incurred before plan coverage becomes effective or after plan coverage has terminated will not be covered. This plan will only provide medical coverage on an excess basis. This means that all medical expenses must first be submitted to any other available source of health-care coverage. There is no optical coverage available. Please see the Loma Linda University website for Student Health Services for a complete explanation of the Student Health Plan (<llu.edu/central/studenthealth (http://www.llu.edu/central/studenthealth/)>).

### Enrollment

The process to enroll in the Student Health Plan is completed through the online registration process. Once registration is complete, information will be relayed to Risk Management. If a student is adding an eligible dependent to their Student Health Plan, the Student Health Plan

Enrollment form will need to be completed and submitted to Risk Management with the necessary payment.

## Preferred provider plan

The health plan has been developed as a PPO (preferred provider) plan. Benefits for services utilized outside the preferred provider structure will be reduced.

## Plan year

The plan benefit year is a fiscal year and runs from July 1 through June 30.

## Eligibility

A student is eligible for benefits if they:

- Are attending Loma Linda University as a graduate or undergraduate student;
- Are a degree-track student (accepted into a degree program and registered for more than 0 units will be eligible regardless of the number of units for which they are registered);
- Are a nondegree student registered for more than four units (a student who is not accepted into a degree program but who is registered as a nondegree student for more than four units will be eligible; however, a non-degree student registered for four units or fewer is not eligible and will not be eligible to buy into the Student Health Plan).
- Chooses to buy in, was covered under the plan during the previous quarter, and on an approved leave of absence from their academic program;
- Is an IP-only student (a student who is working on an "In Progress" course and is not registered for any other units will be eligible).

## Additional information regarding eligibility

- A student who drops all units before the deadline will not be covered by the plan. Any student who drops all units before the last day for a full refund will not be eligible for the University Student Health Plan for that quarter. Please refer to the Student Finance 100-percent refund policy.
- LLUH employees who are "full-time, benefit eligible" will not be eligible for the Student Health Plan.
- Students participating in an off-campus or online program will not be eligible for the Student Health Plan.
- An eligible student's coverage will become effective on the first day of class or new student orientation, whichever occurs first.

## Buy-in provision

Under the following provisions, a student may obtain coverage under this health plan, or extend coverage to a spouse or dependent children each quarter. In order to receive any coverage under this plan, a student must apply for coverage during an open enrollment period—within 30 days of a status change (i.e., within 30 days of marriage or within 30 days of the birth of a newborn child) and pay the appropriate quarterly student contribution, as outlined below:

1. Spouse/Dependent children. If a student is covered under this plan, they may extend health plan coverage to their spouse or dependent child(ren).
2. Leave of absence (LOA). If a student has been covered under the plan up until leaving school on an approved leave of absence (LOA), they may extend coverage under the plan for the length of the approved LOA, up to a maximum extension of one year.
3. Continuation coverage. If a student has been covered under this plan but no longer meets the eligibility requirements, they and eligible dependents would be able to continue coverage for up to one quarter through the buy-in provision.

The open enrollment period for eligible students and dependents is the last two weeks of each calendar quarter. Buy-in coverage will be effective from January 1 to March 31, April 1 to June 30, July 1 to September 30, and October 1 to December 31. No invoices or reminders are sent to students who are buying into the plan. The Department of Risk Management cannot add Student Health Plan buy-in fees to the student's account. All payments must be made by check, money order, or credit card with the Visa or MasterCard logo by calling 909/651-4010. A newborn child must also be enrolled in the plan within thirty days of birth or adoption in order to receive any coverage under this plan. There is no automatic or temporary coverage provided for any dependents, including adopted or newborn children.

Extension/Continuation coverage—Rates below effective 10-01-2016

- Student—$525 per quarter for the student plus one of the amounts below for dependents is charged for extension/continuation coverage:
- One dependent (spouse or child) of a covered student—$560 per quarter;
- Two or more dependents—$1,120 per quarter.

## Prescription drug coverage

Each enrolled student will be given a CVS/Caremark health-care identification card, which can be used at any participating pharmacy displaying the CVS/Caremark decal. The cost of the prescription will be billed directly to the plan after the student pays a co-payment. Prescriptions filled through CVS/Caremark will be limited to a maximum of a 30-day supply. The co-payment amounts will be $15 for generic drugs and $30 for brand-name* drugs that are dispensed at the health plan's preferred pharmacies: the LLUMC Pharmacy, the Faculty Professional Pharmacy (located in the Faculty Medical Offices), the LLU Meridian Pharmacy, the LLU Highland Springs Pharmacy, the LLUMC Murrieta Physicians Office Building Pharmacy, and the LLU Community Pharmacy.

If the prescription is filled at any other participating CVS/Caremark pharmacy, there will be a $25 copayment for generic products or a $40 copayment for brand-name* drugs. Prescriptions not filled by the CVS/Caremark system will not be covered under the plan.

*The co-payment is shouldered by the plan when a name brand is purchased because no generic substitute is available; however, if a student chooses a name brand over a generic drug, the student will be responsible for the generic co-payment plus any difference in cost between the two medications.

## Utilization review

All services that require preadmission review or prior authorization must be processed through the Department of Risk Management. The types of services that require prior authorization include:

- All hospital admissions (scheduled admissions must be authorized prior to entrance to the hospital. In the case of emergency admissions, notification must be made within 48 hours or the next business day);

- All outpatient surgeries;
- Home health services and skilled nursing facilities;
- Orthotics and purchase or rental of durable medical equipment.

Please refer to the plan document for a complete description of required authorizations. Participants in this plan must follow the preadmission review process in order to receive full hospitalization benefits. If a participant does not follow the preadmission review process, hospitalization benefits will be reduced by 50 percent.

In order to fully understand plan benefits, students need to obtain a University Student Health Plan document, which describes all of the plan coverage, limitations, and exclusions. Questions regarding the plan should be directed by telephone to the Department of Risk Management at 909/651-4010.

# Malpractice coverage

Students are covered by malpractice insurance while acting within the course and scope of any approved clinical assignment.

# Disability insurance

All students in the School of Medicine and the School of Dentistry are automatically registered in a disability insurance program while enrolled at this University. This program provides limited disability insurance for students while in the program and also allows for conversion to an individual disability insurance policy at the time of graduation. Details of this program are available from the School of Medicine or the School of Dentistry.

# Counseling services

## Loma Linda University Student Counseling Program

The University Counseling Center offers a variety of private, confidential services to students and their families—including individual, premarital, marital, and family counseling; as well as medication treatment. Counselors use practical, problem-solving strategies to help students deal more effectively with stresses of school and personal life in a healthy and healing way.

The program is staffed by members of the Employee and Student Assistance Programs, which includes licensed clinical social workers and marriage and family therapists.

To schedule an appointment or for more information, call 909/558-9534 or campus extension 39534. Eligible students do not have a copay for these visits.

The University Student Counseling Center is located in the Hartford Building, 11360 Mountain View Avenue, Suite A, in Loma Linda.

## Loma Linda Student Assistance Program

The Loma Linda Student Assistance Program (LLSAP) provides professional and caring assessment and treatment for a variety of personal, family, work, and school-related issues. The LLSAP clinicians will develop a treatment plan that may include free, short-term counseling. All LLSAP services are free of charge.

If more extensive treatment is appropriate, the client is referred to a community therapist who specializes in the student's area of concern and who is covered by the student's health plan. All information is confidential. Community therapists and LLSAP clinicians will not release information without the written consent of the student, with the exception of matters that fall under mandatory reporting laws.

The LLSAP, the only nationally accredited student assistance program in California, has provided state-of-the-art services to students since it was established in 1990.

Appointments may be scheduled Monday through Wednesday, 8 a.m. to 5 p.m., by calling on-campus extension 66050 or 909/558-6050; Thursday, 8 a.m. to 7 p.m.; Friday, 8 a.m. to 1 p.m. Additional appointment times may be available upon request.

The program is located in the Hartford Building, 11360 Mountain View Avenue, Suite A, in Loma Linda.

# Governing practices

At Loma Linda University, nonacademic policies have been established that help foster a fulfilling University experience. Students are expected to uphold these policies, which govern nonacademic student life on and off campus. Information in this section of the CATALOG, as well as in the *Student Handbook* (<http://www.llu.edu/student-handbook (http://www.llu.edu/student-handbook/)>), pertains to requirements governing all students. The student is reminded of individual responsibility to be fully informed of the general and specific requirements of their school and program.

## Identification number and badge

All accepted students will be assigned a unique University identification number. This seven-digit number will be used on all correspondence and noted on all payments to the University. A University identification badge using this identification number and a bar code will be issued to each student after they complete initial registration and financial clearance.

The identification card allows access to various student services, including the libraries, Student Health, recreation facilities (i.e., the Drayson Center), and parking. The bar code on the card allows currently enrolled and financially cleared students to charge against their accounts at the Campus Bookstore and campus cafeterias, and for ticket sales available through the Student Services office. In subsequent quarters, the card's bar code is automatically reactivated at each registration upon financial clearance.

For further information regarding these identification cards, please contact Student Services.

## Residence hall

The University is coeducational and accepts both single and married students. Any single student who prefers to live on campus may do so providing accommodations are available. Students are expected to live on campus unless they meet criteria as follow:

- Married;
- 21 years of age or older;
- In a graduate program;
- Living with their parents.

Students who wish to live off campus but who do not meet one of the foregoing requirements may petition the vice president for student experience for a possible exception. This should be done well in advance of registration to allow the student adequate time to plan. Additional information about campus housing can be obtained from the housing

website at <llu.edu/central/housing (http://www.llu.edu/central/housing/)>.

The student must keep the University informed of their current address, telephone number, and other contact information.

## Marriage

A student who marries or changes marital status during the academic year must provide the school with advance written notification of the change in order to keep school records correct and up to date. It is wise for students to make every effort to schedule their wedding ceremonies during academic recesses.

## Name change

Currently enrolled students may change their names on University records when they provide evidence (e.g., certified copy of a marriage certificate) that the name change is official. In addition to filing with the Office of University Records on University Records forms a request for change of name, the student must present a current ID card or other form of picture ID with their name as it appears on University records, along with official documentation of the name change.

Name changes must be processed no later than six months prior to graduation if the new name is to appear on the diploma.

## Professional apparel

Clinic and laboratory apparel are distinctive articles of dress specified by the department or school. They are to be worn only in the manner prescribed and under the conditions specified in the school or department dress code. Student uniforms are to be maintained in clean, presentable condition. Information on the required professional dress is provided in Section III of this CATALOG and in the University *Student Handbook*.

## Personal appearance

Students in the classroom or clinical environment must exhibit personal grooming consistent with expectations of the health-care institution, the profession, the school, and the University. Specific guidelines regarding grooming and attire are provided in Section III of this CATALOG and in the University *Student Handbook*.

## Personal property

The school assumes no responsibility for the loss of the student's personal property, instruments, or other items by theft, fire, or unknown causes. The student is expected to assume responsibility for the safekeeping of personal belongings.

## Cars and transportation

Because the student is responsible for transportation arrangements and costs for special projects and off-campus clinics, it is advantageous for the student to have access to a car.

The University enforces traffic rules and regulations as provided for by the State of California Vehicle Code. It is the sole responsibility of the driver of any vehicle on University property to become familiar with these regulations. Drivers are held responsible for any infraction of the regulations. Copies of the brochure entitled *Loma Linda University Traffic and Parking Regulations* are available at the Department of Security.

Vehicles used by students on campus must be registered with the Department of Parking. Returning students must renew the registration of their vehicles online with the Department of Parking annually in September.

## Confidentiality

The Health Insurance Portability and Accountability Act (HIPAA) of 1996 requires that all health-care professionals maintain the highest level of confidentiality in matters pertaining to clients. Discussions or written assignments relating to client information, either health related or personal, may not include identifying data. Clients' privacy and rights are to be protected.

Failure to maintain confidentiality could result in legal action. For additional information, see *Introduction to HIPAA* at <https://one.lluh.org/vip/Departments/LLUSS-Departments/HIPAA-Information/HIPAA-Help/Introduction-to-HIPAA (https://one.lluh.org/vip/Departments/LLUSS-Departments/HIPAA-Information/HIPAA-Help/Introduction-to-HIPAA/)>.

## Substance abuse

As a practical application of its motto, "To make man whole," Loma Linda University is committed to providing a learning environment conducive to the fullest possible human development. Because the University holds that a lifestyle free of alcohol, tobacco, and recreational/illegal drugs is essential for achieving this goal, it maintains policies that foster a campus environment free of these substances.

All students are expected to refrain from the use of tobacco, alcohol, and recreational or illegal mind-altering substances. Possession or use of these substances may be cause for dismissal.

For details regarding the University's drug-free environment—as well as information regarding prevention, detection, assessment, treatment, relapse prevention, confidentiality, and discipline—see the Loma Linda University *Student Handbook*, Section V, University Policies: Alcohol, controlled substances, and tobacco policy.

## Sexual harassment

Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the well-being, educational experience, and careers of students, faculty members, employees, and patients.

Because of the sensitive nature of situations involving sexual harassment, and to assure speedy and confidential resolution of these issues, affected students should contact the office of the dean of the school in which they are enrolled.

A more comprehensive statement of the policy regarding sexual harassment and sexual standards can be found in the Loma Linda University *Student Handbook*, Section V, University Policies.

## Employment

It is recommended that students limit work obligations (outside employment for income) that divert time, attention, and strength from the arduous tasks of class preparation, clinical practice, and/or training in their chosen career. A student wishing to work during the school year should consult the office of the dean of the school in which they are enrolled regarding employment restrictions or prohibitions.

## Employment for international students

International students must obtain written authorization from International Student and Scholar Services before accepting any on-campus employment. Off-campus employment requires prior issue of a work permit by the U.S. Citizenship and Immigration Services. F- and J-

visa students must limit their employment to 20 hours or fewer per week while registered for courses and while classes are in session. Regulations allow full-time work (40 or fewer per week) during school breaks and summer vacations (if students' programs allow summer quarters off). For questions, please telephone International Student and Scholar Services at 909/558-4955.

## Academic authority

The office of the dean of the school in which the student is enrolled is the final authority in all academic matters, with the exception of general education requirements, and is charged with the interpretation and enforcement of academic requirements. Any exceptions or changes in academic requirements, graduation requirements, or grades are not valid unless approved by the dean. Any actions taken by individual faculty members with regard to these matters are advisory only and are not binding on the school or the University unless approved by the dean.

## Academic integrity

Academic dishonesty intentionally violates the community of trust upon which all learning is based, intentionally compromises the orderly transfer of knowledge from teacher to student, and is inconsistent with good professional and moral behavior. Accordingly, the penalty for academic dishonesty is severe.

Acts of dishonesty include but are not limited to the following:

- Theft;
- Falsifying or changing grades or other academic records;
- Plagiarism or excessive paraphrasing of someone else's work;
- Knowingly giving, obtaining, or falsifying information during examinations or other academic or professional practice assignments;
- Using unauthorized aids during examinations;
- Loud and disruptive behavior during lectures, demonstrations, or examinations;
- Excessive unexcused absences from classes or from clinical assignments.

"Examinations" are defined as regularly scheduled tests, quizzes (scheduled or unscheduled), final examinations, comprehensive assessments, take-home tests, open-book tests, and any other assignment given by an instructor or preceptor whether for a grade, points toward a grade, or for zero points (e.g., a learning exercise).

Instructors and students are responsible for reporting instances of academic dishonesty for investigation. An instructor may take immediate action during an examination or other point-generating activity in order to maintain the integrity of the academic process. Substantiated violations are to be brought before the designated disciplinary body for action. Disciplinary action may include receiving a failing grade on the examination or assignment, receiving a failing grade in the course, suspension, or permanent dismissal from the program.

## Conduct

Students are expected to conduct themselves in a professional manner during didactic and clinical training. Professional conduct includes, but is not limited to, punctuality and respect for other people, their property, and their right to learn. It also includes an appropriate respect for those in authority. Students of Loma Linda University are expected to behave in a manner that will not bring criticism upon themselves, the program, the school, or the University.

Because students may be exposed to patients' relatives and friends in any public place, and because their conversations and their attitudes have an effect on those around them, students are asked to observe the following principles.

- Any information given to the student by a patient or contained in a medical record must be held in strict confidence. Therefore, the discussion of a patient's diagnosis and treatment or other clinically related topics should be extremely guarded. A patient's family and members of the community may be listening, and may incorrectly interpret the things discussed. Careless talk may lead to malpractice litigation.
- A joking or casual attitude toward illness and medical treatment should not be displayed, since it may seem uncaring and be disturbing to those who are ill and suffering as well as to the family members.
- Student and staff behavior in professional situations may be the deciding influence for or against Christian beliefs, values, and a health-enhancing lifestyle.

An in-depth description of the professional conduct expected of students is contained in the Loma Linda University *Student Handbook*.

## Grievance procedure

Grievances related to sexual harassment, racial harassment, or discrimination against the disabled shall be pursued in accordance with University policies specifically relating to these items. Grievances related to academic matters or other issues covered by specific policies shall be made pursuant to the policies of the school in which the student is enrolled. A student who questions whether the process provided by the school has followed the policy of the school in regard to their grievance may request that the Office of the Provost conduct a review of the process used by the school in responding to their academic grievance.

Students who believe that an error has been made or that they have been dealt with in an inappropriate manner by an office or nonacademic department of the University such as records, student finance, student affairs, health services, or Drayson Center, may seek correction by the following steps:

1. The student may put their complaint in writing and provide it to the head of the department or office involved. The student may request an appointment and discuss this matter with the department head. The department head will make a decision and provide a written answer to the student within 14 days of receiving the student's written complaint or meeting with the student, whichever is later.
2. If the answer is not satisfactory to the student, they may put the complaint in writing and send it to the vice president for student experience for review. The matter will be considered at the next meeting of the dean's council, and the student will be informed in writing of the council's response within seven days of the council's consideration of the complaint.

An individual may contact the Bureau for Private Postsecondary Education for review of a complaint. The bureau may be contacted at 2535 Capitol Oaks Drive, Suite 400, Sacramento, CA 95833; email, http://www.bppe.ca.gov (http://www.bppe.ca.gov/); telephone, 926/431-6924.

## Copyright violations

The copyright law of the United States (Title 17, USC) governs the making of photocopies or other reproductions of copyrighted material. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specific conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user requests or later uses a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement. This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

## Communication devices

All communication devices must be set to "off" or "vibrate" during class, laboratory, clinic, or chapel. No cell phones, PDAs, calculators, laptops, or other electronic or communication items may be used in the classroom, testing facility, or laboratory unless specifically a part of that activity and approved by the faculty member in charge.

# Academic Policies and Information

Academic credit (p. 34)
Degree completion requirements (p. 35)
Enrollment (p. 36)
Satisfactory academic progress (p. 37)
Scholastic standards (p. 39)
Transfer credit (p. 41)

# Academic credit

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. In this section are the University regulations. See school-specific pages for regulations that pertain to each school and program.

## Credit hour

Credit is recorded in quarter units. A credit hour is defined as 50 minutes of direct faculty instruction per week for 10 weeks in a quarter (11 weeks including finals week) and two to three hours of out-of-class assignments for each unit of credit, or the equivalent amount of work over a different amount of time (e.g., condensed course taught in 5-weeks).

Other academic activities require at least an equivalent amount of work per unit of credit. These include laboratory work [100 minutes when outside preparation is required or 150 minutes when no outside preparation is required], internships, practicums, and other academic work leading to the award of credit hours.

## Course numbers

Courses are numbered as:

| | |
|---|---|
| 001-099 | Non-degree-applicable credit |
| 101-299 | Lower division |
| 301-499 | Upper division |
| 501-599 | Graduate |
| 601-699 | Graduate: seminar, research, thesis, or dissertation |
| 701-899 | Professional or clinical |
| 901-999 | Continuing education units, if preceded by letter prefix ending with "CE" (e.g., ASCE 916); without academic credit; or undergraduate certificate clinical affiliation/ practicum courses |

Coursework at the 500 level may not apply toward a baccalaureate degree unless the instructor approves it and both deans (dean of the school offering the course and dean of the school in which the student is enrolled) give permission, and provided the credit does not apply toward both an undergraduate and a graduate degree. Approval is not needed if the course is part of a coordinated program.

No courses numbered in the 700s, 800s, or 900s may apply toward an undergraduate degree.

## Course waiver

Certain course requirements in a program may be waived on the basis of previously completed coursework, experience, or licensure. An examination for waiver credit, if required, may be taken only once and must be taken before the final quarter of the program of study. Waiver of a specific course requirement does not reduce the number of units required for a program or residency. A waiver examination does not carry academic credit and cannot be used to make up for a course in which an unsatisfactory grade was received. For examination fee, see Schedule of Charges in the Financial Information section.

Permission to waive a course requirement in the School of Pharmacy requires prior approval of the department chair and consent of the dean.

## Credit by examination

For certain courses offered by the University, a student in an undergraduate degree program may earn credit by passing an equivalency examination administered by the appropriate school and department. Such an examination is at least equal in scope and difficulty to a final examination in the course, and may include materials supplied by CLEP or other agencies.

A graduate program should be used to acquire new knowledge. Since the purpose of credit by examination is to validate prior knowledge, graduate credit may not be earned by examination. If a required course in the degree program is a repeat of prior learning, the student may request a waiver, thus making it possible to take elective courses that would increase knowledge.

A student currently enrolled in a degree program at this University who desires credit by equivalency examination may petition the dean of the school offering the course, and, upon approval, pay a testing fee. See Schedule of Charges in the Financial Information section for the examination fee.

Equivalency examinations may not duplicate credit already earned through coursework, including courses taken for audit.

A grade of CR (Credit) is given only after the student has completed one quarter—or the equivalent—at this University, and has earned 12 units of credit with a grade point average of at least 2.0 in undergraduate courses.

Units earned by equivalency may not be used as part of the enrolled load.

Equivalency examinations must be taken before the final quarter of residency.

The maximum amount of credit that may be earned by equivalency examination is determined by each school but may not exceed a maximum of 20 percent of the units required for the degree or certificate.

# Degree completion requirements

## Catalog in effect for degree requirements

Students are expected to fulfill the curriculum requirements (including prerequisites required for admission) of the catalog year in effect at the time they matriculate to LLU. Subject to department approval, students may choose to complete degree requirements outlined in any CATALOG in effect during terms in which they are registered as accepted students in the selected program. A *Change of Catalog* form must be submitted no later than the deadline for submission of the *Petition for Graduation for Graduate and Professional Programs* or *Undergraduate Intent to Graduate* form. Submission deadlines are provided on these forms. Revisions to a student's program cannot be made during a student's last term. Inactive students, who have either formally withdrawn from a program or been administratively withdrawn for whatever reason, and who subsequently re-apply to a program, are subject to the program requirements published in the CATALOG in effect at the time of re-entry. For additional information, consult the full policy in the LLU policies available through LLUH One Portal (https://one.lluh.org/).

## Academic service learning

Academic service learning is an education practice that takes learning into the community. A reciprocal relationship develops as students work with the community to identify focus areas and implement projects. Connecting classroom curricula with community needs deepens students' engagement in the community while enabling them to develop mental, physical, spiritual, and emotional capacities. Involvement engages students in critical thinking, community relationship building, practical action, leadership, and reflection useful in their professional lives.

All students in degree programs (associate through doctoral) are required to complete an approved academic service-learning course prior to graduation. Courses currently approved to meet this requirement are as follows:

| | | |
|---|---|---|
| **School of Allied Health Professions** | | |
| AHCJ 328 | Wholeness Portfolio I | 1 |
| AHCJ 494 | Senior Portfolio II | 3 |
| AHCJ 519 | Graduate Wholeness Portfolio | 1 |
| AHCJ 721 | Wholeness Portfolio I | 1 |
| CLSM 105 | Procedures in Phlebotomy | 4 |
| CMSD 532 | Service-Learning in Speech-Language Pathology II | 1 |
| CMSD 588 | Educational Fieldwork II | 8 |
| DTCS 304 | Community Nutrition | 4 |
| DTCS 589 | Capstone Course in Nutrition and Dietetics | 3 |
| HLIF 570 | Professional Portfolio | 2 |
| HLIN 340 | Seminar and Portfolio for Health Information Management | 4 |
| OCTH 604 | Health, Society, and Participation | 3 |
| OCTH 702 | Service Learning I | 3 |
| ORPR 540 | Rehabilitative Care in Developing Nations | 3 |
| ORPR 522 | Self-Care Portfolio and Community Outreach | 2 |
| PAST 572 | Culture and Community for Physician Assistants | 3 |
| PTAS 265 | Professional Seminar | 1 |
| RTMR 344 | Professional Development and Service Learning | 3 |
| RTRA 614 | Professional Portfolio | 1 |
| **School of Behavioral Health** | | |
| CHLS 505 | Cross-Cultural Perspectives in Health Care | 3 |
| **School of Dentistry** | | |
| DNES 200 | Curricular Practical Training | 0 |
| DNES 500 | Curricular Practical Training | 0 |
| DNES 504 | Curricular Practical Training for IDP | 0 |
| **School of Medicine** | | |
| BIOL 664 | Science Communication Outreach | 1 |
| GEOL 464 | Science Communication Outreach | 1 |
| GEOL 664 | Science Communication Outreach | 1 |
| IBGS 525 | Translational Research Training | 2 |
| MDCJ 821 | Preventive Medicine and Population Health | 1.5-6 |
| PATH 534 | Civic Engagement and Poverty: Service Learning | 2 |
| **School of Nursing** | | |
| NGRD 654 | Social Determinants of Health | 4 |
| NRSG 416L | Public Health Nursing Clinical Laboratory | 4 |
| NRSG 434 | Public Health Nursing Laboratory for the Working RN | 3 |
| **School of Pharmacy** | | |
| **School of Public Health** | | |
| GLBH 545 | Integrated Community Development | 4 |
| GLBH 565 | Interventions in Community Health and Development I | 3 |
| GLBH 567 | Interventions in Community Health and Development II | 3 |
| GLBH 569 | Interventions in Community Health and Development III | 3 |
| HADM 529 | Applied Leadership Concepts in Health-Care Organizations | 3 |
| HADM 586 | Building Healthy Communities: Integrative Health Policy | 3 |
| HPRO 537A | Community Programs Laboratory—A | 2 |
| HPRO 537B | Community Programs Laboratory—B | 1 |
| HPRO 537C | Community Programs Laboratory—C | 1 |
| NUTR 532 | Community Nutrition Intervention II | 1 |
| PCOR 502 | Public Health for a Healthy Lifestyle | 5 |
| PHCJ 610 | Building Healthy Communities | 3 |
| PMED 541 | Preventive Medicine in Public Health I | 2 |
| PMED 548 | Preventive Medicine in Public Health VIII | 2 |
| **School of Religion** | | |
| RELG 510 | Christian Service | 1,2 |
| RELR 404 | Christian Service | 1,2 |
| RELR 447A | Service Learning Practicum–International Project | 1 |
| RELR 540 | Wholeness and Health | 3 |
| RELT 534A | Service Learning Practicum–International Project | 1 |
| RELT 534B | Service Learning Practicum–USA Project | 1 |

## Graduation G.P.A. requirement

The minimum cumulative G.P.A. required is 2.0 for an undergraduate degree and 3.0 for a graduate degree, with no grade on an individual

course less than specified by the school offering the degree program. See scholastic standards (p. 39) section of this CATALOG for details.

# Graduation

The responsibility for meeting graduation requirements rests primarily upon the student. Therefore, students should read and understand the requirements as set forth in this CATALOG and consult carefully with their advisor to plan a sequence of courses each term that fulfills these requirements. A student's program of study is governed by the requirements listed in the University CATALOG at the time of admission; however, when circumstances demand, the University reserves the right to make changes with reference to admission, registration, tuition and fees, attendance, curriculum requirements, conduct, academic standing, candidacy, and graduation.

The undergraduate who plans to graduate must submit an *Undergraduate Intent to Graduate* form two quarters prior to graduation, except for Summer Quarter graduation which requires submission three quarters prior. Graduate students must submit a *Graduation Petition* for graduate and professional program. See form for submission deadlines.

## Commencement exercises

The candidate completing requirements in the Spring Quarter is expected to be present at commencement exercises. Permission for the degree to be conferred in absentia is contingent upon the recommendation of the dean of the school in which the student is enrolled to the provost, and can be granted only by the provost. If a candidate has not satisfactorily fulfilled all requirements, the University reserves the right to prohibit participation in commencement exercises.

## Diploma

When the profession is named in the degree title, or when the degree is indicated by the school name, no other designation is included on the official diploma issued to the graduate. When the profession or major is not named in the degree title, the profession or specialization is also indicated on the official diploma.

# Enrollment

## Registration

Standard-term registration dates are published on the Web at <http://www.llu.edu/students/university-records/registration-dates.php>. For programs that do not operate on standard-term dates, visit the Registration Portal for specific registration dates and deadlines per student, since these dates may vary depending on where students are in their programs. Deadlines for courses taught in a condensed or extended format may differ from standard terms or program deadlines. Course-specific deadlines may be found in the course schedule at <http://www.llu.edu/students/university-records/course-schedule.php> by selecting a course and clicking on the Important Dates link. Posted deadlines for registration on the Web and in the Registration Portal are in effect and binding.

Students register online using their Registration Portal. Registration procedure includes addressing Action Items, signing up for courses, and clearing finance. Upon completion of their first registration, students must obtain an ID card at the University Office of Student Affairs. All future interactions in the Student Services Center will require presentation of a valid student ID card.

A late registration period of five business days after the term begins is provided for standard-term programs. If the course is offered in an intensive format, registration may required before the end of the five days. A late registration fee of $200 will be charged during these five business days for standard-term courses.

Students may not attend class without being registered. No credit is granted for academic work performed during any term without registration.

### Change in registration

A change in registration requires reversal of financial clearance in the Registration Portal if (1) financial clearance has been obtained and (2) registration is still open for the student's program. Students have until 11:59 p.m. PST (Pacific Standard Time) the following day, or until the end of registration—whichever is earlier—to complete registration changes and to request financial clearance again. If financial clearance is not obtained by the end of the following day, any changes made in the Registration Portal will be reversed. Students are advised of this process via their LLU email account.

A student may add courses that follow the standard-term University calendar during the first seven calendar days of the quarter. Courses that follow the standard-term University calendar may be dropped during the first 14 days of the quarter without academic penalty. Standard-term course changes after the 14th day of the quarter affect the permanent grade record with a "W" indicating withdrawal. Students may withdraw from a standard-term course prior to 14 calendar days before the final examination week, after which withdrawals are no longer permitted.

## Independent study

Independent study may be undertaken subject to the consent of the department chair and/or the office of the dean of the student's school. The student is responsible for completion of the Directed/Independent Study Title Request (https://myllu.llu.edu/apps/studproc/istr/Start.php) form in addition to the regular registration. University policy limits directed study to 12 quarter units of undergraduate credit and eight units of graduate credit in a degree program. Individual programs may further limit these units. The office of the dean of the student's school should be consulted regarding limits on credit earned through independent study. Independent study is to be completed in adequate time before graduation to allow recording in the Office of University Records.

### Study load

Usually an academic study load is defined in terms of credit units.

| Time Status | Undergraduate | Graduate |
|---|---|---|
| Full-time | At least 12 units | At least 8 unit |
| Three-quarter time | 9 – 11.5 units | 6 – 7.5 units |
| Half-time | 6 – 8.5 units | 4 – 5.5 units |
| Less than half-time | 0 – 5.5 units | 0 – 3.5 units |

The normal course load, including all coursework for which a student may be registered at this or another institution, is 16 quarter units for an undergraduate student and 12 quarter units for a graduate student. Full-time study loads are those specified by the departments for each program. Students of exceptional ability may register for additional coursework upon recommendation of the department and consent of the dean.

A person who is not enrolled in regular courses but who is occupied in research, dissertation, or thesis, is classified as a student. By filing an academic load validation form every quarter at registration, the academic load may be validated for loan deferment and for living expenses for

aid-eligible students or to maintain immigration status for international students.

The faculty mentor who is primarily responsible for the student's research is required to sign the load validation form (electronic workflow) verifying that the student will be working on their research, thesis, or dissertation for a minimum of 18 hours per week (half-time status) or a minimum of 36 hours per week (full-time status). This is a projection each quarter. Before signing the load validation form for the current quarter, the faculty mentor must determine that the student indeed qualified for load validation in the previous quarter.

## Attendance

Regular attendance at all appointments (class, clinic, laboratory, and University at Worship) is required beginning with the first day of each term. A pattern of absence, excused and/or unexcused, will be referred to the school's designated academic authority for consideration and action.

Excused absences are defined as follow:

- Illness, verified by a physician's statement or official statement from Student Health Service submitted to the school's designated academic authority;
- Participation in an institution-sponsored activity (verified by a written statement from a faculty sponsor);
- Recognizable emergency approved by the school's designated academic authority.

Tardiness is disruptive, distracting, and inconsistent with professional behavior. Students who arrive after the beginning of class may be counted absent.

Information regarding the school's designated academic authority can be obtained from the office of the dean.

## Continuous enrollment

A student who has not enrolled for any courses, or paid the continuous registration fee for courses still in progress from a previous term, will be inactivated at the beginning of the second quarter of non-enrollment, unless they are on an approved leave of absence (maximum of four academic quarters, including Summer Quarter). For example, a student who enrolled for Autumn Quarter, but who does not enroll for Winter Quarter, will be inactivated at the close of registration (two weeks into the quarter) for the subsequent Spring Quarter.

Inactivated or formally withdrawn students who wish to return to complete their degree programs are required to reapply with sufficient time for adequate review of any new transcript credits and advisement of any new program requirements.

The reapplication process also requires the submission of official transcripts from all colleges/universities attended since the student last attended this University. Official transcripts from colleges/universities the student attended while enrolled at this University must also be submitted if they were not submitted prior to inactivation.

Students who reapply to a program are subject to the program requirements published in the CATALOG in effect at the time of reentry. All graduates are expected to have documented current knowledge in their fields of study as of the date of graduation (date on diploma).

## Personal leave of absence

A leave of absence is defined as being away from school for the remainder of the quarter, to a maximum of one year, with the intent to return. The appropriate program withdrawal form (https://myllu.llu.edu/apps/studproc/pw/Start.php) is an online workflow. This form is to be approved by the dean or their designee prior to the student's departure. Stipulations for re-entry are given to the student in writing. The student should consult the office of the dean of their school regarding the possibility of maintaining health coverage.

## Withdrawal

To withdraw from a course(s), the student must complete an Add/Drop Registration form (http://www.llu.edu/assets/central/ssweb/documents/regchange.pdf). If a student finds it necessary to withdraw from a degree or certificate program, the dean (or their designee) must be notified in writing. The student then arranges for formal withdrawal from the program by filing a Program Withdrawal form (https://myllu.llu.edu/apps/studproc/pw/Start.php), which is a workflow available on the University website. The Program Withdrawal form and/or the Add/Drop Registration form should be completed as soon as possible after the student determines that they cannot complete the quarter. These forms must be filed no later than 14 days prior to the end of the quarter.

Courses dropped during the first two weeks of the term are not included in the student's permanent record.

If a student is discontinuing the entire program, the date the Program Withdrawal form is properly submitted to the Office of University Records will be the date of withdrawal used to calculate tuition refunds. Tuition is refunded according to the practice outlined in the Financial Information section of this CATALOG. Failure to file the Program Withdrawal form may result in unavoidable charges to the student's account. *The tuition refund policy for off-campus students is listed under the applicable school in this CATALOG.*

## Administrative withdrawal

Students who fail to make arrangements for a leave of absence or continuing registration may be administratively withdrawn from school. After one quarter, if the student has not re-enrolled, their status with the University will be changed to inactivated.

## Privacy rights of students in academic records

Under the Family Education Rights and Privacy Act (FERPA), students have full rights of privacy with regard to their academic records, including their grade reports. Grades are available to students online.

The campus is authorized under FERPA to release directory information concerning students. The University has classified the following as student directory information that may be released: name, address (permanent and local), picture, marital status, birth date, school, program, class, previous college, and telephone number—unless the student specifically requests in writing that the information not be released. Directory information will be released only by the academic dean's office of the school in which the student is enrolled. Requests for directory information received by other offices of the University will be transferred to the appropriate school office. The complete FERPA policy may be found in the *Student Handbook*.

# Satisfactory Academic Progress

For the purposes of financial aid eligibility, federal regulations governing Title IV HEA program funds require the University to establish a standard

of satisfactory academic progress (SAP), and to monitor students' progress toward completion of a degree or certificate. Information relevant to the University's SAP standard is provided below.

Student academic progress is evaluated at least once annually. For students in programs that are less than one academic year in length, academic progress is evaluated at the end of each enrollment period.

Failure to meet the University's SAP standard requirements may result in financial aid suspension. Financial aid will be reinstated only after eligibility is re-established.

*The satisfactory academic progress requirements below apply to all University students and are consistently applied, whether or not a student is receiving financial aid.*

## Evaluation measures

Satisfactory academic progress is evaluated based on three measures: qualitative, quantitative, and maximum time frame.

*Qualitative.* The qualitative measure specifies the grade point average (G.P.A.) that must be achieved at each evaluation. If the G.P.A. is not an appropriate qualitative measure, a comparable assessment measured against a norm will be used. Calculation of the G.P.A. does not include incompletes (I), withdrawals (W), or transfer courses; however, courses repeated for additional credit (such as seminars and research) will be included. Courses repeated for a better grade will include only the most recent grade in the G.P.A. calculation.

*Quantitative.* The quantitative measure specifies the pace at which a student should progress through their educational program in order to successfully complete a sufficient number of units at a rate that ensures program completion within the maximum time frame. The pace at which a student is progressing is calculated by dividing the cumulative number of units the student has successfully completed by the cumulative number of units the student has attempted. Units (credit hours) transferred from another institution that are accepted toward the student's educational program will be counted as both attempted and completed units. This evaluation measure only applies to term-based programs.

*Maximum time frame.* The maximum time frame for an undergraduate program measured in units cannot exceed a period longer than 150 percent of the published length of the program. The maximum time for completion of a master's degree is five years; the maximum time for completion of a doctoral degree is seven years—except in the case of block programs. Calculation of the time frame begins with the term in which the first LLU course applicable toward a degree or certificate is taken.

## Program requirements

*Undergraduate programs.* Undergraduate students must maintain a cumulative G.P.A. of at least 2.0. They must also maintain a cumulative completion rate equal to or exceeding two-thirds (67 percent) of the units attempted. Maximum time for completion of an undergraduate program is a period no longer than 150 percent of the published length of the academic program, as measured in credit hours or in clock hours required and expressed in calendar time.

*Graduate programs.* Graduate students must maintain a cumulative G.P.A. of at least 3.0. They must also maintain a cumulative completion rate equal to or greater than two-thirds (67 percent) of the units attempted. This only applies to term-based programs. For programs with a limited or no research component, the number of units per term needed to complete the program on time will be determined by dividing the total number of units required for completion by the length of the program—expressed in academic quarters (e.g., five years for a master's degree equals twenty academic quarters). Research-intensive programs will provide information regarding the number of units that must be completed by the midpoint and three-quarters point of the program.

Maximum time for completion of a master's degree is five years; maximum time for completion of a doctoral degree is seven years—except in the case of block programs.

*Professional practice doctorates.* All professional practice doctoral degrees (D.P.T., Pharm.D., D.D.S., M.D.) are block programs requiring students to enroll full time. See specific programs below for SAP policy information.

*Doctor of Physical Therapy (entry-level D.P.T.).* Students must maintain a cumulative G.P.A. of 3.0—with no grade less than C (2.0) in any required course—and must demonstrate satisfactory clinical performance. In addition, they must receive a grade of B or better in AHCJ 510 Human Gross Anatomy (taken during the first quarter of the program). Students are expected to complete the program in three years; however, if a leave of absence becomes necessary, the maximum allowable time to degree completion is seven years.

*Doctor of Pharmacy (Pharm.D.).* The G.P.A. required for graduation is 2.30. In addition, students must hold a valid, nonprobationary intern pharmacist license. Six years is the maximum time allowed to degree completion, which is also the maximum time intern pharmacist licensure is granted by the California State Board of Pharmacy.

*Doctor of Dental Surgery (D.D.S.).* Students must maintain a cumulative G.P.A. of 2.0. They must also maintain a cumulative completion rate equal to or exceeding two-thirds (67 percent) of the units attempted. Students are expected to complete the program in four years; however, the maximum allowable time to degree completion is six years.

*Doctor of Medicine (M.D.).* In order to progress to the next academic year, students must not receive a U (Unsatisfactory) grade in any course. Although students are expected to complete the program in four years, they are allowed to complete the first two years (basic sciences) within three years before progressing to the clinical years (third and fourth years of the program). The two clinical years must be completed within three years.

## Loss of eligibility for financial aid

On the basis of the SAP evaluation, Title IV HEA program funds may be suspended for any of the following reasons:

- Student fails to achieve the required G.P.A.
- Student is not successfully completing their education program at the required pace.
- Student is unable to complete the program within the allotted time frame.

The student is suspended from federal financial aid eligibility only and may not receive additional financial aid funds. However, they may continue enrollment at this University either without any financial assistance or, if eligible, with the assistance of private loans. The Financial Aid Office can supply the student with additional information regarding these loans.

## Suspension letter

A student who fails to meet the University's satisfactory academic progress standard will be informed in writing by the Financial Aid Office that financial aid has been suspended until such time as the student is again in compliance with SAP guidelines. The letter will include instructions regarding the appeal process.

## Appeal process

Students may appeal loss of eligibility for financial aid. Instructions for submitting a Satisfactory Academic Progress Appeal are available on the Web for students wishing to have their aid reinstated. The appeal must be filed by the deadline specified in the letter of suspension, even if the student believes an error has been made in their case. The completed appeal must be submitted to the director of financial aid, who will present it to the SAP Appeals Committee. The Financial Aid Office will notify the student in writing within five business days following the decision by the appeals committee.

The student is required to submit their appeal in writing. The appeal must include the following information:

- A full explanation of the circumstances that led to their inability to meet the minimum progress requirements.
- Supporting documentation verifying the circumstances.
- A personalized academic plan. With the assistance of their academic advisor, the student is expected to explore options available to eliminate deficiencies; as well as to develop a realistic term-by-term listing of specific courses to be taken toward graduation; and non-course requirements to be completed (e.g., advancement to candidacy, qualifying examinations, dissertation defense). This plan is designed to ensure that the student will be able to meet the satisfactory academic progress standard by a specified point in time. The academic plan is signed by the academic advisor, department chair, and school academic dean.

If the appeal is approved, the student will be expected to adhere to the units and courses specified in the academic plan portion of the appeal. The academic plan will be closely monitored by the Financial Aid Office staff. Failure to follow the courses and units outlined may constitute the basis for future denial of financial aid.

The progress of students on an academic plan will be reviewed at the end of one payment period, and then according to the academic plan; but not less frequently than the rest of the institution's population.

## Financial aid eligibility reinstatement

A student who has failed to make satisfactory progress but who has appealed financial aid suspension and has had eligibility for aid reinstated is placed on financial aid probation. Clear financial aid eligibility will be regained when they are again in compliance with the SAP standard.

# Scholastic standards

## Academic standing

The following classifications are based on scholastic performance: regular standing or academic probation, as defined by each school within the University.

## Student level

Students enrolled in block programs are classified according to the level of the block in which they are enrolled (e.g., master's-1st, -2nd, or -3rd year; or freshman, sophomore, junior, senior, as is appropriate for the degree program; or PY1 [professional year 1]).

Undergraduate students enrolled in non-block programs are classified based on the transfer credits accepted that fulfill LLU degree requirements at the time of matriculation. Subsequent updates to classifications will include units earned at LLU. Undergraduate classifications are as follow:

| Student Level | Quarter Units |
|---|---|
| Freshman | 0 – 44.9 |
| Sophomore | 45 – 89.9 |
| Junior | 90 – 134.9 |
| Senior | 135+ |

## Grades and grade points

The following grades and grade points are used in this University. Each course taught in the schools has been approved for either a letter grade and/or an S/U grade.

| | | |
|---|---|---|
| A | 4.0 | Outstanding performance. |
| A- | 3.7 | |
| B+ | 3.3 | |
| B | 3.0 | Very good performance for undergraduate credit; satisfactory performance for graduate credit. |
| B- | 2.7 | |
| C+ | 2.3 | |
| C | 2.0 | Satisfactory performance for undergraduate credit. Minimum performance for which credit is granted toward a degree in the School of Nursing or the School of Allied Health Professions. |
| C- | 1.7 | Minimum performance for which credit is granted toward a degree in the School of Dentistry, the School of Pharmacy, or the School of Public Health. |
| D+ | 1.3 | |
| D | 1.0 | Minimum performance for which undergraduate credit is granted, except as indicated above. |
| F | 0.0 | Failure—given when coursework was attempted but when minimum performance was not met. |
| FA/UA | 0.0 | Failure to attend (U/A for S/U graded courses)—given when a student discontinues attendance without withdrawing. Last date attended is to be noted on instructor grade report. |
| MS | none | Marginally satisfactory performance—approved for the pre-docdtoral dentistry (D.D.S.) and advanced dental education programs in the School of Dentistry and for the Doctor of Medicine degree program in the School of Medicine; it is only applicable to S/U graded courses. |

| | | |
|---|---|---|
| S | none | Satisfactory performance—counted toward graduation. Equivalent to a C grade or better in undergraduate courses, or a B grade or better in graduate courses. An S grade is not computed in the grade point average. A student may request a grade of S in only a limited amount of coursework, as determined by the school in which the student is enrolled. This is done by the student's filing with the Office of University Records the appropriate form prior to fourteen calendar days before the final examination week. Once filed, the grade is not subject to change. |
| U | none | Unsatisfactory performance—given only when performance for an S-specified course falls below a C grade level in an undergraduate course or a B grade level in a graduate course. Similar filing procedures as given for an S grade above are required. The U grade is not computed in the grade point average. |
| S/N | none | Satisfactory performance in a clock-hour course. Not included in total units. Same grading criteria as the S grade given for a credit-hour course. |
| U/N | none | Unsatisfactory performance in a clock-hour course. Not included in total units. Same grading criteria as the U grade given for a credit-hour course. |
| CR | none | Credit for credit by examination. Counted toward graduation/units earned but not units attempted. Such credit cannot be counted for financial aid purposes. |
| NC | none | No credit for unsatisfactory performance for a credit by examination. Does not count for any purpose. |
| W | | Withdrawal—given for withdrawal from a course prior to fourteen calendar days before the final examination week for standard-term courses. Withdrawals during the first fourteen calendar days of a quarter or the first seven calendar days of a five-week summer session are not recorded if the student files with the Office of University Records the appropriate form prior to the cut-off date. Withdrawals outside this time frame, upon recommendation of the dean, may be removed at the discretion of the provost. In the case of nontraditionally scheduled courses, a W notation will be given for withdrawal from a course prior to completion of 80 percent of the course, excluding the final examination period. Withdrawals during the first 20 percent of a course, excluding the final examination period, are not recorded if the student files with the Office of University Records the appropriate form prior to the date when 20 percent of the course is completed. A student may withdraw only once from a named cognate course that they are failing at the time of withdrawal. |
| UW | | Unofficial Withdrawal—indicates that the student discontinued class attendance after the close of registration but failed to withdraw officially. |
| I | | Incomplete—given when the majority of the course work has been completed and circumstances beyond a student's control result in the student being unable to complete the quarter. An I notation may be changed to a grade only by the instructor before the end of the following term (excluding summer sessions for those not in attendance during that term). Incomplete units are not calculated in the grade point average. By use of the petition form—available online at https://home.llu.edu/campus-and-spiritual-life/student-services/academic-life (https://home.llu.edu/campus-and-spiritual-life/student-services/academic-life/)—the student requests an I notation from the instructor, stating the reason for the request and obtaining the signatures of the instructor, the department chair, and the associate dean. The instructor reports the I notation on the grade report form, as well as the grade the student will receive if the deficiency is not removed within the time limit. The petition form is then filed with the Office of University Records along with the grade report form. The I notation is not granted as a remedy for overload, failure on final examination, absence from final examination for other than an emergency situation, or a low grade to be raised with extra work. |
| IP | | In Progress—indicates that the course has a duration of more than a single term and will be completed by the student no later than the final term of the course, not to exceed five quarters for independent study and research courses (original quarter of registration plus four additional quarters). The student's final grade will be reported on the instructor's grade report at the end of the term in which the course is completed. If the coursework is not completed within the five-quarter time limit, a grade of UW will be given. |
| AU | | Audit—indicates registration for attendance only, with 80 percent class attendance considered a requirement. A request to change a credit course to audit or an audit course to credit may be made no later than the fourteenth calendar day after the beginning of a quarter, or the seventh calendar day after the beginning of the five-week summer session. (This does not apply to short summer courses lasting only a week or two.) |
| AUW | | Audit Withdrawal—given for withdrawing from a course, or to indicate that the 80 percent class attendance requirement was not met. |

## Grade change

Faculty members are responsible for evaluating and assigning grades. A grade may not be changed except when an error has been made in arriving at or recording a grade. Such changes are permissible up to the end of the succeeding term.

The faculty member must obtain the dean's signature on the change of grade form after the initial grade has been entered.

## Repeating a course

Once grades have been posted for a course, a student wishing to improve their grade must repeat the course. When repeating a course, the student must attend class and laboratory sessions as ordinarily required and take all regularly scheduled examinations. The amount of tuition paid for repeated courses is determined by the school. Both the original and the repeat grades will appear on the student's permanent record, but only

the repeat grade is computed in the G.P.A. and included in the total units earned. *A student may repeat a course only once, and no more than two courses may be repeated in a student's degree program.*

### Transcripts

The University provides Loma Linda University transcripts to other institutions, or to the student or graduate only upon the student's written or electronic request signature in accordance with FERPA.

# Transfer credit

## Definitions

**Accredited institution:**

An institution of higher education that has been granted institutional accreditation from a U.S. accrediting organization recognized by the U.S. Department of Education and/or the Council for Higher Education Accreditation (CHEA); or an international institution of higher education that is recognized as a degree-granting institution by the government (e.g., Ministry of Education) in the country where the institution is located.

**Transfer credit:**

Academic credit earned at an accredited college or university other than Loma Linda University and applied toward a degree program at Loma Linda University.

**Extramural credit:**

Academic credit earned at another accredited college or university after matriculating to Loma Linda University, for the purpose of transferring the credit to Loma Linda University to apply towards a degree program.

## Credit accepted for transfer

The Office of University Records will determine the transferability of courses according to University policy and standard transfer practices of accredited higher education institutions in the United States.

In addition to the requirement for transfer credit to come from an accredited institution, the quality of the learning experience is considered. Credit must also be appropriate and applicable to the LLU program to which it is being transferred.

Generally, credit for comparable courses earned in traditional classroom activities is accepted as transfer. The University may require a written, oral, or practical examination in any course for which transfer credit is requested. In such cases, an examination fee may be required.

Extramural credit is to receive prior approval by University Records to ensure that course(s) meet transfer standards before the student enrolls in the selected course(s). Official transcripts documenting the completion of extramural credit is to be received by University Records no later than 15 business days prior to the end of the term in which the degree is to be awarded.

Credit is not awarded for extension courses not accepted toward a degree at the offering institution.

### International

Credits submitted from a college outside the United States are evaluated on an individual basis by an evaluation center approved by Loma Linda University, which reports the evaluation results directly to the Office of University Admissions. It is the applicant's responsibility to contact an approved evaluation service and supply the required documents for evaluation.

# Undergraduate transfer credit

The purpose of general education requirements is to broaden knowledge beyond what is required in the baccalaureate field of study. For this reason, general education courses are expected to be completed in an institution providing liberal arts versus a career-focused institution in which courses may be taught with emphasis unique to a specific vocation.

No transfer credit is given for a course briefly addressing the chief topics of a broad field of knowledge if taken after a more comprehensive course on the topic. For example, a one-quarter survey/introductory physics course taken after general physics sequence or any portion of the sequence.

A minimum grade of “C” (2.0) is required for all courses accepted for transfer credit. Grades of “C-“or below are not acceptable. Courses taken for pass/fail (S/U) will be accepted if the institution from which it was taken states in their catalog and/or notes on the transcript that a pass is equivalent to grade of “C” (2.0) or better. If it is equivalent to a grade of “C-“, the course will not transfer.

Remedial, developmental education, or other non-academic level coursework is not accepted for transfer or calculated in a student’s grade point average.

A maximum of 105 quarter units of lower-division credit will be accepted from accredited junior/community colleges.

### Vocation-specific courses

Credit is accepted for vocation-specific courses to count toward units required in baccalaureate degree completion programs based on the following criteria:

- the school/program is recognized by the same programmatic accreditation organization that accredits the LLU program in the same discipline,
- the student has successfully passed the same program-specific licensure required of graduates of the LLU program,
- the course is substantially equivalent to coursework at LLU,
- the courses are applicable to the LLU degree program to which the student is applying/currently enrolled, and must be within the 105 quarter-unit limit accepted from a junior/community college.
- Units transferred are based on actual units earned as posted on the awarding institution’s transcript—for a maximum of 50 quarter units. Only units for didactic courses are transferred—no clinical courses.

### U.S. service schools

Credit may be given for transfer from U.S. service schools carrying a baccalaureate credit recommendation in the latest Guide to the Evaluation of Education Experiences in the Armed Services (https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/military-guide-online.aspx) provided by the American Council on Education (ACE). An official Joint Services Transcript (JST) must be submitted for evaluation. Credit must be for subject matter relevant to the degree program at LLU. Credit may be awarded for physical education activity based on basic training as documented on a JST or physical education activity waived on submission of DD-214.

### Credit by examination

Credit is granted for scores of 3, 4, or 5 on Advanced Placement (AP) examinations taken while enrolled in secondary school and submitted by the College Entrance Examination Board. The amount of credit assigned AP examinations may not duplicate credit earned in subsequent college courses covering the same or similar content. In such cases, transfer credit will be based on the latest credit earned which would be the college course(s).

Credit is granted for scores submitted by the College Board for examinations of the College Level Examination Program (CLEP) except for English composition.

- Credit for courses is granted according to recommendations by the American Council on Education (ACE).
- Students are allowed to challenge a given course by examination only once.
- Students must complete all CLEP credit within six months after the posting of the initial LLU degree audit online. Credit will not be awarded if previous coursework at the equivalent or at a more advanced level has been awarded or for courses that have been attempted and failed.

Credit is granted for scores of 5, 6, or 7 earned on International Baccalaureate (IB) Examinations for higher-level subject examinations. General elective credit only is given. In other words, it does not fulfill specific subject requirements. For example, credit in physics may fulfill elective credit in natural sciences, but does not fulfill a requirement for a general physics sequence. No credit is granted for “standard” or “subsidiary” level subjects.

For additional information on undergraduate transfer credit, see LLU policies on the LLUH One Portal (https://one.lluh.org/).

## Graduate transfer credit

For acceptance as transfer credit, courses must not have been previously applied to another degree program or curriculum. Academic standing may be given for courses applied to another degrees.

Courses must be applicable to a graduate degree program at the issuing institution.

The maximum number of didactic units that may be transferred toward an LLU graduate degree may not exceed 20 percent of the minimum didactic units required for the degree. In order to preserve the unique character of degrees from LLU, the combination of transfer credit and advanced standing must not exceed 40% of the didactic coursework at LLU as specified in the University Catalog, which excludes internships, practica, clinical experiences, research and courses in religion. The precise amount of transfer credit which is applicable toward a particular degree will be determined by the specific school and department concerned, not to exceed limit set here.

Extramural credits taken through a consortium agreement (e.g., NEXus – the Nursing Education Xchange) may exceed the unit limit for transfer credit stated above. Consortium agreements must be approved by University Academic Affairs Committee.

A minimum grade of "B" (3.0) is required for all courses accepted for transfer credit. Transfer of courses completed more than seven years prior to registration in the LLU graduate program are not eligible for transfer.

Transfer-credit courses must be equivalent to courses identified in the program curriculum outlined in the University Catalog or defined as a cognate.

Extension credits earned at another accredited institution are not accepted for transfer credit unless they are applicable to a graduate degree at the institution awarding the credit and must be approved by the dean of the school (LLU).

For additional information on graduate transfer credit, see LLU policies on the LLUH One Portal (https://one.lluh.org/).

# Financial Policies and Information

Students are expected to arrange for financial resources to cover all expenses before the beginning of each school year. Accounts with other schools or with this University must be settled before enrollment. Registration is not complete until tuition and fees for each term are paid; therefore, students should be prepared to make these payments during scheduled registration periods for each academic year. Tuition and fees may vary from amounts shown. Please refer to the Student Account Disclosure statement for additional student account financial information (<llu.edu/assets/central/ssweb/studentfinance/documents/disclosure.pdf (http://www.llu.edu/assets/central/ssweb/studentfinance/documents/disclosure.pdf)>).

## Student fees

### Enrollment fees

Students attending this University will be charged an enrollment fee, based on the criteria indicated below. Neither the fee in total nor any portion of the fee will be waived under any circumstance. Other school-specific charges—such as technology fees, and laboratory fees—may also appear on the student account. The following criteria govern the enrollment fee:

1. Students who are accepted into a degree program and are registered will be charged the enrollment fee, regardless of the number of units for which they are registered.
2. Students who are not accepted into a degree program but who are registered as non-degree students for more than 4 units (5 units for School of Allied Health Professions) will be charged the enrollment fee.
3. Students who are working on "In Progress" courses and who are not registered for any other units will be charged the enrollment fee.
4. A student who is charged the enrollment fee but who drops all units before the deadline for a full refund (generally one week after the first day of classes) will receive a full refund of the enrollment fee and will have no access to any University benefits. Please refer to the refund policy.
5. Loma Linda University Health employees who are "full-time, benefit eligible" will not be charged the enrollment fee, whether they are using their education benefit or not. Spouses of employees who are using the employee benefit will be charged the enrollment fee.
6. Students participating in an off-campus or online program will not be charged the enrollment fee, unless the program specifically requires this fee, or on-campus courses are taken.
7. Other school-specific fees will be charged independent of the enrollment fee.
8. Fees are refunded only during the 100 percent refund period.

### Other fees

| | |
|---|---|
| Late payment fee (term) | $100 |
| Late registration fee | $200 |
| Returned payment fee | $25 |
| Lost check reissue fee | $15 |
| Returned direct deposit fee | $15 |

Students who have not paid the balance due for registration, or who have not been awarded financial aid sufficient to cover the balance prior to registration, will be charged a late payment fee.

# General practices

## Tuition payments/refunds

Tuition and fees are due and payable in full to complete registration each term. If a student withdraws from a per-unit course or program, or from a block program up to 60 percent into a term, tuition will be refunded on a pro rata basis. Students who drop a course from a block program of courses will not receive a refund (please refer to the refund percentages and dates attached to individual courses). Fees are refunded only during the 100 percent refund period.

## Monthly statement

The amount of the monthly statement is due and payable in full upon presentation or notification of statement availability. A student unable to meet this requirement must make proper arrangements with the director of student finance. An account that is more than thirty days past due is subject to a finance charge of .833 percent per month (10 percent per year). Failure to pay scheduled charges or to make proper arrangements will be reported to the respective school administrator and may cause the student to be considered absent, discontinued, or ineligible to take final examinations. Students may also request that monthly statements be sent to a parent or sponsor.

## Financial clearance

The student is expected to keep a clear financial status at all times. Financial clearance must be obtained:

- Each term in order to complete registration;
- Before obtaining access to university services;
- Before marching for graduation;
- Before receiving a certificate or diploma;
- Before requesting a statement of completion or other certification to be issued to any person, organization, or professional board.

All University registration holds must be cleared before financial clearance can be granted.

To obtain financial clearance from the Student Loan Collections Office, students with campus-based student loans must be current on all scheduled loan account payments and must have fully completed a loan exit interview after ceasing to be enrolled for at least half time at this University. If the student's loan accounts are not current, or an exit interview has not been fully completed, a hold will be placed by the Student Loan Collections Office on diploma, or degree verification; and P1E requests and other services may be denied. Please note that all student loans are reported to a credit bureau organization on a monthly basis. If a student fails to comply with the terms and conditions of the promissory note, the Student Loan Collections Office will accelerate the loan(s), place the student loan(s) in collection with an outside agency, and demand immediate payment of the entire unpaid balance—including principal, interest due, late fees, other fees, collection costs, attorney costs, and legal costs.

### Account charges

Students who are currently enrolled on campus in a degree or certificate program are allowed to charge items and services to their accounts. Campus services that permit student account charges include the Campus Store, Student Affairs, the food service locations on campus, and other providers.

## Payments

Bankcard, ACH, check, wire transfer, International to U.S. funds conversion, and cash payments are accepted. Checks should be made payable to Loma Linda University and should indicate the student's ID number to ensure that the correct account is credited. International students can also make payments in their local currency through the Flywire Service (https://www.flywire.com/). In case a payment is returned, a $25 returned-item fee will be assessed. Payments are accepted online at <http://www.llu.edu/students/student-finance/>, by mail, and in person at Student Finance. Account credits resulting from financial aid, tuition refunds, or other payments and adjustments, may be credited back to any bankcard used—to the extent of the card payment made—before a refund direct deposit or check will be issued.

Please note that student identification cards are required for enrolled students to obtain services at the Student Services Center. (LLU HEALTH employees may present their employee ID cards in lieu of student ID.)

### Account withdrawals

Students who have credit balances on their accounts after all University charges are covered may request a withdrawal of these funds. Each account withdrawal must be requested by the student. Withdrawals will be processed as direct deposits or checks; no cash withdrawals or automatic account withdrawal services are available.

Student withdrawal requests made online, in person at the Student Finance cashier's window, or by fax during office hours, completed before midnight on Tuesday of each week, will be processed on Thursday of that week. Students may also request rush withdrawal processing for next business day service. A $20 processing fee is charged.

Direct deposit authorization and online account withdrawals can be initiated by logging into <http://ssweb.llu.edu/loginsso (http://ssweb.llu.edu/loginsso/)> and going to the Student Finance menu. If direct deposit funds are returned to the University due to the entry of inaccurate bank account information, a fee will be charged. Direct deposits may take two days or more after processing to appear in bank accounts. It is the student's responsibility to verify the receipt and availability of direct deposit funds before initiating any transactions.

Checks will be available for pickup after 11:00 a.m. at the Student Finance cashier's window each business day, or they can be mailed.

Students are cautioned to carefully budget the use of withdrawn funds because additional funds may be needed to cover education and living expenses for current and/or future terms. The Financial Aid Office should be contacted with questions about student budgeting and the use of funds available for withdrawal.

# Deposits

## Acceptance deposit

Upon notification of acceptance, the student makes the required deposit (see school or program for specific deposit amount). This amount is

deducted from the tuition and fees due at registration, or is forfeited if the student does not enroll.

### Room and key deposit

Residence hall room and key deposits for Daniells Complex and for Lindsay Hall are forfeited after August 15 if occupancy does not follow for the Autumn Quarter. At the close of the term of residence, both the room deposit and the key deposit are refunded after the dean's inspection and clearance and the student's return of the key.

### International student deposit

Loma Linda University requires that international students be prepared to provide an advance deposit and as well as documentation that additional funds will be forthcoming to meet school expenses. The deposit will be held by the University during the program of study and will be applied to the final quarter's tuition and fees. Alternatively, the deposit may be refunded, less any outstanding balance on the account, if the student is denied a visa or terminates their program.

## Housing

If a student is interested in on-campus/residential housing, application may be made online at <llu.edu/central/housing (http://www.llu.edu/central/housing/)>.

## International students

International applicants (non-U.S. citizens and non-U.S. permanent residents) must meet all admissions requirements for the chosen program before an offer of acceptance can be issued. This includes providing evidence of their ability to meet estimated living expenses and all financial obligations to the University that will occur during their program.

After acceptance into the chosen program, the office of International Student and Scholar Services will contact international applicants and guide them through the appropriate procedures. For questions, please call International Student and Scholar Services at 909/558-4955.

## Health service

A student enrolled in an on-campus certificate or degree program may be covered by the Student Health Plan provisions. Non-degree students taking more than 4 units (5 units for School of Allied Health Professions) may also be covered by the plan. Please view the student registration portal for notice of coverage. A non-degree student may request and pay for health plan coverage if they are a part-time student who has been accepted into a board-approved (degree or certificate) program and is currently registered for up to and including 4 units. For further information, see the Student Health Plan in the Student Life section of this CATALOG.

## Student aid

The Office of Financial Aid strives to provide prospective and enrolled students with information and resources to financially support their educational goals. Through the administration of federal student aid programs, state grant programs, and University-based institutional loans and scholarships, the financial aid office assists students in removing financial barriers to obtaining a higher education. It is the responsibility of LLU to ensure that funds are administered according to federal and state law.

**Applying for aid**

To apply for financial aid, citizens and eligible noncitizens must complete a Free Application for Federal Student Aid (FAFSA), available online at <(http://www.fafsa.ed.gov)https://studentaid.gov/h/apply-for-aid/fafsa (https://studentaid.gov/h/apply-for-aid/fafsa/)>. The FAFSA became available October 1, 2020, for the 2021-2022 academic year. Completing an application as soon as possible is strongly recommended. Results of the FAFSA, called the Student Aid Report (SAR), will be electronically sent to Loma Linda University if the student has listed the institution on the application. The school code for LLU is 001218. The FAFSA must be completed for each academic year.

International students are not eligible for U.S. government assistance, but may receive private funding, such as personal educational loans, from a lending institution or bank. Lenders may require a cosigner who is a U.S. citizen or permanent resident. Please contact the lending institution for more information on the application process as well as the terms and conditions of the applicable loans.

Students must be enrolled in an eligible degree or certificate program to receive financial aid. Additionally, most financial aid programs require a student to be attending at least half time in eligible units/hours.

**Eligibility**

Eligibility for need-based financial aid is determined by many factors, including the family's income, assets, family size, and number in college. All information is used to calculate the expected family contribution (EFC); the formula is found in Part F of Title IV of the Higher Education Act (HEA) of 1965, as amended. Updates are published in the *Federal Register.* Eligibility for need-based funds is calculated by subtracting a student's EFC from the estimated cost of attendance.

Non-need-based financial aid is not related to one's EFC. If a student requires additional aid, they may apply for other non-need-based forms of aid to supplement the cost of attendance. Non-need-based aid may not exceed a student's estimated cost of attendance minus any other assistance they have been awarded. Students must apply for need-based funding and complete a FAFSA to receive most forms of non-need-based assistance.

Merit-based aid is given without regard to financial need and is typically awarded based on academic achievements, talents, demographic characteristics, and other criteria. Students seeking merit-based aid may apply to outside agencies or contact their programs to inquire about availability. The Office of Financial Aid does not select recipients for merit-based aid.

For more information on eligibility and general requirements, please visit <http://www.llu.edu/students/financial-aid/eligibility.php> (http://www.llu.edu/students/financial-aid/eligibility.php).

**Financial aid awards**

If a student is eligible for financial aid, their need may be funded by various sources. Students who met the priority funding deadline (March 2, 2021, for the 2021-2022 academic year) were given greatest consideration during the awarding process. Following the priority funding deadline, most funds are distributed on a first-come, first-served basis due to the limited availability of certain awards.

**Types of aid**

For detailed information on the types of aid available through the Office of Financial Aid, please visit<http://www.llu.edu/students/financial-aid/types-of-aid.php> (http://www.llu.edu/students/financial-aid/types-of-aid.php).

Aid available to **undergraduate** students:

- Federal PELL Grant
- Federal Supplemental Educational Opportunity Grant (FSEOG)
- Cal Grant (California residents only)
- Direct Subsidized Stafford Loan

Aid available to **undergraduate** and **graduate** students:

- Direct Unsubsidized Stafford Loan
- Direct PLUS Loan (parent and graduate)
- Federal Work Study (FWS)
- Institutional loans and scholarships
- Private educational loans from outside lenders

**Reporting outside assistance**

Students are required to report any outside financial aid assistance to the Office of Financial Aid. Outside assistance must be coordinated with any federal, state, or institutional funds to prevent an over-award. Failure to report outside assistance may result in the owing of funds to either the institution or the U.S. Department of Education.

# Veterans benefits

Loma Linda University is approved for the training of veterans and other eligible persons under Title 38 of the U.S. Code. Information regarding eligibility for these programs may be obtained by calling 1-888-GIBILL-1 (1-888-442-4551). Application for benefits must be made directly to the Veterans Administration (VA) and may be done via the web at <www.gibill.va.gov> (http://www.gibill.va.gov).

The Office of University Records serves as the certifying office for Loma Linda University. Students should contact the certifying official prior to their first enrollment certification. Veterans cannot be certified until they register and submit required forms indicated under the Benefit Status section.

## Admissions

Loma Linda University admissions policies apply to all students, including veterans, regarding evaluation of credit for previous education and training. LLU maintains a record of all previous academic education and training for all students, including veterans and eligible persons. Credit granted from previous education will be indicated on the degree audit, when appropriate, which may shorten time to degree completion. The degree audit is available to the student and advisor.

## Benefit status

As long as the Office of University Records has received and processed the following forms before deadlines specified on the Registration Portal, the student will not be penalized if funding from the Department of Veterans Affairs under chapter 31 or 33 is delayed:

1. Certificate of eligibility for entitlement to education assistance.
2. VA Enrollment Certification form.
3. VA Request to Use Benefits form.

Students receiving veteran's benefits who fail—for three consecutive quarters—to maintain the cumulative grade point average (G.P.A.) required for graduation will have their benefits interrupted, and the VA office will be notified.

School of Medicine students must maintain satisfactory grades for all required courses for the year in which they are currently enrolled. If a grade in a required course reflects unsatisfactory progress, the student will not be certified by the VA until they progress to the next academic year.

For more information, utilize the links to the Veterans Information site under the "Veterans" button online at <www.llu.edu/students (http://www.llu.edu/students/)>.

# WICHE

The University participates in the student exchange program of the Western Interstate Commission for Higher Education (WICHE). Eligibility requirements vary among states. Interested students should apply to their state's certifying officer for further information.

The name and address of the certifying officer can be obtained from the Western Interstate Commission for Higher Education, 3035 Center Green Drive, Suite 200, Boulder, CO 80301. Web page: <wiche.edu/psep (http://wiche.edu/psep/)>.

Inquiry may also be made at the Office of Student Financial Aid. The application deadline is October 15 prior to the year aid is needed.

# SCHOOL OF ALLIED HEALTH PROFESSIONS

## Dean's welcome

Welcome to the School of Allied Health Professions, where your future begins. If you are considering a new allied health career or returning to advance your current one, we are committed to providing you a quality professional education and fostering your personal and spiritual development while you are attending our school. We encourage all of our students to learn not only in the classroom, but through mission and service both locally and globally. We are glad you are here, and we are ready to help you achieve your academic goals.

Craig R. Jackson, J.D., M.S.W.
Dean, School of Allied Health Professions

## School foundations

The School of Allied Health Professions was established in 1966 (under the name School of Health Related Professions, 1966-1971) to consolidate the administration of individual curricula initiated earlier in the University: medical technology, 1937; physical therapy, 1941; medical radiography, 1941; occupational therapy, 1959; and health information management (formerly medical record administration), 1963.

The following curricula were added since the school was established: nuclear medicine technology, 1970; radiation therapy technology, 1970; cardiopulmonary sciences (formerly respiratory therapy), 1971; nutrition and dietetics, 1972; medical sonography, 1976; special imaging technology, 1976; cytotechnology, 1982; coding specialist, 1987; physical therapist assistant, 1989; emergency medical care, 1993; physician assistant, 2000; rehabilitation sciences, 2001; polysomnography, 2002; radiologist assistant, 2003; medical dosimetry, 2003; orthotics and prosthetics, 2007; health-care administration, 2008; cardiac electrophysiology technology, 2009; and health professions education, 2010. The curriculum in speech-language pathology and audiology, renamed communication sciences and disorders in 2009, was initiated in 1965 under the auspices of the College of Arts and Sciences at La Sierra University (formerly Loma Linda University, La Sierra campus). The program was transferred to the School of Allied Health Professions in 1987. Policies and procedures governing programs currently offered are detailed in this section of the CATALOG following information that pertains to all School of Allied Health Professions students.

## Mission and goals

### Our mission

The School of Allied Health Professions is dedicated to fulfilling the mission of Loma Linda University through academic and clinical training of allied health professionals. The school prepares competent health professionals in a Christian environment that emphasizes the teaching and healing ministry of Jesus Christ, "to make man whole."

To meet local, national, and international allied health-care needs, the school seeks to serve:

1. Students choosing to become health-care professionals.
2. Individuals in need of medical care or health promotion programs.
3. Faculty and staff members committed to working with students in a Christian educational setting.

### Our goals

The goals of the School of Allied Health Professions are to:

1. Provide an environment in which the student may develop responsibility for integrity, ethical relationships, and empathetic attitudes that contribute to the welfare and well-being of patients.
2. Help the student accept responsibility for integrity, ethical relationships, and empathetic attitudes that can contribute to the welfare and well-being of patients.
3. Help the student develop a background of information and attitudes conducive to interprofessional understanding and cooperation.
4. Encourage the student to cultivate habits of self-education that will foster lifelong growth.
5. Engender and nurture in the student the desire to serve humankind —and, in particular, to serve as needed, in the medical centers sponsored by the Seventh-day Adventist Church in this country and elsewhere.

The School of Allied Health Professions has adopted the University's institutional learning outcomes (p. 19).

## Evaluation of mission and institutional learning outcomes—Wholeness Portfolio

Wholeness Portfolio courses focus on student development aligned with Loma Linda University's mission-focused learning environment that fosters transformative learning through the following:

- Emphasis on health and wholeness informed by the Adventist perspective.
- Integration of faith as part of the Loma Linda University student experience.
- Opportunities to think critically, problem solve, and reflect.
- Analysis of unconscious bias in support of diversity, equity, and inclusion.
- Engagement with diverse communities through service.

# General regulations

University students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

# Admissions policies and information

Program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. School admissions committees accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

In selecting students, the Admissions Committee of the School of Allied Health Professions looks for evidence of self-discipline, personal integrity, and intellectual vigor. The committee also looks for evidence that applicants possess the capabilities required to complete the full curriculum in the allotted time and to achieve the levels of competence required. Acceptance into any program is contingent on the recommendation of the department conducting the program.

Most programs require an interview with the faculty. Loma Linda University was established to provide education in a distinctively Christian environment, and its students are expected to adopt Christian ethical and moral standards as a basis for their conduct. It must be understood further that, in harmony with the University's emphasis on health and the health professions as well as the practices of the supporting Church, applicants who use tobacco, alcoholic beverages, or narcotics should not expect to be admitted.

Loma Linda University is committed to equal opportunity and does not discriminate against qualified persons on the basis of handicap, gender, race, color, or national or ethnic origin in its educational and admissions policies, financial affairs, employment programs, student life and services, or any University-administered program. It does, however, retain the right to give preference in student admissions to qualified Seventh-day Adventist applicants. While this right is retained, it should be emphasized that admission is not limited to Seventh-day Adventist applicants.

## Application and acceptance

### Where to write

Correspondence about admission to all programs and requests for application information should be addressed to the Office of Admissions and Records, School of Allied Health Professions, Loma Linda University, Loma Linda, CA 92350 or emailed to askalliedhealth@llu.edu.

### Apply early

One class is admitted annually to most of the professional programs. Most programs begin with either Summer or Autumn Quarter. Exceptions are noted in the respective programs of this CATALOG.

Late applications are considered as long as space is available. Notifications are generally sent between January 1 and May 15, depending on varying application deadlines, the completeness of information provided, and the date of application. Applicants should inquire at the Office of Admissions and Records if notice of action is not received by a month prior to the start of the program.

### Application review process

All completed applications are first reviewed by the department chair and faculty. A recommendation on each application is then submitted to the school's Admissions Committee that makes the final decision regarding acceptance.

### Procedure

The procedure for application and acceptance is given below. All correspondence is to be sent to the Office of Admissions and Records, School of Allied Health Professions, Loma Linda University, Loma Linda, CA 92350 or emailed to askalliedhealth@llu.edu. All official transcripts, international evaluations, and test scores are to be sent to Admissions Processing, Loma Linda University, 11139 Anderson Street, Loma Linda, CA 92350.

1. Apply online at <www.llu.edu/central/apply>. (http://www.llu.edu/central/apply/) Be prepared to enter the names and email addresses for your recommenders. Have dates of attendance for all colleges/universities attended ready for entry on the application.
2. Request that transcripts of all college coursework be sent to Admissions Processing. High school transcripts are required of all applicants in order to verify graduation. High school transcripts are not required if you have completed either an associate or bachelor's degree unless coursework in high school is used to satisfy a requirement.
3. Upon receipt of the notice of acceptance, submit the required deposit to confirm acceptance.
4. Send health records or certificates to Student Health Services, 24785 Stewart Street, Evans Hall, Suite 111, Loma Linda, CA 92354.

## Entrance requirements

### Subject/Diploma requirements

High school and college subject requirements are outlined in the respective programs. Students are required to furnish official transcripts as evidence of completion of high school in order to be granted admission to undergraduate programs in any of the schools of the University. Applicants who have completed either an associate or bachelor's degree are exempt from submitting a high school transcript unless coursework in high school is used to satisfy a subject requirement. A high school diploma or its equivalent, the GED, is required.

### Grade requirement

Eligibility for consideration by the Admissions Committee is based on a G.P.A. of at least 2.0 (on a 4.0 scale) for all coursework (science and non-science subjects computed separately), presented in fulfillment of entrance requirements for all programs in the school. A G.P.A. considerably higher than the minimum is expected because of the nature of the studies in many professional programs and the competition for the

limited number of openings. In general, G.P.A.s between 2.5 and 3.0 are considered minimal, depending on the program. A minimum grade of C (2.0) is required for all college transfer courses.

# Student life

The information on student life contained in this CATALOG is brief. The most current *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

### Professional standards

Because the student has chosen a professional field for their work, it is important that the student portray a professional image to those with whom they come into contact. Inappropriate dress, grooming, or conduct detracts from patients' confidence in the quality of their care. In addition, Loma Linda University's affiliating hospitals have standards that are generally reflected in the guidelines below. For these reasons, the School of Allied Health Professions provides the following standards that are required of the student while enrolled in the program.

- Hair should be neat and clean. If long, it may be required to be tied back.
- Mustaches and beards must be neatly trimmed.
- Makeup should be natural in appearance.
- Jewelry should be professional in appearance and safe for clinical setting.
- Fingernails should be closely trimmed, and should not interfere with patient safety and comfort during treatments.
- Words, pictures, and/or symbols displayed on clothing should be consistent with a Christian institution and sensitive to diverse student and patient populations.

# Academic policies and information

Students are responsible for informing themselves of the policies and regulations pertinent to registration, matriculation, and graduation; and for satisfactorily meeting these requirements.

### Academic probation

Students whose cumulative G.P.A. at the end of any quarter is less than the minimum required by the school or program will be placed on academic probation, and the number of units for subsequent registrations will be restricted to a maximum determined by the school or program. A student on academic probation jeopardizes their standing in a degree or certificate program.

### Academic residence

In order to graduate from Loma Linda University with a bachelor's degree, a student must complete at least 32 of the last 48 units, or a minimum of 45 total units of coursework, at this University. A minimum grade of C (2.0) or better is required for all B.S. and post-baccalaureate degrees.

### Graduation ceremonies

Graduation events include formal ceremonies identified as conferring of degrees, awarding of diplomas, and recognition of candidates for degrees. Other related graduation events include the baccalaureate and vespers services. The conferring of degrees ceremony(ies) occurs at the close of Spring Quarter and includes an academic procession, the formal conferring of degrees by the president, and the presentation of diplomas by the dean of the school. Candidates who complete the requirements for degrees and certificates are invited, with families and friends, to attend and participate in these important and colorful events.

To be eligible to participate in graduation events, candidates must have completed all requirements for the degree, including prerequisites and/or corequisites, as specified by the school. In certain degree programs, upon authorization of the dean, exceptions will be made for candidates who

- have only clinical experience requirements to complete and can project completion by the end of the calendar year
- can complete remaining degree requirements by the end of the Summer Quarter
- are in a block program

The still in-progress coursework may not exceed eight units for graduate students or 12 units for undergraduate students. A student who completes the requirements for a degree or certificate (other than clinical experience) at the end of the Summer, Autumn, or Winter Quarter is invited to participate in the subsequent June commencement events. The official date of graduation on the diploma is ordinarily the last day of the term in which requirements for a degree are completed.

Superior academic performance and achievement in scholarship and leadership are recognized in the printed graduation program for persons who complete their baccalaureate degree and who at the end of the quarter preceding their final term have acquired a cumulative grade point average for all college work (includes coursework taken at other colleges/universities, except for remedial courses), as follows:

| | |
|---|---|
| 3.5 | Graduation cum laude |
| 3.8 | Graduation magna cum laude |
| 3.9 | Graduation summa cum laude |

Although the official commencement program indicates names of graduates who qualify for honors on the basis of their grade point averages as of the end of the quarter preceding their final term, the subsequently issued diploma and transcript may indicate graduation with honors if the student's final quarter record has increased the grade point average sufficiently to qualify for honors at that time.

### Scholastic standing

#### Repeating a course

A student who receives an unsatisfactory grade in a required course and is required by the faculty to do additional work may request permission of the faculty to pursue one of the following plans. In either plan, the student must register and pay the applicable tuition.

1. Review the coursework under supervision and take a make-up examination (usually not given before a minimum of two weeks of study). A passing grade resulting from a repeat examination will be limited to a C (2.0). (See the Schedule of Charges in the Financial Information section of this CATALOG for the tuition rate for tutorial coursework.)
2. Repeat the course, attend class and/or laboratory, and take the final course examination. Full tuition will be charged, whether regular or occasional attendance is required. (See the Schedule of Charges in the Financial Information section of this CATALOG for the tuition rate.)

A student who receives an unsatisfactory grade in a required clinical experience course and is required by the faculty to do additional work must re-register for the course. Both the original and repeat grades are

entered in the student's permanent academic record, but only the repeat grade is computed in the grade point average. A course may be repeated only once.

**Promotion and probation**
Each student's record is reviewed quarterly by the faculty. Promotion is contingent on satisfactory academic and professional performance and on factors related to aptitude, proficiency, and responsiveness to the established aims of the school and of the profession. As an indication of satisfactory academic performance, the student is expected to maintain the following grade point average at a minimum:

| | |
|---|---|
| 2.0 | Associate and baccalaureate degree programs |
| 3.0 | Master's degree program |
| 3.0 | Doctoral degree program |

A student whose grade point average in any term falls below the minimum required for the degree, who receives in any professional or required course a grade less than a C (2.0), or whose clinical performance is unsatisfactory is automatically placed on academic probation. Continued enrollment is subject to the recommendation of the department. If continued enrollment is not recommended, the case is referred to the school's Administrative Council for final action.

If continued enrollment is recommended, the student will be required to institute a learning assistance plan within the first two weeks of the following quarter and to meet regularly scheduled appointments with the academic advisor. The learning assistance plan should: identify the problem, identify and list the goals, state the time frame, and include student and advisor signatures and date.

A student who is on academic probation and fails to make the minimum required grade point average the following quarter or fails to have an overall minimum grade point average after two quarters will have disqualified themself from the program.

**Standard of student progress (time framework)**
After initial enrollment in a program, students must complete program requirements within the following time frames:

| | |
|---|---|
| A.S. degree | 3 years |
| B.S. degree | 5 years |
| Master's degree | 5 years |
| Doctoral degree | 7 years |

# Additional requirements

For additional policies governing Loma Linda University students, see general policies of the University (p. 34), as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

# Financial policies and information

The Office of the Dean is the final authority on all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees for the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must have been settled.

### Schedule of charges (2021-2022)

(Subject to change by Board of Trustees action)
NOTE: Tuition rates are effective Summer Quarter through the following Spring Quarter.

**Tuition information: by department**

| | | |
|---|---|---|
| Column 1 | Year | academic year/class |
| Column 2 | Units | total units for academic year |
| Column 3 | Tuition | total tuition for academic year |
| Column 4 | Per Unit | per unit rate for the academic year |

**Allied Health Sciences**
**REHABILITATION SCIENCE—DOCTOR OF PHILOSOPHY**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| Multi Year | Units vary per quarter | Varies | $740 |

**HEALTH PROFESSIONS EDUCATION—MASTER OF SCIENCE—Units vary (online and face-to-face)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| Multi Year | Units vary per quarter | Varies | $775 |

**HEALTH PROFESSIONS EDUCATION—CERTIFICATE—units vary (online and face-to-face)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| Multi Year | Units vary per quarter | Varies | $775 |

**Cardiopulmonary Science**
**RESPIRATORY CARE—BACHELOR OF SCIENCE (TRADITIONAL)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 53 | $32,436 | $612 |
| 2 | 62 | $37,944 | $612 |

**RESPIRATORY CARE—BACHELOR OF SCIENCE (POSTPROFESSIONAL)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 48 | $21,600 | $450 |
| 2 | 12 | $5,400 | $450 |

**RESPIRATORY CARE—MASTER OF SCIENCE RESPIRATORY CARE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 29-34 | $17,980-$21,080 | $620 |
| 2 | 11-13 | $6,820-$8,060 | $620 |

**POLYSOMNOGRAPHY—CERTIFICATE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 27 | $12,825 | $475 |

### Clinical Laboratory Science

#### CLINICAL LABORATORY SCIENCE—BACHELOR OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 63 | $41,706 | $662 |
| 2 | 63 | $41,706 | $662 |

#### PHLEBOTOMY—SCHOOL CERTIFICATE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 5 | $2,365 | $473 |

### Communication Sciences and Disorders

#### COMMUNICATION SCIENCES AND DISORDERS—BACHELOR OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 48-54 | $29,088-$32,724 | $606 |
| 2 | 39-47 | $23,634-$28,482 | $606 |

#### COMMUNICATION SCIENCES AND DISORDERS—MASTER OF SCIENCE (TRANSITIONAL PROGRAM)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 37 | $29,378 | $794 |
| 2 | 40 | $31,760 | $794 |
| 3 | 23 | $18,262 | $794 |

#### COMMUNICATION SCIENCES AND DISORDERS—MASTER OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 34 | $26,996 | $794 |
| 2 | 23 | $18,262 | $794 |

#### SPEECH-LANGUAGE PATHOLOGY—DOCTORATE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 18 | $14,742 | $819 |
| 2 | 24 | $19,656 | $819 |
| 3 | 9 | $7,371 | $819 |

### Health Informatics, Information Management, and Administration

#### HEALTH INFORMATION MANAGEMENT—BACHELOR OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 44 | $18,480 | $420 |
| 2 | 47 | $19,740 | $420 |
| Part-time | Units Vary | Varies | $420 |

#### HEALTH INFORMATION MANAGEMENT—CERTIFICATE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 42 | $17,640 | $420 |
| 2 | 43 | $18,060 | $420 |

#### HEALTH INFORMATICS—MASTER OF SCIENCE (ON CAMPUS AND ONLINE)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 24 | $16,824 | $701 |
| 2 | 24 | $16,824 | $701 |

#### HEALTH-CARE ADMINISTRATION—BACHELOR OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| Multi Year | Units Vary | Varies | $490 |

#### CODING SPECIALIST—CERTIFICATE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 20 | $4,800 | $240 |

### Nutrition and Dietetics

#### NUTRITION AND DIETETICS—BACHELOR OF SCIENCE

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 50 | $31,800 | $636 |
| 2 | 48 | $30,528 | $636 |

#### NUTRITION AND DIETETICS—b.s. AND m.s. (COORDINATED PROGRAM)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 50 | $31,800 | $636 |
| 2 | 48 | $30,528 | $636 |
| 3 | 48 | $37,008 | $771 |

#### NUTRITION AND DIETETICS—MASTER OF SCIENCE (DPD TRACK)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 37 | $28,527 | $771 |
| 2 | 37 | $28,527 | $771 |
| 3 | 6 | $4,626 | $771 |

#### NUTRITION AND DIETETICS—MASTER OF SCIENCE (FOR THOSE WHO HAVE AN RD)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 48 | $37,008 | $771 |

#### NUTRITION AND DIETETICS—MASTER OF SCIENCE (COORDINATED PROGRAM FOR BACHELOR'S DEGREE GRADUATES IN NON-NUTRITION AREAS)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 48 | $30,528 | $636 |
| 2 | 46 | $35,466 | $771 |
| 3 | 33 | $25,443 | $771 |

### Occupational Therapy

#### OCCUPATIONAL THERAPY—MASTER OF OCCUPATION THERAPY (ENTRY LEVEL)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 56 | $39,200 | $700 |
| 2 | 49 | $34,300 | $700 |
| 3 | 16 | $11,200 | $700 |

#### OCCUPATIONAL THERAPY—DOCTOR OF OCCUPATIONAL THERAPY

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 18 | $12,600 | $700 |
| 2 | 24 | $16,800 | $700 |
| 3 | 11 | $7,700 | $700 |

#### OCCUPATIONAL THERAPY—DOCTOR OF OCCUPATIONAL THERAPY (INTENSE TRACK)

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 39-42 | $27,300-$29,400 | $700 |
| 2 | 11-14 | $7,700-$9,800 | $700 |

### Orthotics and prosthetics

#### ORTHOTICS AND PROSTHETICS—B.S./M.S.O.P

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 54 | $31,482 | $583 |
| 2 | 63 | $36,729 | $583 |
| 3 | 39 | $22,737 | $583 |

**ORTHOTICS AND PROSTHETICS—M.S.O.P Hybrid**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 40 | $23,320 | $583 |
| 2 | 60 | $34,980 | $583 |

**Physical Therapy**
**PHYSICAL THERAPIST ASSISTANT—ASSOCIATE IN SCIENCE (does not include prerequisite units)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 57 | $25,080 | $440 |
| 2 | 6 | $2,640 | $440 |

**PHYSICAL THERAPY—DOCTOR OF PHYSICAL THERAPY (ENTRY LEVEL)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 69 | $42,573 | $617 |
| 2 | 68 | $41,956 | $617 |
| 3 | 21 | $12,957 | $617 |

**PHYSICAL THERAPY—DOCTOR OF PHYSICAL THERAPY (POSTPROFESSIONAL 45-UNIT TRACK)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 35 | $22,155 | $633 |
| 2 | 10 | $6,330 | $633 |

**PHYSICAL THERAPY—DOCTOR OF PHYSICAL THERAPY (POSTPROFESSIONAL 66-UNIT TRACK)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 32 | $20,256 | $633 |
| 2 | 34 | $21,522 | $633 |

**PHYSICAL THERAPY—DOCTOR OF PHILOSOPHY**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 30 | $19,530 | $651 |
| 2 | 40 | $26,040 | $651 |

**Physician Assistant Sciences**
**PHYSICIAN ASSISTANT—MASTER OF PHYSICIAN ASSISTANT**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 76 | $54,796 | $721 |
| 2 | 52 | $37,492 | $721 |

**Radiation Technology**
**MEDICAL RADIOGRAPHY—ASSOCIATE IN SCIENCE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 37 | $18,130 | $490 |
| 2 | 23 | $11,270 | $490 |

**RADIATION SCIENCES—BACHELOR OF SCIENCE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1,2 | Units may vary depending upon units transferred into Loma Linda University. | Varies | $490 |

**RADIATION THERAPY—BACHELOR OF SCIENCE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1- (w/ RT background) | 38 | $25,080 | $660 |
| 2- (w/ RT background) | 42 | $27,720 | $660 |
| 1- (w/o RT background) | 52 | $34,320 | $660 |
| 2- (w/o RT background) | 42 | $27,720 | $660 |

**DIAGNOSTIC MEDICAL SONOGRAPHY—BACHELOR OF SCIENCE (GENERAL/VASCULAR TRACK)***

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1- (General/Vascular) | 38 | $25,080 | $660 |
| 2- (General/Vascular) | 33 | $21,780 | $660 |
| 3- (General/Vascular) | 9 | $5,940 | $660 |

*In addition to the cost of the general/vascular concentration, a quarterly lab fee of $50 is charged every quarter.

**DIAGNOSTIC MEDICAL SONOGRAPHY—BACHELOR OF SCIENCE (CARDIAC TRACK)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1- (Cardiac) | 38 | $25,080 | $660 |
| 2- (Cardiac) | 34 | $22,440 | $660 |
| 3- (Cardiac) | 6 | $3,960 | $660 |

**DIAGNOSTIC MEDICAL SONOGRAPHY—CARDIAC (CERTIFICATE)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1- (Cardiac) | 17 | $14,025 | $825 |
| 2- (Cardiac) | 4 | $3,300 | $825 |

**MEDICAL DOSIMETRY—CERTIFICATE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1- (Track A Physics) | 30 | $24,750 | $825 |
| 2- (Track A Physics) | 10 | $8,250 | $825 |
| 1- (Track B Rad Therapist) | 19 | $15,675 | $825 |
| 2- (Track B Rad Therapist) | 10 | $8,250 | $825 |

**NUCLEAR MEDICINE TECHNOLOGY—BACHELOR OF SCIENCE (NON-RAD TECH BACKGROUND)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 56 | $36,960 | $660 |
| 2 | 59 | $38,940 | $660 |
| 3 | 13 | $8,580 | $660 |

**NUCLEAR MEDICINE TECHNOLOGY—BACHELOR OF SCIENCE (RAD TECH BACKGROUND)**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 44 | $29,040 | $660 |
| 2 | 57 | $37,620 | $660 |
| 3 | 13 | $8,580 | $660 |

**SPECIAL IMAGING TECHNOLOGY: ct AND mri—CERTIFICATE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 16 | $13,200 | $825 |
| 2 | 6 | $4,950 | $825 |

**SPECIAL IMAGING TECHNOLOGY: MAGNETIC RESONANCE IMAGING (MRI) —Certificate**

The two-quarter MRI program is offered twice per year. One cohort starts Spring Quarter and one cohort starts Autumn Quarter. Part-time, 9-month option available to qualified students.

| Quarter | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 6 | $4,950 | $825 |
| 2 | 8 | $6,600 | $825 |

**SPECIAL IMAGING TECHNOLOGY: CT—CERTIFICATE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 12 | $9,900 | $825 |

**RADIATION SCIENCES—MASTER OF SCIENCE IN RADIATION SCIENCES**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 19 | $12,540 | $660 |
| 2 | 26 | $17,160 | $660 |

**RADIOLOGIST ASSISTANT—MASTER OF SCIENCE IN RADIATION SCIENCES**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 40 | $31,600 | $790 |
| 2 | 35 | $27,650 | $790 |

**CARDIAC AND VASCULAR IMAGING—CERTIFICATE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 34 | $16,660 | $490 |
| 2 | 7 | $3,430 | $490 |

**CARDIAC ELECTROPHYSIOLOGY TECHNOLOGY—ASSOCIATE IN SCIENCE**

| Year | Units | Tuition | Per Unit |
|---|---|---|---|
| 1 | 49 | $24,010 | $490 |
| 2 | 13 | $6,370 | $490 |

**NOTE: Tuition excludes a quarterly enrollment fee**

**Supplies**

Estimated annual expense of $600-$1,500 for supplies (textbooks, professional apparent, materials), depending on program and year of study.

### Special tuition charges

| | |
|---|---|
| $50 | CMSD 589 Remediation/Advance Directed Teaching, CMSD 599 Remediation/Externship |

Remediation clinic: Students who do not complete the required skill set within one quarter of assigned clinical experiences may need to register for additional clinical work. In this case, registration for remedial clinic is required for a minimum of one unit at the regular tuition rate.

| | |
|---|---|
| $65 | Examsoft Tech fee for Entry Level DPT, PPDPT and PhD PT |

### Special charges

| | |
|---|---|
| $25 | Application fee for Phlebotomy Program |
| $60 | Application fee for all other SAHP programs. There is no school application fee for DPT, OT, and PA. |
| $30 | Reapplication |
| $500 | Acceptance deposit, nonrefundable (applied on tuition)—M.P.A. |
| $500 | Acceptance deposit, nonrefundable (applied on tuition)—entry-level D.P.T. |
| $200 | Acceptance deposit, nonrefundable (applied on tuition)—CMSD M.S. and TM, PP D.P.T., entry-level OT, O.T.D.; and entry-level M.S.O.P. |
| $100 | Acceptance deposit, nonrefundable (applied on tuition)—all other SAHP programs (excludes Phlebotomy, which is $25) |
| $200 | Late registration charge (if student registers later than one full week before the first day of the term; see University calendar for specific dates). |
| $25 | Returned check charge |
| $924 | Enrollment fee (not applicable to some online programs) |

## On- and off-campus student housing

Students may go to <llu.edu/central/housing (http://www.llu.edu/central/housing/)> for housing information and a housing application form.

# Awards and scholarships

Awards for scholastic attainment and leadership ability have been made available to students whose performance and attitudes reflect well the ideals and purposes of the school.

## School-wide scholarships

### President's Award

The President's Award is given annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. A recipient is selected from each school of the University.

### Dean's Award

The Dean's Award is given annually in recognition of academic excellence and commitment to the objectives of the school.

### SAHP Endowment Scholarship

The SAHP Endowment Scholarship is given to students who require financial aid assistance in order to attend the school.

### Robert and Ruth Hervig SAHP Scholarship Fund

The Robert and Ruth Hervig School of Allied Health SDA Scholarship is given to students enrolled in the school who are members of the Seventh-day Adventist Church and exhibit a Christian lifestyle.

## Cardiopulmonary Sciences

## Cardiopulmonary Sciences Scholarship Fund

The CPS scholarship fund is given to students enrolled in the department who require financial aid.

## American Medical Response Southern California Scholarship Fund

The American Medical Response Scholarship is given to a student who demonstrates excellence in the clinical practice of emergency medical service and outstanding academic achievement in the Emergency Medical Care Program.

### Faculty Award

The Faculty Award is presented to a student from the Emergency Medical Care B.S. degree, and/or the postprofessional Respiratory Care B.S. degree, and/or Masters in Respiratory Care (M.S.R.C.) programs who

has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives and goals of the University.

### Louisa & Peter Jezerinac Cardiopulmonary Scholarship
The Louisa Jezerinac Cardiopulmonary Scholarship is given to a student whose patient care exemplifies the qualities of compassion and dedication.

### Robert L. Wilkins Memorial Scholarship
The Robert L. Wilkins Memorial Fund was established to honor the memory of alumnus and longtime faculty member Dr. Robert L. Wilkins. This scholarship is given to a student with financial need, who is in good standing with the department, and who has an interest in research and/or teaching.

## Loma Linda University Medical Center and Children's Hospital, Dept. of Respiratory Care Scholarship
The LLUMC & LLUCH Department of Respiratory Care scholarship fund is given to students enrolled in the department.

## Brian Po-Lin Lee Cardiopulmonary Science Award
The Brian Po-Lin Lee CPS scholarship fund is given to students enrolled in the department who demonstrate a charismatic quality both in class and clinical setting, and who spend time helping other colleagues in class and clinical setting.

## Cardiopulmonary Scholarship for Clinical Excellence in Respiratory Care
The CPS scholarship for Clinical Excellence in Respiratory Care fund is given to students enrolled in the department who excel in clinical practice in respiratory care.

## Clinical Laboratory Science
### Affiliate Recognition Award
The Affiliate Recognition Award is presented to a senior clinical laboratory science student for outstanding performance, cooperation, and motivation during the clinical practicum year. Selection is based on recommendation of the clinical faculty.

### Chair's Award
The Chair's Award is given to a senior clinical laboratory science student or to a cytotechnology student in recognition of outstanding scholarship and leadership qualities that are in harmony with the objectives and goals of the University. Selection is based on the recommendation of the faculty.

### Clinical Laboratory Science (CLS) Scholarship
The Clinical Laboratory Science (CLS) Endowment Scholarship is presented to CLS students on the basis of financial need.

### Dr. James L. Welch Scholarship
The Dr. James L. Welch Scholarship is presented to CLS students interested in education, research or treatment related to Acquired Immune Deficiency Syndrome .

### Faculty Award
The Faculty Award is presented to a senior clinical laboratory science student who has shown promise of outstanding professional achievement and who intends to pursue a career in the area of laboratory medicine. Selection is based on recommendation of the faculty.

### Moncrieff Scholarship
The Moncrieff Scholarship is presented annually to a clinical laboratory science student who has demonstrated superior scholarship: professional dedication: financial need: and such personal attributes as dependability, integrity, and initiative.

### Walsch-Loock Scholarship
The Walsch-Loock Scholarship  is presented annually to a clinical laboratory science student on the basis of need, leadership capabilities, academic achievement, and community service orientation.

## John Lewis Endowment Fund
Students enrolled in the CLS program with financial need. Preference given to students coming from outside the United States to attend the school.

## Communication Sciences and Disorders (CSMD)
### Evelyn Britt Promising Student Award
The Evelyn Britt Promising Student Award is presented to students preparing for graduate work in speech-language pathology and audiology. It recognizes students who show promise of scholastic and professional achievement.

### Speech-Language Pathology and Audiology Scholarship Endowment
The Speech-Language Pathology and Audiology Scholarship Endowment is given to students in the CMSD program to provide financial aid assistance.

## Health Informatics, Information Management, and Administration
### Elizabeth M. Guerra Scholarship
The Elizabeth M. Guerra  Scholarship is given to a senior student in the bachelor's degree program with a grade point average of at least 3.5. The student must demonstrate a dedication to the profession of health information management, good leadership skills, and good personal qualities, as determined by the faculty of the department.

### Audrey Shaffer Endowment
In the interest of promoting student involvement in the international mission of Loma Linda University, the Audrey Shaffer Endowment provides travel expenses for student clinical and affiliation experiences in health-care facilities outside the United States.

### Davidian Scholarship
The Davidian Scholarship Fund is for female students enrolled in the HIIM program that are 30 years of age or older.

### Faculty Award
The Faculty Award is presented to students who have shown promise of leadership, scholarship, and potential contribution to their chosen profession. One award is given annually to students graduating from the programs in health information administration and health information systems.

### The Rising Star Award
The Rising Star Award is presented to a senior student whose overall performance exemplifies significant potential for future professional contribution and contributions to the department and/or University.

### Health Information Administration Scholarship
The Health Information Administration Scholarship is given to students enrolled in the department to provide financial aid assistance.

### Margaret B. Jackson Scholarship
The Margaret B. Jackson Scholarship is presented by the department to a senior student on the basis of scholarship, promise of outstanding professional achievement, and financial need.

### Smart Corporation Medical Records Endowed Scholarship
The Smart Corporation Scholarship Award is presented to a health information administration student on the basis of scholarship and financial need.

## Nutrition and Dietetics

### Nutrition and Dietetics Alumni Association Scholarship Award
Given to a student based on scholarship and promise of professional achievement.

### Kathleen Keen Zolber Scholarship
The Kathleen Keen Zolber Scholarship is given to students in need of financial aid and promise of outstanding professional achievement.

### Jennie S. Hudson Scholarship
The Jennie S. Hudson Scholarship is given to students enrolled in the department to provide assistance based on academic performance and promise of professional achievement.

### Martha Miller Scholarship Award
The Martha Miller Scholarship Award is given at the beginning of the academic year to a student who demonstrates both financial need and academic and professional promise.

### Nutrition and Dietetics Scholarship Endowment Fund
The Nutrition and Dietetics Scholarship Endowment Fund is for students enrolled in the department to provide assistance in order to attend the school.

### Ruth Little Nelson Scholarship Award
The Ruth Little Nelson Scholarship Award is presented to students based on financial need.

### Winifred Van Pelt Schmitt Scholarship Endowment
The Winifred Van Pelt Schmitt Scholarship Endowment provides scholarships to nutrition and dietetics students who have demonstrated financial need, satisfactory progress toward a degree, and professional promise.

## Georgia W. Hodgkin Scholarship
To fund scholarships for students enrolled in the department.

## Erma Vhymeister Award
The family of Erma Vhymeister requests these funds be given to a student who has good scholastic ability, is Spanish speaking and is South American or European.

## Dr. Donna Rubano Galluzzo Scholarship
Students enrolled in a Nutrition and Dietetics program within the school. Recipients must embody the mission and values of the University to further the healing and teaching ministry of Jesus Christ "to make man whole" and must be recognized by the department as living up to their academic and professional potential.

## Occupational Therapy

### Faculty Award
This award is presented to a graduating student who has demonstrated the values and mission of the Department of Occupational Therapy and Loma Linda University, exemplified academic achievement, commitment to service, and positive contributions to the learning environment.

### Alumni Award
This award is presented to a graduating student who has exemplified the vision of the Department of Occupational Therapy to transform lives through occupation-based practice, service, and advocacy, and demonstrated leadership in sharing our vision with others.

### Edwinna Marshal Leadership Award
This award is presented to a graduating student in recognition of potential for leadership and education in the field of occupational therapy.

### Lynn Arrateig Practice Award
This award is presented to a graduating student in recognition of commitment to the practice of pediatric and geriatric occupational therapy.

### Community Outreach Award
This award is presented to a graduating student who has been a positive role model and change agent, actively engaged in community service to provide improved quality of life in the local and global community.

### Hamid Javaherian Memorial Award
The Hamid Javaherian Award is given to a student enrolled in the Masters of Occupational Therapy program, or any student in the postprofessional Doctor of Occupation Therapy program. Student exemplifies compassion, leadership, program innovation, and dedication to the community in the spirit of occupational justice. Awards are to be given upon merit not financial need.

### Occupational Therapy Endowment Scholarship
The Occupational Therapy Endowment Scholarship is given annually to students based on scholarship, financial need, and promise of professional achievement.

## Physician Assistant (PA)

### PA Faculty Award
The PA Faculty Award is presented to a physician assistant student who has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives and goals of the University.

### Spirit of LLU Physician Assistant Award
The Spirit of LLU Physician Assistant Award recognizes students who have dedicated themselves to their professional goals, persevering with good humor in the face of adversity; have shown compassion for and sensitivity to others; have a positive attitude; and have served as positive ambassadors for this program throughout their PA program training.

### The Chair's Award
The Chair's Award is presented to a senior PA student in recognition of outstanding performance and professional deportment in both the didactic and clinical phases of the program. The recipient is an individual who has consistently demonstrated qualities that are in harmony with the goals of the department and the University.

### Physician Assistant Alumni Award
Recipients of the Physician Assistant Alumni Award demonstrate the following criteria: sound judgment in resolving student issues, willingness

to lead activities or study groups, mature and responsible behavior, good rapport with peers and faculty/staff, and recent involvement in community service.

### The Rising Star Award
The Rising Star Award is presented to the student whose overall performance exemplifies the following criteria: advancement of the physician assistant profession, entrepreneurship in invention or learning, noteworthy performance in research, outstanding community service, interest in mentoring patients, and contributions to the department and/or University.

### Neidigh Physician Assistant Scholarship
The Neidigh Physician Assistant Scholarship is for students enrolled in the department program who are qualified in their first year and awarded in their second year, have a G.P.A. of 3.0 or higher; and demonstrate sound judgement, willingness to lead, mature and responsible behavior, rapport with colleagues and community service involvement.

## Physical Therapy
### Physical Therapy Faculty Award
In recognition for demonstrating outstanding potential and promise in the profession of physical therapy.

### Jeanne Middleton Scholarship
The Jeanne Middleton Scholarship is to provide scholarship assistance to students in their first year enrolled in the MPT or DPT program and is based on the financial need and professional potential.

### Jonna Hughes Memorial Scholarship
The Jonna Hughes Memorial Scholarship was established by Dr. Billy Hughes to continue his mother's tradition of service. The scholarship benefits female physical therapy students who have risen above personal circumstances to fulfill a life in service to others.

### Fred B. Moor Scholarship
The Fred B. Moor scholarship is presented to a student enrolled in the department with a G.P.A. of 3.0 or greater and has financial need.

### Matthew Lynn Schrader Memorial Scholarship
The Matthew Lynn Schrader Memorial Scholarship is for PTA students enrolled in the program who exhibit: a passion for helping people, connecting with their patients, and financial need.

### Physical Therapy Leadership Award
In recognition of leadership in school and community activities.

### Physical Therapy Scholarship Endowment
The Physical Therapy Scholarship Endowment is to provide financial aid assistance that are enrolled in the department program.

### Randall C. Isley Memorial Award
The Randall C. Isley Memorial Award recognizes a graduating PTA student who demonstrates scholarship, outstanding compassion, and inspiration in their pursuit of PTA as a second career.

### Ron Hershey Student Endowment
The Ron Hershey Student Endowment provides scholarship funds for students who demonstrate financial need.

### Thomas G. Burke Memorial Scholarship
The Thomas G. Burke Memorial Scholarship is given to students enrolled in the master's degree program of the department and have satisfactorily completed at least one quarter of the program and have financial need.

## Radiation Technology
### Radiation Technology Faculty Award
The Faculty Award is given by the department in recognition of superior scholarship for the top G.P.A. in the graduating class as well as based on how the student has represented the University and program's mission and values.

## Radiation Technology Scholarship Endowment
These scholarships have been awarded to recognize and reward the educational endeavors of outstanding Radiologic Technology students in gaining the professional imaging skills, training, and experience necessary to join the ranks of the Radiologic Technology profession. These particular scholarships are made possible by the gifts of generous alumni and friends of the school.

## Walter L. Stilson Awards
The Walter L. Stilson Award is given to a student based on exemplary clinical performance and who has shown promise of outstanding professional achievement in the clinical setting. In addition, whose performance is in harmony with the objectives of the Medical Radiography program.

## Rising Star Award
This award is given to one student in the department who demonstrates an above-and beyond attitude. This student is also known to help faculty on projects and support the program in a broad variety of ways. The Rising Star recipient is going places and will be a great representative in the profession they will join after graduation. Criteria for this award include advancing the profession, invention or leadership entrepreneurship, research, mentoring, community Service, and contribution the the school.

## Southern California Kaiser Permanente Radiologic Technology Scholarships
The Southern California Kaiser Permanente Radiologic Technology scholarship has been created to encourage the Radiologic Technology students at Loma Linda University School of Allied Health Professions to continue their education and reward outstanding students so that they gain the professional imaging skills, training, and experience necessary to join the ranks of the Radiologic Technology profession. The scholarships are based on a combination of scholastic achievement and commitment to the imaging profession and are awarded as a LLU SAHP Radiologic Technology or Diagnostic Medical Sonography scholarship.

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# Department of Allied Health Studies

The Department of Allied Health Studies provides a variety of administrative and support services to the school's academic departments, including: development, marketing, admissions, computer support and training, portfolio, and financial services. In addition, the Department of Allied Health Studies supports programs offered at distance education sites online, and programs offered in conjunction with other schools of the University. It also houses academic programs which are not a natural subset of existing departments of the school.

## Life Support Education (LSE)

Life Support Education (LSE) is a program in the School of Allied Health Professions, which offers a variety of American Heart Association (AHA) classes for health-care and non-health-care professionals. Courses are approved by the California Board of Nursing and the California Medical Board for continuing education (CEU or CME) units.

The LSE program is located in the University Arts building at 24887 Taylor Street, Suite 102, Loma Linda, CA 92354; telephone: 909/558-4977.

### Courses offered

#### Basic Life Support (BLS)

This course is designed for persons who need information about basic airway management and first responder basic management of cardiac arrest in adults, children, and infants.

**Prerequisite**

Proof of a current AHA BLS card is needed, if the candidate is renewing their certificate. Candidates include anyone who needs to know how to perform CPR in a health-care setting. The required manual must be brought to class. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education (http://www.llu.edu/life-support-education/)>.

#### Advanced Cardiac Life Support (ACLS)

This course is designed to certify/recertify medical professionals as ACLS providers and to increase their skills in advanced management of cardiac arrest, airway management, arrhythmia recognition, and team dynamics.

**Prerequisite**

Proof of a current AHA BLS card is required if candidate needs certification for the first time, or proof of current AHA BLS and ACLS card for renewal of certificate. A candidate must be a health-care provider whose activities demand proficiency in ACLS skills. Required manual must be brought on the day of class. Self-assessment test (http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education (http://www.llu.edu/life-support-education/)>.

#### Pediatric Advanced Life Support (PALS)

This course is designed to certify/recertify medical professionals who need information about the recognition and advanced management of cardiac arrest, shock, and airway management in infants and children.

**Prerequisite**

Proof of a current AHA BLS card is required if the candidate needs to be certified for the first time, or proof of a current AHA BLS and PALS card if they are renewing certification. The candidate must be a health-care provider whose activities demand proficiency in PALS skills. The required manual must be brought on the day of class. Self-assessment test (http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education (http://www.llu.edu/life-support-education/)>.

#### Neonatal Resuscitation Program (NRP)

This course is designed to certify/recertify medical professionals as NRP providers and to renew/update their skills in the management of neonatal resuscitation. The skills testing complies with the guidelines of the American Academy of Pediatrics and the American Heart Association.

**Prerequisite**

Proof of a current NRP card is required for renewing of certificate. The candidate must be a health-care provider whose activities demand proficiency in NRP skills. The required manual must be brought on the day of class. A self-assessment test (http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education (http://www.llu.edu/life-support-education/)>.

#### Heartsaver First Aid and Heartsaver

This class is for non-health-care and health-care providers who need to renew/update their CPR and first aid management skills.

**Prerequisite**

This class is for health-care and non-health-care providers whose activities demand proficiency in CPR and first aid skills. The required manual must be brought on the first day of class. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education (http://www.llu.edu/life-support-education/)>.

### LSE terms and conditions

#### Registration

The student should register a month before the class date. Class starts promptly at scheduled time. Anyone who is more than 15 minutes late will be asked to reschedule. Registration closes when classes are full. If a student registered online, they must bring printed registration confirmation on the first day of class.

#### Certification

American Heart Association certificates are provided upon course completion for BLS, ACLS, Heartsaver CPR/AED, Heartsaver First Aid, PALS, and PEARS. The American Association of Pediatrics provides NRP certification.

#### Required cards for AHA courses

| | Required cards for provider | Required cards for renewal |
|---|---|---|
| BLS | | BLS |
| ACLS | BLS | BLS, ACLS |
| PALS | BLS | BLS, PALS |

| | | |
|---|---|---|
| PEARS | BLS | BLS |
| NRP | | NRP |

### Books
Students must bring required book(s) to class. Anyone without the required book(s) will not be granted admission and will be rescheduled. Rescheduling fees apply. Books can be purchased at the Life Support Education office or online.

### Fees
A 72-hour notice is required for full refunds, cancellations, and rescheduling of classes. If less than a 72-hour notice is given, a $25 processing fee applies for ACLS, PALS, and NRP classes. A $10 processing fee will be charged for PEARS, ECG and pharmacology, BLS, Heartsaver CPR, and first aid. No refunds will be given for no-shows.

A $25 fee will be charged for retesting ACLS, PALS, and NRP; a $10 fee will be charged for PEARS and BLS retesting. Retesting is not allowed less than 48 hours after the class date.

### CME/CEU/ICEMA
The California Medical Association, California Board of Nursing, and Inland Counties Emergency Medical Agency have approved ACLS, PALS, and NRP provider courses for 16 continuing education units; and renewal courses for eight continuing education units. PEARS has been approved for eight continuing education units. No continuing education units for BLS and first aid are applied. *CME Category 1. CEP No. 100403. California CEP No. 62-0004. Pharmacy.*

### Primary faculty
Rasha Abdrabou

Gurinder Bains

Lee Berk

Kent Chow

Noha S. Daher

G. Charles Dart, Jr.

Terry D. Douglas

Lida Gharibvand

Craig R. Jackson

Arthur B. Marshak

Ernest R. Schwab

Donna Thorpe

### Adjunct faculty
Allan R. Handysides

### Associated faculty
Everett Lohman III

### Emeritus faculty
Joyce W. Hopp

## Programs
- Health Professions Education — Certificate, M.S. (p. 62)
- Rehabilitation Science — Ph.D. (p. 60)

# Health-Care Administration — B.S.

**Program director**
Karla Lavin Williams

Health-care administration is a broad-based discipline that serves individuals, communities, and entire populations in a variety of health-care environments. Health-care administration is an excellent career choice for the person who desires a profession in health care in one or more of the following areas: health-care policy and strategy, marketing, communication, business continuity and sustainability, law and ethics, business and project management, human resources, health information systems, and organizational behavior. Health-care professionals have the opportunity to plan marketing and communication initiatives; develop institutional strategies, policies, and procedures; manage staff and resources; and develop sustainability and continuity plans, among other responsibilities.

The Health-Care Administration Program leading to the Bachelor of Science degree contains a distinctive online curriculum designed to prepare individuals to serve in entry- and mid-level administration in a variety of health-care environments. Such environments include assisted living and skilled nursing facilities; rehabilitation centers; private, public, and proprietary clinics; and medical centers and hospitals. The program's online curriculum provides a flexible and dynamic environment for students seeking to balance full-time employment, family life, and higher education. Courses emphasize LLU's values-based approach to health care.

The program meets the needs of students who have previously taken coursework equal to at least 96 quarter units (64 semester units) or have earned an associate's degree at another accredited college or university to complete a bachelor's degree. Applicants with health-care clinical backgrounds (e.g., nursing, radiography, respiratory therapy, occupational therapy, physical therapy, and dental hygiene) may transfer vocational-specific didactic units earned at accredited academic institutions into the degree program. Some restrictions apply.

## Program learning outcomes
Upon completion of this program, the gradate should be able to:

1. Apply health-care management concepts and theory to sustainable decision-making practices, operations management, and strategic health-care administration;
2. Apply advanced proficiency in communicating with the public, staff, and constituencies;
3. Apply health-care law to policy and procedure development;
4. Demonstrate skill in managing human resources and providing effective conflict-resolution strategies;
5. Utilize financial management models to inform financial decisions within health-care organizations;
6. Employ innovative information systems skills in the health-care environment;
7. Develop advanced emotional and social intelligence skills applicable to health-care management.

# Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), applicants must also demonstrate the following qualifications:

- Minimum of 90-quarter units (60 semester units) academic credit —students transferring from a community college may transfer a maximum of 105 quarter units (70 semester units); all other credits must come from a senior college
- Minimum 2.5 G.P.A. for all freshman and sophomore coursework from accredited educational institutions
- High school diploma or its equivalent (e.g., the GED) is required
- Statement of purpose
- University general education requirements listed below

## Required general education courses

### Domain 1: Religion and Humanities (28-32 quarter units)

Religion: The study of religion must include an average of four (4) units of religion coursework for every 48 quarter units earned while attending a Seventh-day Adventist college or university.

Humanities: Minimum of 12 units chosen from at least three of the following areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed four [4] quarter units), or philosophy.

### Domain 2: Scientific Inquiry and Analysis (24-32 quarter units)

**Natural sciences (12 units minimum)**

Anatomy and physiology (one quarter or semester)

Intermediate algebra. Two years of high school algebra coursework with grades of C and above are acceptable.

Choose remaining units from: biology, chemistry, geology, mathematics, physics, and statistics.

**Social sciences (12 units minimum)**

Cultural anthropology or an approved course dealing with cultural diversity

Choose remaining units from: economics, geography, political science, psychology, and sociology.

### Domain 3: Communications (9-13 quarter units)

English composition, complete sequence, must meet the baccalaureate degree requirements of a four-year college or university.

Oral communication (one course)

Computer course (high school or waiver examination is acceptable)

Communication electives may include courses in computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2-6 quarter units)

Personal health or nutrition (one course)

Two separate physical activity courses

### Other

Medical terminology

### Electives

Electives from any of the four domains may be selected to complete the general education minimum requirement of 68 quarter units. In addition, some students may need to complete additional elective coursework to bring their overall course unit total to a minimum of 180 quarter units while enrolled at Loma Linda University in order to meet graduation requirements.

## Professional core

Health-care professional units may apply. Details will be discussed on a case-by-case basis with the program director.

# Program requirements

| | | |
|---|---|---|
| **Major** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| HCAD 305 | Health-Care Communication | 3 |
| HCAD 328 | Health-Care Organizational Behavior | 3 |
| HCAD 359 | Health-Care Marketing | 3 |
| HCAD 374 | Health-Care Human Resources | 3 |
| HCAD 409 | Principles of Health-Care Administration | 3 |
| HCAD 414 | Sustainability for Health-Care Management | 3 |
| HCAD 461 | Portfolio for Health-Care Administration I | 3 |
| HCAD 462 | Portfolio for Health-Care Administration II | 3 |
| HCAD 498 | Health-Care Policy and Strategy | 3 |
| HCBL 345 | Project Management in Health Care | 3 |
| HCBL 346 | Legal and Ethical Environment in Health Care | 3 |
| HCBL 434 | Financial Management for Health Care | 3 |
| HCBL 471 | Information Systems Management in Health Care I | 4 |
| HLIN 430 | Quality Management and Performance Improvement in Health Care | 3 |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| **Religion (4-16 units)** [2] | | |
| RELE 4__ | Religion elective | 3 |
| RELR 445 | Wholeness and Health | 3 |
| Choose one from the following: | | 2 |
| RELT 406 | Adventist Beliefs and Life | |
| RELT 423 | Loma Linda Perspectives | |
| RELT 436 | Adventist Heritage and Health | |
| RELT 437 | Current Issues in Adventism | |
| **Electives** [1] | | **29** |
| AHCJ 225 | History of Radiation and Imaging 1890-1940 | |
| AHCJ 226 | History of Radiation and Imaging 1940-Present Day | |
| AHCJ 228 | Hispanic Culture for Allied Health Professionals | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | |
| AHCJ 314 | Managing Stress | |
| AHCJ 324 | Psychosocial Models and Interventions | |
| ANTH 315 | Cultural Anthropology | |
| DTCS 301 | Human Nutrition | |
| HGIS 422 | Principles of Geographic Information Systems | |
| HLCS 241 | Medical Terminology | |

| | | |
|---|---|---|
| HLIN 248 | Pathopharmacology for Health Information Management | |
| HLIN 344 | Health-Care Informatics and Database Management | |
| HLIN 437 | Data Analytics and Visualizations for Health Care | |
| HLIN 438 | Revenue Cycle Management for Health Care | |
| HLIN 472 | Information Systems Management in Health Care II | |
| PEAC 110 | Independent Activities | |
| RTCH 464 | Moral Leadership | |
| RTED 476 | Adult Learning Theory for the Radiation Science Student | |
| RTII 354 | Introduction to Informatics | |
| RTII 358 | PACS Planning and Implementation | |
| RTII 378 | Systems Management in Informatics | |
| RTII 384 | Advanced Imaging Informatics | |
| **Total Units** | | **90** |

[1] Available online courses if needed to bring the overall course unit total to a minimum of 180 quarter units to meet graduation requirements. The elective-unit requirement is based on a student matriculating with a minimum of 90 quarter units.

[2] One RELT course required from the list below. Total units required are based on the percentage of coursework from an SDA college/university. The maximum requirement is 16 units, including transfer units.

### Normal time to complete the program

Four (4) years — two (2) years at LLU based on full-time enrollment; part time enrollment permitted

# Rehabilitation Science — Ph.D.

**Program director**
Terry D. Douglas

The School of Allied Health Professions offers the Doctor of Philosophy degree in rehabilitation science. By design, the degree program is inclusive of the many rehabilitation professions and offers opportunities for qualified clinical professionals in allied health to prepare for careers in independent research, teaching, and administration. It is the goal of this program to prepare graduates who will:

- Provide vision and direction for the integration of the rehabilitation professions.
- Commit themselves to whole-person care.
- Advance the theory and practice of rehabilitation science through research.
- Acquire and integrate knowledge related to the social and basic medical sciences.
- Assess, develop, and implement interdisciplinary community-based services.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, applicants must meet the following minimum requirements:

- Master's degree in any allied health professions area or discipline related to rehabilitation science.
- Minimum G.P.A. of 3.0 in academic and professional coursework.

Prospective students are required to submit the following:

1. A formal letter of support from a primary research faculty member at Loma Linda University whose research interests and availability most closely match those of the applicant. The program director will coordinate meetings between applicants and prospective research faculty members.
2. Curriculum vita, including work history, formal education, continuing education, licensure or certification, professional organizations, honors, awards, publications, presentations, and grants.
3. At least one example of written work (e.g., term paper, course assignment, publication, master's degree research project or thesis).
4. Proof of involvement in a complete research project (group or individual) that involved data collection and production of a research paper or research poster.

## Program requirements

A minimum of 80 units beyond the master's degree is required for students holding a master's or doctoral degree in a professional area. The student's program coursework for the degree must be approved by the Doctor of Philosophy in Rehabilitation Science Committee.

| | | |
|---|---|---|
| **Domain 1** | | |
| Rehabilitation Science and LLU Values (16 units) | | |
| RESC 517 | Profession Advocacy in Allied Health Professions | 4 |
| RESC 519 | Rehabilitation Theories and Applications in Health Care | 3 |
| Choose from the following (9 units minimum): | | 9 |
| AHCJ 528 | Lifestyle Health and Wholeness | |
| AHCJ 541 | Managing Stress | |
| AHCJ 545 | Legal and Ethical Issues in the Health Professions | |
| AHCJ 568 | Spirituality and Health: The Wholeness Connection | |
| NUTR 664 | Vegetarian Nutrition: Person, Population, Planet | |
| ORPR 575 | Couples, Families, and Disabilities | |
| **Domain 2** | | |
| Leadership | | |
| Choose from the following (6 units minimum): | | 6 |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | |
| AHCJ 556 | Administration in Higher Education | |
| OCTH 606 | Leadership for Health Professionals | |
| PHCJ 607 | Professional Leadership | |
| PHCJ 609 | Building Healthy Individuals | |
| PHCJ 610 | Building Healthy Communities [1] | |
| PHCJ 617 | Building Healthy Systems | |
| PTGR 514 | Professional Systems in Management I | |
| SLPD 580 | Clinical Issues in Speech-Language Pathology | |
| **Domain 3** | | |
| Education | | |
| Choose from the following (6 units minimum): | | 6 |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | |
| AHCJ 509 | Transformational Teaching and Learning | |

| | | |
|---|---|---|
| AHCJ 515 | Curriculum Development in Higher Education | |
| AHCJ 564 | Collaborative Learning in Higher Education | |
| IDMT 521 | Instructional Design I | |
| OCTH 605 | Education for Health Professionals | |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | |
| PHCJ 618 | Transformative Communication | |
| **Religion and wholeness** | | |
| Include 9 units of religion, chosen from the following ethical, theological, and relational courses; and the Graduate Wholeness Portfolio | | |
| AHCJ 519 | Graduate Wholeness Portfolio | 1 |
| Choose from the following (3 units minimum): | | 3 |
| RELE 524 | Bioethics and Society | |
| RELE 525 | Ethics for Scientists | |
| RELE 535 | Ethical Issues in Health-Care Management | |
| RELE 548 | Christian Social Ethics | |
| RELE 567 | World Religions and Bioethics | |
| RELE 588 | Philosophical Ethics | |
| Choose from the following (3 units minimum): | | 3 |
| RELR 540 | Wholeness and Health | |
| RELR 584 | Culture, Psychology, and Religion | |
| RELR 587 | Religion and the Social Sciences | |
| Choose from the following (3 units minimum): | | 3 |
| RELT 509 | Biblical Perspectives in Religion and Health | |
| RELT 540 | World Religions and Human Health | |
| RELT 557 | Theology of Human Suffering | |
| **Research and dissertation** | | |
| Didactic coursework (15 units minimum) | | |
| AHRM 581 | Research and Statistics I | 3 |
| AHRM 582 | Research and Statistics II | 3 |
| EPDM 509 | Principles of Epidemiology | 3 |
| Select from the following (6 units minimum): | | 6 |
| AHCJ 555 | Writing for Health-Care Professionals | |
| AHRM 518 | Nonparametric Statistics for the Health Professions | |
| AHRM 605 | Critical Analysis of Scientific Literature | |
| EPDM 520 | Data Collection Methods | |
| HPRO 589 | Qualitative Research Methods | |
| SLPD 600 | Components of Clinical Inquiry | |
| STAT 515 | Grant- and Contract-Proposal Writing | |
| **Selectives** | | |
| Advanced coursework in speciality area | | 6 |
| RESC 697 | Research (1-12) | 21 |
| **Total Units** | | **80** |

[1] Fulfills service learning requirement

## Service learning requirement

This requirement may be met by taking PHCJ 610 Building Healthy Communities or a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Comprehensive examinations

The written comprehensive examination is designed to establish that the student has a broad understanding of rehabilitation science. A student is eligible to take the written examination after completing coursework from the three domains and six units in research and statistics.

The oral examination is designed to establish that the student has adequate foundational information in appropriate content areas, as well as a plan to answer a research question appropriate for a doctoral dissertation. Following successful completion of the written comprehensive examination, the oral examination will be scheduled by the student's research mentor in consultation with the program director. The examination will cover the student's research proposal and content areas on which the proposal rests.

## Advancement to candidacy

The student may apply for admission to doctoral candidacy after (a) passing the written and preliminary oral comprehensive examinations, and (b) securing the approval of their research advisory committee.

## Dissertation

The candidate's capacity for independent investigation and scholarly achievement must be demonstrated by the presentation and oral defense of an acceptable dissertation, resulting in at least two publications in peer-reviewed journals. One paper must be accepted for publication in a peer-reviewed journal before the candidate's graduation.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations sections of this catalog for the University (p. 34) and the School of Allied Health Professions (p. 47).

## Normal time to complete the program

Four (4) to five (5) years based on three-quarter-time enrollment

# Health Professions Education — Certificate, M.S.

**Program director**
Arthur B. Marshak

**Advisory committee**
B. Lyn Behrens
Rafael Canizales
Marilyn Eggers
Robert Handysides
D. P. Harris
Joyce W. Hopp
Art Kroetz
Everett Lohman III
Doyle Nick
Gail Rice
Ernie Schwab
Tammi Thomas
Dolores Wright

## The program

The 27-unit health professions education certificate and the 48-unit Master of Science degree are designed for health professionals who want to enhance the effectiveness and efficiency of student learning in the classroom and clinic. Upon completion, graduates will be able to plan for effective learning experiences; improve assessment and evaluation of learning and instruction; and evaluate clinical performance with confidence, improve classroom performance, enhance academic administration skills, and develop expertise in health professions education. The certificate or master's degree programs may be taken online or in a face-to-face classroom setting.

Courses to complete the Master of Science degree include the required 24 units and a minimum of six units in Domain I and six units in Domain II, for a total of 48 units.

Units to complete the postbaccalaureate certificate include the required 24 units and a minimum of nine units in Domains I and II selected in consultation with the program director.

Additional courses may be added to each domain in consultation with the program director.

## Program learning outcomes

In addition to the stated institutional learning outcomes, the graduate of the Master of Science degree in health professional education should be able to:

1. Construct learning modules that incorporate teaching and learning theory;
2. Create learning activities that stimulate interaction and reflection;
3. Apply current educational research to teaching;
4. Formulate curricular objectives and outcomes;
5. Design educational experiences;
6. Develop a curriculum and course assessment plan;
7. Formulate a personal philosophy of leadership;
8. Apply leadership competency in managing change, developing policy, coaching, and mentoring.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Minimum of a baccalaureate degree from an accredited U. S. institution of higher education or an equivalent degree from an international degree-granting institution that is recognized by the appropriate government agency.
- Licensed (current), or eligible for licensure if international student (where country does not require licensure), to practice in a recognized health-care profession. The program director will advise on a case-by-case basis if the above categories are not definitive.
- Interview
- Note: Applicants should check with their respective professional, state, governmental (international students), and licensing requirements to determine if this degree program meets their professional needs.

## Program requirements

- Health Professions Education — Certificate (p. 63), M.S. (p. 63)

# Health Professions Education — M.S.

| | | |
|---|---|---|
| **Required** | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | 3 |
| AHCJ 509 | Transformational Teaching and Learning | 3 |
| AHCJ 555 | Writing for Health-Care Professionals | 3 |
| AHCJ 556 | Administration in Higher Education | 3 |
| RELE 524 | Bioethics and Society (or other religion course chosen in consultation with program director) | 3 |
| AHCJ 515 | Curriculum Development in Higher Education | 3 |
| or NGNE 501 | Curriculum Development in Higher Education | |
| **Capstone or Thesis** | | |
| Choose one option | | 6 |
| Capstone option: | | |
| HPED 581 | Capstone Project in Health Professions Education I | |
| HPED 582 | Capstone Project in Health Professions Education II | |
| Thesis option: | | |
| HPED 551 | Master's Thesis I | |
| HPED 552 | Master's Thesis II | |
| **Domain I electives** | | |
| Teaching, learning, assessment and evaluation | | |
| Select from the following: | | 6-18 |
| AHCJ 564 | Collaborative Learning in Higher Education | |
| AHCJ 599 | Directed Teaching | |
| AHCJ 600 | Active Online Learning | |
| AHCJ 699 | Directed Study | |
| HPED 504 | Pedagogy and Technology | |
| HPED 535 | Current Issues in Health Professions Education | |
| — | Elective (additional courses may be chosen in consultation with the program director) | |
| **Domain II electives** | | |
| Leadership electives | | |
| Select from the following: | | 6-18 |
| AHCJ 545 | Legal and Ethical Issues in the Health Professions | |
| AHCJ 566 | Theoretical Foundations of Leadership | |
| AHCJ 567 | Personal Leadership | |
| AHCJ 699 | Directed Study | |
| HADM 528 | Organizational Behavior in Health Care | |
| HPED 517 | History and Philosophy of Adventist Medical and Health Education | |
| HPED 561 | Leadership in the Health Professions I (may be used to satisfy the requirement for the program) | |
| — | Elective (additional courses may be chosen in consultation with the program director) | |
| **Total Units** | | **48** |

## Normal time to complete the program

Three (3) years, based on half-time enrollment

# Health Professions Education — Certificate

| | | |
|---|---|---|
| **Required** | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | 3 |
| AHCJ 509 | Transformational Teaching and Learning | 3 |
| AHCJ 555 | Writing for Health-Care Professionals | 3 |
| AHCJ 556 | Administration in Higher Education (or other religion course chosen in consultation with program director) | 3 |
| RELE 524 | Bioethics and Society | 3 |
| AHCJ 515 | Curriculum Development in Higher Education | 3 |
| or NGNE 501 | Curriculum Development in Higher Education | |
| **Domain I electives** | | |
| Teaching, leading, assessment, and evaluation | | |
| Select from the following: | | 3-6 |
| AHCJ 564 | Collaborative Learning in Higher Education | |
| AHCJ 599 | Directed Teaching | |
| AHCJ 600 | Active Online Learning | |
| AHCJ 699 | Directed Study | |
| HPED 504 | Pedagogy and Technology | |
| HPED 535 | Current Issues in Health Professions Education | |
| — | Elective (additonal courses may be chosen in consultation with the program director) | |
| **Domain II electives** | | |
| Leadership electives | | |
| Select of the following: | | 3-6 |
| AHCJ 545 | Legal and Ethical Issues in the Health Professions | |
| AHCJ 566 | Theoretical Foundations of Leadership | |
| AHCJ 567 | Personal Leadership | |
| AHCJ 699 | Directed Study | |
| HADM 528 | Organizational Behavior in Health Care | |
| HPED 517 | History and Philosophy of Adventist Medical and Health Education | |
| HPED 561 | Leadership in the Health Professions I | |
| RELR 525 | Health Care and the Dynamics of Christian Leadership (May be used to satisfy the religion requirement for the program. May not double count.) | |
| — | Elective (additional courses may be chosen in consultation with the program director) | |
| **Total Units** | | **27** |

## Normal time to complete the program

Three (3) years based on less than half-time enrollment

# Department of Cardiopulmonary Sciences

The Department of Cardiopulmonary Sciences offers a full range of clinical and professional programs related to cardiac, pulmonary, sleep, and critical care. The department's goal is to offer excellent education through small class sizes, access to expert faculty members, and a faith-based educational environment. Graduates become advocates and leaders while serving as patient-care providers, researchers, and administrators.

### Chair
David López

### Primary faculty
Alan Alipoon

Abdullah K. Alismail

David López

Evelyn Massey

Richard D. Nelson

### Secondary and adjunct faculty
Benjamin J. Becerra

Emily Jo Berry

Paresh Giri

Niranjan Jeganathan

Adrian Lavery

Thurman A. Merritt

N. Lennard Specht

Anthony Yvanovich

Laren Tan

### Clinical faculty
Stanley Baldwin

Leo M. Langga

Michael Lum

Christopher Robertson

Loreen K. Scott

Charles Spearman

Thomas W. Taylor, Jr.

### Associated faculty
Noha S. Daher

## Programs


- Polysomnography — Certificate (p. 64)
- Respiratory Care — B.S. (Traditional) (p. 66), B.S. (Postprofessional) (p. 68), M.S.R.C. (p. 70)


# Polysomnography — Certificate

**Program director**
Abdullah Alismail

**Medical advisor**
Ramiz Fargo

The expansion of polysomnography (sleep studies) in the health-care industry has created a marked increase in demand for polysomnography technicians. Many polysomnography clinics are inundated with referrals that may be deferred for months at a time due to inadequate staffing, resulting in delay of sleep disorder diagnoses and appropriate treatments.

The certificate in polysomnography is designed for current clinical practitioners and students who are interested in specializing in sleep disorder studies. Both didactic theory and clinical application offered in the program provide an avenue to gain knowledge, skills, and experience in the expanding discipline of polysomnography. Topics include sleep terminology, sleep structure and disorders, complete patient set-up and monitoring, data acquisition and scoring, and pharmacological and noninvasive interventions. The program is offered on campus and includes laboratory/clinical rotations, online and classroom discussions, and a case study presentation. Graduates of this program are eligible to sit for the sleep disorder specialist (SDS) examination by the National Board of Respiratory Care (NBRC) and/or the RPSGT examination by the Board of Registered Polysomnography Technologists (BRPT) after completion of the required clinical hours and requirements for each board examination. ** Please see professional examination section.*

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate basic knowledge and clinical skills in utilizing sleep technology equipment following evidence-based practices;
2. Demonstrate the ability to score sleep studies following evidence-based practices in sleep medicine;
3. Analyze and interpret sleep study results following evidence-based practices in sleep medicine;
4. Apply appropriate sleep treatment interventions using evidence-based practices in sleep medicine;
5. Demonstrate professional behavior and leadership skills;
6. Demonstrate effective and professional interaction and education skills with patients.

## Professional examination and certification eligibility

Graduates of this program are eligible to take the SDS examination by the NBRC and/or the RPSGT examination by the BRPT after completion of the required clinical hours and meeting the requirements of each examination. This program is designated as a STAR-focused program under the BRPT. Graduates will be eligible for the RPSGT (Pathway 4) and CPSGT (Pathway 3) after meeting the requirements of each pathway. NBRC inquiries can be made to 10801 Mastin Street, Suite 300, Overland Park, KS 66210; telephone: 913/895-4900; fax: 913/712-9283; or website: <www.nbrc.org>. BRPT inquiries can be made to 8400 Westpark Drive, 2nd Floor, McLean, VA 22102; telephone: 703/610-9020; fax: 703/610-0229; website: <http://www.brpt.org/>. (http://www.brpt.org/)

# Accreditation

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

# Admissions

To be eligible for this program, in addition to the Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admission requirements, the following criteria must be met:

1. Current Basic Life Support certification from the American Heart Association.
2. Minimum of 2.5 G.P.A. of college credit (minimum of 36 quarter units).
3. Interview with program faculty.
4. Three positive personal and/or professional references.
5. For current students in the Loma Linda University Cardiopulmonary Sciences program, an agreement and acceptance from both program directors is required to add the sleep track/units to the current student plan.

**Prerequisite** (*All coursework must be completed at an accredited institution.*)

- Human anatomy and physiology or general biology with laboratory, complete sequence
- Introductory chemistry with laboratory; or general chemistry with laboratory—minimum of one quarter or semester
- High school-level physics or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college
- Two years of mathematics selected from: algebra I (elementary), algebra II (intermediate), or geometry; may be taken in high school or college
- English composition, complete sequence

**Co-requisite**

- Medical terminology

**Recommended coursework**

- Speech
- Sociology or anthropology.
- Psychology
- Microbiology

## Basic Life Support

Because this program will have clinical rotations and patient contact, students are required to have a cardiopulmonary resuscitation/basic life support (BLS) card certification. This certification has to be current and obtained from an authorized American Heart Association training center. The BLS course is offered at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

# Program requirements

| **Autumn Quarter** | | **Units** |
|---|---|---|
| RSPS 210 | Foundation of Polysomnography and Sleep Medicine | 2 |
| RSPS 216 | 3- and 12-Leads ECG Interpretation | 2 |
| RSPS 227 | Neuroanatomy and Physiology of Sleep | 3 |
| RSPS 230 | Polysomnography Science Methodology | 2 |
| **Winter Quarter** | | |
| RSPS 234 | Polysomnography Patient Education and Safety | 1 |
| RSPS 256 | Polysomnography Monitoring and Scoring | 2 |
| RSPS 274 | Polysomnography Diseases | 3 |
| RSPS 295 | Polysomnography Practicum I | 4 |
| **Spring Quarter** | | |
| RELR 475 | Whole Person Care | 2 |
| RSPS 286 | Polysomnography Case Study | 2 |
| RSPS 296 | Polysomnography Practicum II | 4 |
| | **Total Units:** | **27** |

## Clinical Rotations

The polysomnography program offers clinical practicum course at affiliated clinical sites. Thus, students will commute to a 12 hours clinical rotation on every assigned clinical day; this might include day and night shifts. Therefore, students are responsible for their own transportation to each clinical site. The program will assign clinical instructors for each site to assess student learning and competency check-offs.

## Normal time to complete the program

34 weeks (three [3] academic quarters) based on full-time enrollment

# Respiratory Care — B.S., M.S.R.C.

Respiratory care is an allied health profession that promotes health and improvement in the cardiopulmonary function of people with heart and lung abnormalities and disease. Newborn, pediatric, adult, and aging adult patients are treated for a wide range of problems—infant respiratory distress syndrome, trauma, cardiopulmonary arrest, conditions brought on by shock, and postoperative surgical complications; as well as respiratory diseases such as pneumonia, asthma, cystic fibrosis, chronic bronchitis, and emphysema.

The respiratory care practitioner is a member of the health-care team in medical centers, skilled nursing facilities, outpatient rehabilitation programs, physician offices, and in-home care. Many are involved in research and development of new and innovative care and equipment. They are effective communicators and compassionate caregivers, possessing an awareness of cultural sensitivity and diversity. They have leadership roles in patient education, wellness intervention, and development of respiratory care plans. Respiratory care professionals apply critical thinking skills in cardiopulmonary diagnostics and patient assessment to optimize decision making and delivery of patient care. In a time of high technology, increasing growth of the older adult population, and increasing numbers of patients with asthma and chronic lung disease, there is a greater demand for educated and skilled respiratory care practitioners.

Loma Linda University offers two Bachelor of Science degree curricula in respiratory care. The first is for students who have had no previous education in respiratory care and who have completed the program prerequisites. The second is for students who have an Associate in

Science degree in respiratory care from a CoARC-accredited respiratory care program and who wish to earn a Bachelor of Science degree in respiratory care.

## Professional association

The American Association for Respiratory Care (AARC) encourages students and graduates to become members and participate in national meetings and local chapters. The AARC's aim is to foster professional growth, encourage research, and provide services and representation for its members. Further information may be obtained from the national office, 9425 North MacArthur Boulevard, Suite 100, Irving, TX 75063; telephone, 972/243-2272; or website, <http://www.aarc.org>.

The California Society for Respiratory Care (CSRC), an affiliate of the AARC, is a nonprofit professional organization whose mission is to represent and encourage excellence in the art and science of cardiopulmonary support.

The CSRC is committed to health, healing, and disease prevention in the California community. The society extends these concepts to its members, students, health-care professionals, and the public through education and clinical practice. Further information may be obtained from the CSRC at 1961 Main Street, Suite 246, Watsonville, CA 95076; telephone, 888/730-2772; fax, 831/763-2814; or website: <http://www.csrc.org>.

## Programs

- Respiratory Care – B.S. (Traditional) (p. 66), B.S. (Postprofessional) (p. 68), M.S.R.C. (p. 70)

# Respiratory Care (Traditional) — B.S.

**Program director**
Richard D. Nelson

**Director of clinical education**
Abdullah K. Alismail

**Medical director**
N. Lennard Specht

Loma Linda University offers two Bachelor of Science degree curricula in respiratory care therapy. The traditional curriculum is ideal for students who have met the program prerequisites but have not previously completed a respiratory care program accredited by the Commission on Accreditation for Respiratory Care (CoARC). The postprofessional B.S. degree curriculum is for students who have an Associate in Science degree in respiratory care from a CoARC-accredited respiratory care program, and who wish to earn a Bachelor of Science degree in respiratory care.

For its commitment to excellence through high-quality education, evidence-based medicine, and patient safety, the B.S. respiratory care traditional program has received the American Association for Respiratory Care APEX Educational Award for 2021-2022, the first program to receive the award in the state of California and the West Coast of the United States of America. Students in the program are eligible and encouraged to join the American Association for Respiratory Care (AARC). Information about the AARC may be found at the website: <https://www.aarc.org/>.

Loma Linda University is a chapter of the Lamda Beta Society, the national honor society for the respiratory care profession. Students who rank in the top 25 percent in their program are eligible to be nominated as a member. Information on the nomination process may be found at the website: <https://www.lambdabeta.org/membership-information/>.

Loma Linda University is an institutional member of the Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBGRTE). A listing of CoBGRTE institutional members may be found at the website: <http://www.cobgrte.org/institutionalmembers.html>.

The two-year, upper-division curriculum leading to the bachelor of science degree is a sequence of professional coursework intended to prepare competent respiratory therapists with advanced abilities in clinical care. Coursework may be designed toward meeting entrance requirements for the dentistry, medicine, and physician assistant programs.

Those electing to study on a part-time basis must complete their junior and senior years within a four-year period.

## Program goals

1. To prepare graduates with demonstrated competence in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains of respiratory care practice as performed by registered respiratory therapists (RRTs).
2. To prepare leaders for the field of respiratory care through acquisition of skills in one or more of the following: management, education, research, and/or advanced clinical practice.

## Program learning outcomes

In addition to the stated institutional learning outcomes, the respiratory care graduate should be able to:

1. Apply fundamental and progressive adult, pediatric, and neonatal respiratory care concepts and treatment plans in the areas of pathophysiology, diagnostics, gas exchange therapy, airway care, and application of invasive and non-invasive ventilator support;
2. Apply critical thinking skills to respiratory care practice;
3. Apply problem-solving skills in the areas of pulmonary physiology, related diagnostics, and comprehensive pulmonary rehabilitation programs;
4. Perform fundamental and progressive patient assessment and diagnostic skills appropriate for various cardiopulmonary diseases;
5. Demonstrate essential knowledge, skills, and abilities required to enter the practice of respiratory care, including passing the National Board for Respiratory Care (NBRC) Therapist Multiple-Choice Self-Assessment Examination (TMC-SAE);
6. Demonstrate clinical competency expected of the respiratory care practitioner, including passing the National Board for Respiratory Care (NBRC) Clinical Simulation Self-Assessment Examination (CSE-SAE).

## Professional licensure and credentialing

Graduates of CoARC-accredited respiratory care programs must apply to the state of California Department of Consumer Affairs Respiratory Care Board (RCB) for licenses to practice in the state. The RCB requires that graduates of respiratory care programs complete general and respiratory care education courses with grades of C or above—resulting in a minimum of an Associate in Science degree in respiratory care. Graduates must successfully complete an examination for licensure, declare any felony convictions, and undergo fingerprinting. License denial may occur due to prior criminal conviction(s). Inquiries

regarding the RCB may be directed to 3750 Rosin Court, Suite 100, Sacramento, CA 95834; telephone: 916/999-2190; fax: 916/263-7311; or website: <www.rcb.ca.gov (http://www.rcb.ca.gov/)> or via email: <RCBinfo@dca.ca.gov>.

The NBRC provides nationally recognized credentialing examinations for graduates of accredited respiratory care programs. Those who successfully complete the therapist multiple choice examination and the advanced clinical simulation examination receive the RRT credential. Additional advanced practitioner examinations are required for the adult critical care specialist (ACCS) credential, neonatal-pediatric specialist (NPS) certification, certified (CPFT) and registered (RPFT) pulmonary function technologist, and sleep disorders specialty (SDS) credentials. The RRT credential is required by the state of California for licensure to practice respiratory care. NBRC inquiries may be made to 10801 Mastin Street, Suite 300, Overland Park, KS 66210; telephone: 913/895-4900; fax: 913/712-9283; or website: <www.nbrc.org>.

# Accreditation

Respiratory Care Program accreditation is provided by the Commission on Accreditation for Respiratory Care (CoARC). Standards and guidelines published by CoARC must be met, and should be relevant to general and respiratory care education and ongoing program assessment and improvement. The Respiratory Care (traditional) B.S. Program at Loma Linda University is CoARC-accredited. Inquiries regarding CoARC can be directed to 264 Precision Blvd, Telford, TN 37690; telephone, 817/283-2835; or website: <http://www.coarc.com/>.

# Admissions

Admission to the Bachelor of Science degree program in respiratory care is open for Autumn Quarter each year. An alternate earlier acceptance to Summer Quarter may be approved by the program director for applicants to enroll in corequisite coursework. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- A minimum of 78 degree transferable quarter units (52 semester units) per program director approval or hold an A.S. degree.
- Complete the subject requirements noted as prerequisites.
- Arrange for an interview at the University by appointment (an off-campus or telephone interview can be arranged for the distant applicant).
- Complete a minimum four hour observation/interaction with a respiratory therapist. This may be scheduled following the interview.

## Prerequisites

A maximum of 105 quarter or 70 semester units (didactic only) from an accredited junior college will be accepted as transfer credit.

## Domain 1: Religion and humanities (28–32 quarter units)

The study of religion must include an average of four units of religion coursework for every 48 quarter units earned while attending a Seventh-day Adventist college or university.

Humanities: Choose three areas totaling a minimum of 12 quarter units (eight semester units) from: civilization/history, fine arts, literature, modern language (non-conversational), performing/visual arts (not to exceed four quarter units), or philosophy.

## Domain 2: Scientific inquiry and analysis (24–32 quarter units)

Scientific inquiry and analysis encompass both the natural and social sciences. Choose a minimum of 12 units from:

- Human anatomy and physiology with laboratory, complete sequence or general biology with laboratory, complete sequence
- Microbiology with laboratory
- Introductory chemistry with laboratory, complete sequence; or general chemistry with laboratory, complete sequence
- High school-level physics or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college (high school courses do not count toward the 12 units required to fulfill GE requirements).
- Two years high school mathematics with grades of C or above; or intermediate algebra in college.

The study of social sciences must include a minimum of 12 quarter/eight semester units.

- Introductory or general psychology course
- Cultural anthropology or an approved course dealing with cultural diversity
- Choose remaining social sciences from: economics, geography, political sciences, or sociology

## Domain 3: Communication (9–13 quarter units)

English composition, complete sequence

Choose additional units from: public speaking and interpersonal communication; critical thinking; and computer literacy—only college-level courses, transferable to a four-year college count toward total unit requirement

## Domain 4: Health and wellness (2–6 quarter units)

To encourage the pursuit of lifelong leisure activities and wellness, the study of health and wellness must include at least two physical activity courses totaling a minimum of one quarter unit; and one course in personal health or nutrition. Additional units may include other areas of health, nutrition, and physical fitness.

## Domain 5: Electives:

*Electives to meet the minimum total requirements of 192 quarter units*

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

# Program requirements

Alternate summer entry if non-block co-requisite courses are needed. Requires program director approval.

**Junior Year**

**Autumn Quarter**

| | | |
|---|---|---|
| AHCJ 326 | Fundamentals of Health Care | 2 |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| HLCS 241 | Medical Terminology | 2 |
| RSTH 304 | Cardiopulmonary Anatomy and Physiology | 4 |

| | | |
|---|---|---|
| RSTH 331 | Pharmacology I | 2 |
| RSTH 334 | Patient Assessment | 2 |
| RSTH 341 | Respiratory Therapy Science I | 5 |
| **Winter Quarter** | | |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| AHCJ 402 | Pathology I | 4 |
| RSTH 332 | Pharmacology II | 2 |
| RSTH 342 | Respiratory Therapy Science II | 5 |
| RSTH 366 | Diagnostic Techniques | 3 |
| RSTH 381 | Cardiopulmonary Diseases I | 2 |
| RSTH 391 | Respiratory Care Practicum I | 2 |
| **Spring Quarter** | | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| AHCJ 328[3] | Wholeness Portfolio I | 1 |
| AHCJ 403 | Pathology II | 3 |
| RELE 457[1] | Christian Ethics and Health Care | 2 |
| RSTH 323 | Pulmonary Function Methodology | 3 |
| RSTH 343 | Respiratory Therapy Science III | 4 |
| RSTH 382 | Cardiopulmonary Diseases II | 2 |
| RSTH 392 | Respiratory Care Practicum II | 2 |
| **Senior Year** | | |
| **Summer Quarter** | | |
| RSTH 316 | 12-Lead ECG Interpretation | 2 |
| RSTH 393 | Respiratory Care Practicum III | 5 |
| RSTH 404 | Critical Care | 4 |
| RELT 406 | Adventist Beliefs and Life | 3 |
| **Autumn Quarter** | | |
| AHCJ 465 | Seminars in Leadership | 2 |
| AHCJ 498 | Wholeness Portfolio II | 0 |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| RSTH 354 | Case Studies in Adult Respiratory Care | 2 |
| RSTH 421 | Perinatal and Pediatric Respiratory Care | 2 |
| RSTH 434 | Advanced Patient Assessment | 2 |
| RSTH 441 | Respiratory Therapy Science IV | 3 |
| RSTH 494 | Respiratory Care Practicum IV | 3 |
| **Winter Quarter** | | |
| AHCJ 498 | Wholeness Portfolio II | 0 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| RELR 475[1] | Whole Person Care | 2 |
| RSTH 422 | Advanced Perinatal and Pediatric Respiratory Care | 2 |
| RSTH 424 | Exercise Physiology and Pulmonary Rehabilitation | 3 |
| RSTH 444 | Case Studies in Neonatal/Pediatric Respiratory Care | 2 |
| RSTH 466 | Advanced Diagnostic Techniques | 2 |
| RSTH 495 | Respiratory Care Practicum V | 2 |
| **Spring Quarter** | | |
| AHCJ 498 | Wholeness Portfolio II | 1 |
| RELT 416[2] | God and Human Suffering | 2 |
| RSTH 318 | Cardiology | 3 |
| RSTH 464 | Case Management in Respiratory Care | 2 |
| RSTH 471 | Instructional Techniques I | 2 |
| RSTH 474 | Cardiopulmonary Health Promotion and Disease Prevention | 2 |
| RSTH 496 | Respiratory Care Practicum VI | 3 |
| | **Total Units:** | **115** |

A minimum of 192 quarter units is required for the Bachelor of Science degree in respiratory care.

[1] May substitute with another course of the same prefix and level.
[2] May substitute with any REL_ course of the same level
[3] Fulfills service learning requirement

## Normal time to complete the program

Four (4) years overall with two (2) years (seven [7] academic quarters) at LLU based on full-time enrollment

## Alternate summer term entry to include all co-requisite course requirements

For students who need to complete co-requisite courses, the program length is a maximum of two years plus an additional Summer Quarter (nine academic quarters). The alternate entry for these students is Summer Quarter of each year preceding the Autumn Quarter block sequence. On acceptance, an academic plan specifying the program length (eight or nine academic quarters) and the courses selected during the alternate Summer Quarters is to be approved by the program director.

# Respiratory Care (Postprofessional) — B.S.

**Program director**
Alan Alipoon

Loma Linda University offers two bachelor of science (B.S.) degree curricula in respiratory care. The postprofessional curriculum is for students who have an associate in science (A.S.) degree in respiratory care from a Commission on Accreditation for Respiratory Care-accredited (CoARC) respiratory care program and who wish to earn a B.S. degree in respiratory care.

The one-year, upper-division program leading to the B.S. degree is a sequence of professional coursework intended to further train individuals who have acquired advanced knowledge in the respiratory care profession—including assessment, therapeutic interventions, and management of patients with cardiopulmonary-related disorders—as well as who uphold the mission and goals of the School of Allied Health Professions. The program is offered in two modalities: face-to-face and online. **See online distance education section.*

## Program goals

The goals of the curriculum are to:

1. Provide therapists for the respiratory care and medical communities who have advanced practice training in cardiopulmonary care and fundamental knowledge in the areas of leadership and education.
2. Provide an undergraduate program for two-year-level respiratory therapists that enhances and broadens their knowledge in cardiopulmonary health-care sciences and general studies as well as allows progression into graduate programs.

# Program learning outcomes

In addition to the stated institutional learning outcomes, the graduate should be able to:

1. Demonstrate advanced knowledge in respiratory care;
2. Apply fundamental and progressive adult, pediatric, and neonatal respiratory care concepts and treatment plans in the areas of pathophysiology, diagnostics, and gas exchange therapy, as well as airway care and ventilator support for both invasive and non-invasive application;
3. Apply critical-thinking skills to respiratory care practice;
4. Apply problem-solving skills in the areas of pulmonary physiology, related diagnostics, and comprehensive pulmonary rehabilitation programs;
5. Perform fundamental and progressive patient assessment and diagnostic skills appropriate for various cardiopulmonary diseases;
6. Develop fundamental skills to conduct and interpret research in the health-care arena;
7. Develop fundamental skills in leadership;
8. Develop fundamental skills in topic presentation to the health-care profession and patient-care community, using appropriate lecture and demonstration techniques.

# Admissions

Admission to the Postprofessional Respiratory Care Program is open all year long. Students may apply to autumn, winter, spring, or summer Quarter. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- Be a graduate of a Commission on Accreditation for Respiratory Care-approved (CoARC) or provisionally approved, or CoARC-approved advanced practitioner associate degree (or the equivalent) program in respiratory care.
- Complete the subject requirements noted as prerequisites. Students who have not completed these requirements may be accepted on a provisional basis.
- Arrange an interview at the University by appointment. An off-campus interview can usually be arranged for the distant applicant.

For applicants from outside the state of California, please check the list of states (http://home.llu.edu/distance-education/) that have authorized Loma Linda University online students to ensure that students from your state are eligible before proceeding with the application.

## Prerequisites

**Humanities**—20 units minimum (choose minimum of three areas: history, literature, philosophy, foreign language, art/music appreciation, or art/music history).

Included in this minimum, four units of religion per year of attendance at a Seventh-day Adventist college or university.

**Natural sciences**—Human anatomy and physiology with laboratory, complete sequence; or general biology with laboratory, complete sequence; or general zoology with laboratory, complete sequence.

Microbiology with laboratory.

Introductory chemistry with laboratory or general chemistry with laboratory.

High school-level physics; or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college.

Two years of high school mathematics with grades of C or above or intermediate algebra in college.

**Social Science**—General psychology or sociology

Cultural anthropology or an approved course dealing with cultural diversity.

Select four more quarter units from sociology, psychology, economics, geography, political science.

**Communication**—English composition, complete sequence

Speech

**Health and Wellness**—Personal health or nutrition

Two physical activity courses

# Program requirements

## Program unit requirements

To meet the Bachelor of Science degree requirement of 180 quarter units, students are required to complete 60 core units in the program. Students may transfer a maximum of 105 units from an associate's degree at a community college (105+60=165 quarter units). The remaining 15 units may be taken as electives (see options below).

For total unit requirements for graduation, LLU General Education Requirements (p. 27).

## Core program courses (online)

| | | |
|---|---|---|
| **Senior Year** | | |
| **Autumn Quarter** | | **Units** |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| AHCJ 465 | Seminars in Leadership | 2 |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| RELE 4__ Upper-division religion | | 2 |
| RSTH 301 | Advanced Respiratory Therapy Science I | 3 |
| RSTH 434 | Advanced Patient Assessment | 2 |
| RSTH 431[1] | Senior Project I | 2 |
| RSPS 210 | Foundation of Polysomnography and Sleep Medicine | 2 |
| **Winter Quarter** | | |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| AHCJ 402 | Pathology I | 4 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| RSTH 401 | Cardiopulmonary Intensive Care | 3 |
| RSTH 424 | Exercise Physiology and Pulmonary Rehabilitation | 3 |
| RSTH 466 | Advanced Diagnostic Techniques | 2 |
| RSTH 485 | Evidenced-Based Medicine in Respiratory Care I | 2 |
| **Spring Quarter** | | |
| AHCJ 328[2] | Wholeness Portfolio I | 1 |
| AHCJ 403 | Pathology II | 3 |

| | | |
|---|---|---|
| RELE 4__ Upper-division ethics | | 2 |
| RSTH 316 | 12-Lead ECG Interpretation | 2 |
| RSTH 318 | Cardiology | 3 |
| RSTH 432[1] | Senior Project II | 2 |
| RSTH 486 | Evidenced-Based Medicine in Respiratory Care II | 2 |
| **Summer Quarter** | | |
| RSTH 422 | Advanced Perinatal and Pediatric Respiratory Care | 2 |
| RSTH 433[1] | Senior Project III | 2 |
| RSTH 451 | Respiratory Care Affiliation I | 2 |
| RSTH 471 | Instructional Techniques I | 2 |
| RSTH 487 | Evidenced-Based Medicine in Respiratory Care III | 2 |
| RELE 4__ Upper-division religion | | 2 |
| | **Total Units:** | **60** |

[1] The senior project is a culminating body of work, developed by the student in consultation with the program director and presented to the department faculty. Work may be a research paper, clinical presentation, management project, or other project approved by the program director.

[2] Fulfills service learning requirement

## Electives

Students can take electives from the following options

### Domain I: Polysomnography certificate (sleep studies)

Students can take courses from the polysomnography certificate program to be counted as electives and earn a University certificate in polysomnography along the way. Total units offered/available by the polysomnography program are 27 units. Students can either choose selected courses or take the whole certificate as a subspecialty. To earn the certificate, the student must apply to the polysomnography program and obtain approval from both program directors.

### Domain II: Clinical affiliation

Students can take additional clinical affiliation courses (RSTH 452 Respiratory Care Affiliation II. RSTH 453 Respiratory Care Affiliation III, RSTH 454 Respiratory Care Affiliation IV) as electives towards their degree.

### Other option

Students may transfer electives from another four-year accredited university to count toward their electives with program director approval. Check with the program director regarding the the availability of other cardiopulmonary courses within the department.

### Normal time to complete the program

Four (4) years - one (1) year (four [4] academic quarters) at LLU — based on full-time enrollment

# Respiratory Care — M.S.R.C.

**Program director**
Abdullah Alismail

**Medical director**
Laren D. Tan

**Advisory committee**
Alan Alipoon
Abdullah Alismail
Anthea Gibbons
David Lopez
Michael Lum
Richard Nelson
Loreen Scott
Marco Soto
Charles (Bud) Spearman
Laren D. Tan
Michael Terry

## Program description

The faculty of the Loma Linda University Master of Science in Respiratory Care Program believe in the promotion of and support for excellence in the profession of respiratory care and cardiopulmonary sciences through education, knowledge development, research, leadership, and public service. The mission of the program is to:

1. Support the mission and goals of Loma Linda University and the School of Allied Health Professions;
2. Facilitate student professional development, expansion of knowledge, and contribution to the field of respiratory care and cardiopulmonary sciences through guidance, resources, and leadership;
3. Support the medical community's needs for qualified graduate respiratory therapists and cardiopulmonary researchers who will facilitate positive changes through patient advocacy, leadership, and knowledge discovery and implementation;
4. Encourage continuing professional and personal development within the community through volunteerism and community service geared toward disease prevention, education, and intervention.

The four-quarter program is designed to allow customizable options for interactions with the program faculty, both face-to-face and online, offered through various electives. The core curriculum courses set the foundation for this graduate degree in respiratory care. In addition, electives may be chosen by students, based on their area of interest and with program director approval. Program electives are in the areas of leadership and management, education, research, advanced clinical practice, and polysomnography.

## Program learning outcomes

In addition to the stated institutional learning outcomes (p. 19), by the end of this program, the graduate should be able to:

1. Apply advanced respiratory care clinical skills to cardiopulmonary patients, using current evidence-based medicine practices;
2. Exhibit fundamental skills in leadership and management in health care;
3. Exhibit research interpretation skills in evidence-based medicine;
4. Exhibit presentation skills necessary to successfully promote advancements in the respiratory care profession for health-care professionals;
5. Participate in professional activities promoting professional growth;
6. Exhibit mastery of best practices in treating cardiopulmonary patients.

## Admissions

Admission to the Master of Science in Respiratory Care Program is open all year long. Students may apply to autumn, winter, spring, or summer quarter. In addition to Loma Linda University (p. 23) and School of Allied

Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- An earned baccalaureate degree from a U.S. accredited institution of higher education or an international institution having appropriate government recognition as a degree-granting institution
- Have earned the Registered Respiratory Therapist credential from the National Board for Respiratory Care; and licensed in their state of residence or eligible to practice by the government or equivalent
- Interview
- GPA of 3.0 or higher

# Program requirements

| | | |
|---|---|---|
| **Core** | | |
| AHCJ 519 | Graduate Wholeness Portfolio [3] | 1 |
| AHCJ 566 | Theoretical Foundations of Leadership | 3 |
| RELE 524 | Bioethics and Society | 3 |
| RSTH 541 | Advanced Concepts in Critical Care I | 2 |
| RSTH 550 | Advanced Procedures in Cardiopulmonary Science | 2 |
| RSTH 560 | Advanced Cardiopulmonary Assessment, Diagnostics, and Monitoring | 2 |
| RSTH 571 | Advanced Pathophysiology of Cardiopulmonary Diseases I | 3 |
| RSTH 580 | Research Concepts in Respiratory Care Sciences | 3 |
| RSTH 698 | Capstone Project in Respiratory Care (1, 2) [1] | 6 |
| **Elective Domains** [2] | | **20** |
| Choose courses from the different elective domains below with program director approval. | | |
| **Domain I: Research Methods and Statistics** | | |
| AHCJ 555 | Writing for Health-Care Professionals | |
| AHRM 514 | Biostatistics | |
| AHRM 571 | Statistics and Research for Health Professionals I [2] | |
| AHRM 572 | Statistics and Research for Health Professionals II [2] | |
| AHRM 581 | Research and Statistics I | |
| AHRM 582 | Research and Statistics II | |
| AHRM 595 | Research and Statistics Concepts and Methods: Intermediate | |
| AHRM 604 | Research-Proposal Writing | |
| AHRM 605 | Critical Analysis of Scientific Literature | |
| EPDM 509 | Principles of Epidemiology | |
| STAT 515 | Grant- and Contract-Proposal Writing | |
| STAT 521 | Biostatistics I | |
| STAT 522 | Biostatistics II | |
| STAT 523 | Biostatistics III | |
| STAT 548 | Analytical Applications of SAS and R | |
| **Domain II: Leadership and Management** | | |
| AHCJ 545 | Legal and Ethical Issues in the Health Professions | |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | |
| AHCJ 549 | Professional Responsibility in Allied Health Professions | |
| AHCJ 550 | Organizational Theory | |
| AHCJ 557 | Integrating Emotional Intelligence Leadership into the Healthcare Professions | |
| AHCJ 567 | Personal Leadership | |
| AHCJ 576 | Basics of Marketing | |
| AHCJ 588 | Fundamentals of Human Resource Management | |
| AHCJ 589 | Strategic Planning in Health-Care Organizations | |
| HADM 506 | Fundamentals of Health-Care Finance | |
| HADM 508 | Accounting Fundamentals in Health-Care Management | |
| HADM 514 | Health-Care Economics | |
| HADM 528 | Organizational Behavior in Health Care | |
| HADM 564 | Health-Care Finance | |
| HADM 574 | Managing Human Resources in Health-Care Organizations | |
| HADM 604 | Health Systems Strategic Planning | |
| HADM 605 | Health-Care Quality Management | |
| HLIF 510 | Health-Care Information Systems | |
| HLIF 515 | The U.S. Health-Care System | |
| HLIF 526 | Quality and Performance Improvement for Health Care | |
| HPRO 535 | Health Education Administration and Leadership | |
| RSTH 585 | Current Issues in Respiratory and Health Care Policy | |
| **Domain III: Education** | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | |
| AHCJ 509 | Transformational Teaching and Learning | |
| AHCJ 515 | Curriculum Development in Higher Education | |
| AHCJ 556 | Administration in Higher Education | |
| AHCJ 564 | Collaborative Learning in Higher Education | |
| AHCJ 579 | Instructional Effectiveness | |
| AHCJ 586 | Curricula Planning in Health Sciences | |
| **Sleep** | | |
| RSPS 510 | Sleep Neurophysiology and Pathologies | |
| RSPS 511 | Methodologies in Sleep Disorder Assessment and Intervention | |
| RSPS 512 | Advanced Polysomnography Practicum | |
| **Advance Respiratory Care Practicum** | | |
| RSTH 596 | Advanced Clinical Practice in Respiratory Care I | |
| RSTH 597 | Advanced Clinical Practice in Respiratory Care II | |
| **Total Units** | | **45** |

1. Multiple registrations required to complete total unit requirement.
2. Students lacking research and statistics must take AHRM 571 Statistics and Research for Health Professionals I and AHRM 572 Statistics and Research for Health Professionals II (or equivalent) as part of their degree completion requirements.
3. Fulfills service learning requirement.

## Capstone

The capstone project must be completed as a written document of publishable quality and presented orally as a seminar (face-to-face or online). It must be prepared either for publication or implementation (including protocol) at the facility for which it was designed. The program

director will assign each student a mentor having expertise in the student's chosen capstone topic area.

## Normal time to complete the program

One (1) year (four [4] academic quarters) based on full-time enrollment; part time permitted

# Department of Clinical Laboratory Science

The Clinical Laboratory Science Department is home to the programs associated with laboratory medicine: clinical laboratory science (medical technology or medical laboratory science), and phlebotomy (venipuncture). Whether testing blood or body fluids, analyzing cells and cell patterns, or collecting patient samples, the laboratory professional is integral to the health-care team and patient care.

The goals of the Clinical Laboratory Science Department are as follow:

1. To provide opportunities, instruction, and guided experiences enabling the student to acquire the basic knowledge and attain technical ability essential to the practice of their chosen profession.
2. To help the student accept responsibility for integrity, ethical relationships, and empathetic attitudes that contribute to the welfare and well-being of patients.
3. To help the student develop a background of information and attitudes conducive to interprofessional understanding and cooperation.
4. To encourage the student to cultivate habits of self-education that will foster lifelong professional growth.
5. To engender and nurture in the student the desire to serve mankind and, in particular, to serve as needed, in the medical centers sponsored by the Seventh-day Adventist Church—both in the United States and abroad.

### Chair
Rodney M. Roath

### Primary faculty
Eric Shadrach Aldovino

Craig E. Austin

Jonrey Avellano

Grace T. Baker

Linda S. Buckert

Shalini Carter

Lauren Drake

Monique K. Gilbert

Susie M. Johnson

Valerie Laida

Thuan H. Nguyen

Nove Oliver

Elde M. B. Paladar

Rodney M. Roath

Teri H. Ross

Edward Rowsell

Linda J. Shain

Benjamin Siapco

Richard B. Thorpe

Alicia M. Triplett

Jane N. Zappia

### Secondary faculty
Paul C. Herrmann

Pamela J. Wat

## Programs


- Clinical Laboratory Science — B.S. (p. 73)
- Phlebotomy — Certificate (p. 76)


# Clinical Laboratory Science — B.S.

**Program director**
Alicia M. Triplett

**Clinical coordinator**
Alicia M. Triplett

**Medical director**
Paul C. Herrmann

A student who is interested in science, has an investigative mind that enjoys the challenge of solving problems quickly and accurately, and has a desire to help others should consider a career as a clinical laboratory scientist.

Clinical laboratory scientists examine and analyze body fluids, tissues, and cells. They look for bacteria, parasites, or other microorganisms; analyze the chemical content of fluids; match blood for transfusions; and test for drug levels in the blood to show how a patient is responding to treatment.

Clinical laboratory scientists perform complex chemical, biological, hematological, immunologic, microscopic, and bacteriologic tests. They use, maintain, and troubleshoot sophisticated laboratory equipment that is used to perform diagnostic tests. The clinical laboratory scientist possesses the scientific and diagnostic skills required for DNA and biomolecular technology and genetic engineering applications; and, analyzes and discusses test results with the medical staff.

## Opportunities

Overall employment of medical laboratory professionals is projected to grow 7 percent through 2029—much faster than the average for all occupations, particularly as the volume of laboratory tests increases with population growth and with the development of new technology. The twenty-first century is offering clinical laboratory scientists new avenues for test development, experimental design, administration, and education. Clinical laboratory scientists work in hospitals or similar medical facilities, clinical and reference laboratories, home health diagnostics, transfusion services, physicians' offices, and private medical clinics. Employment is also available in pharmaceutical and biotechnology companies, health information systems, DNA technology and genetic engineering corporations, research laboratories, federal government agencies, forensics and crime investigation, veterinary hospitals, U.S. Public Health Service facilities, areas of medical product development, and customer and patient education.

# The program

The two-year Clinical Laboratory Science Program includes clinical training and culminates in a Bachelor of Science degree. Prerequisite courses may be taken at any regionally accredited college or university and are completed during the freshman and sophomore years. Accepted students transfer into the program at the junior year level, which begins in August. After satisfactory completion of the program, the student is awarded a Bachelor of Science degree, and is eligible to take the national board examination and become a licensed clinical laboratory scientist in California.

The ten-month junior year includes lecture and laboratory. Emphasis is on the basic clinical science courses, including theory and correlations.

The ten-month senior year comprises a clinical practicum as well as co-requisite and seminar courses. These provide professional clinical experience in the hospital laboratory environment with emphasis on technical proficiency, application of theory to patient care, laboratory organization, and managerial skills.

Senior students' clinical experiences are balanced between Loma Linda University Medical Center's clinical laboratory and supplemental affiliate training laboratories in the community.

## Program objectives

The Clinical Laboratory Science Program provides a complete educational experience that culminates in the Bachelor of Science degree and eligibility for licensure. California state licensure is obtained through the medical laboratory scientist examination offered by the ASCP Board of Certification and other entities approved by the state of California. The bachelor's degree in clinical laboratory science is granted independently of any external certification or licensing examinations. The graduate will demonstrate professional entry-level competencies in chemistry, hematology, immunohematology, immunology, and microbiology; as well as their respective subsections.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Demonstrate basic knowledge essential to the practice of clinical laboratory science;
2. Demonstrate technical ability essential to the practice of clinical laboratory science;
3. Practice professionalism through ethical behavior and attitudes;
4. Demonstrate leadership and administrative skills in laboratory practice and the community;
5. Adhere to rules and regulations promoting workplace and patient safety;
6. Exhibit analytical skills necessary to succeed in laboratory medicine.

# Clinical affiliations

Multiple clinical affiliations enrich the student's clinical training by providing exposure to procedures in different types of medical facilities. The senior schedule is based on a full-time week (40 hours) arranged on a Monday-through-Friday schedule within a non-standard term. During the 40-week clinical practicum, training may be scheduled at any of the following clinical sites:

## Primary affiliations

Loma Linda University Medical Center
Loma Linda, California

Loma Linda University Medical Center
Murrieta, California

## Supplemental affiliations

Community Hospital of San Bernardino
San Bernardino, California

Jerry L. Pettis Memorial Veterans Medical Center
Loma Linda, California

Kaiser Permanente Medical Center
Fontana, California

LifeStream
San Bernardino, California

# Transportation to scheduled assignments

Transportation to training laboratories is the responsibility of the student. Depending on the clinical assignment, travel to affiliate sites may be up to 80 miles, one way. Senior students must coordinate their time with the operational schedules of the Loma Linda University Medical Center clinical laboratory and affiliate laboratories in the community.

# Professional certification and licensure

Completion of the required sequence of academic coursework and directed professional experience prepares the graduate to take the certifying examination of the ASCP Board of Certification and obtain licensure by the state of California. Information regarding the examination can be obtained from the website: <http://ascp.org/boc>.

# Academic progression

A minimum grade of C (2.0) is required for all courses in the program. C- grades are not acceptable. A student who receives a grade of less than C in any academic course or who receives an Unsatisfactory (U) in any segment of a clinical practicum is automatically placed on probation. Continued enrollment for the next quarter, term, or rotation segment for a student on probation is subject to the recommendation of the department.

If continued enrollment is not recommended, the department will notify the student in writing. Also, if continued enrollment is recommended, the student will be required to institute a learning assistance program contract and meet regularly scheduled appointments with the academic advisor. A student on probation is automatically dismissed from the program if the terms of the learning assistance program contract are not met.

# CPR certification

Students are required to have current health-care provider adult, child, and infant cardiopulmonary resuscitation (CPR) certification for all scheduled clinical experiences. This certification must be completed at the American Heart Association health-care provider level. Certification may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts Building, 24887 Taylor Street, Suite 102.

# Accreditation

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 North River Road, Suite 720, Rosemont, IL 60018; telephone: 773/714-8800; fax: 773/714-8886; email: <info@naacls.org>; website: <http://www.naacls.org>.

It meets the requirements in medical laboratory science of the American Society for Clinical Pathology, Board of Certification for Medical Laboratory Science, 33 West Monroe Street, Suite 1600, Chicago, IL 60603; telephone: 312/541/4998; fax: 312/541/4998. The program is approved by the California Department of Public Health (CDPH), Laboratory Field Services (LFS), 850 Marina Bay Parkway, Richmond, CA 94804-6403; telephone: 510/873-6327; website: <https://www.cdph.ca.gov/Programs/OSPHLD/LFS/Pages/TrainingPrograms.aspx>.

# Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must complete the following requirements:

- A minimum G.P.A. of 2.75 for science courses.
- A minimum of 96 quarter units or 64 semester units at an accredited college or university. Note: A minimum grade of C (2.0) is required for all transfer courses; C- grades are not acceptable for transfer. Prerequisites and transfer patterns may be viewed at <llu.edu/allied-health/sahp/transfer (http://www.llu.edu/allied-health/sahp/transfer/)>.
- Projected coursework that will be completed before beginning the program will be considered in the application process.

## Application deadlines

Applications to the Clinical Laboratory Science Program are accepted between January 1 and April 1. Early submission of application is recommended.

## Prerequisites

**Domain 1: Humanities and Religion (20 quarter or 14 semester units)**
**Humanities**
Select courses from at least three content areas listed below:

Art/Music (performing arts limited to 4 quarter units)
Foreign Language
History
Literature
Philosophy

**Religion**
For students who attended or are enrolled in an Adventist college, 4 quarter units per year required (a maximum of 8 quarter units may be applied)

**Domain 2: Scientific Inquiry and Analysis**
**Natural Sciences (required)**
College Mathematics (algebra or calculus)
General Chemistry with lab (complete sequence)
Organic Chemistry with lab (complete sequence)
Introductory or General Physics with lab (must include principles of light and electricity)
General Biology with lab (one course)

**Social Sciences (12 quarter or 8 semester units)**
Select units from at least two content areas listed below:

Cultural Diversity or Cultural Anthropology (required)
Anthropology
Economics
Geography
Political Science
Psychology
Sociology

**Domain 3: Communiciation (9 quarter or 6 semester units)**
Freshman Composition, complete sequence (required)

If additional units are necessary, select from the courses listed below:

Computers Critical Thinking
Public Speaking

**Domain 4: Health and Wellness (2-6 quarter or 2-4 semester units)**
Physical Activity (two courses)
Health Education (personal health or nutrition)

**Domain 5: Electives**
As necessary, to meet the minimum total requirement of 96 quarter units

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

Note: Students planning to apply to advanced degree programs should verify current admission requirements for those programs.

# Program requirements

| Junior Year | | Units |
|---|---|---|
| AHCJ 328[1] | Wholeness Portfolio I | 1 |
| CLSM 105 | Procedures in Phlebotomy | 4 |
| CLSM 303 | Urine and Body Fluid Analysis I | 2 |
| CLSM 307 | Medical Parasitology | 3 |
| CLSM 309 | Quantitative Analysis (Chemical) | 4 |
| CLSM 315 | Physiology | 4 |
| CLSM 321 | Hematology I | 4 |
| CLSM 322 | Hematology II | 4 |
| CLSM 325 | Clinical Immunology | 3 |
| CLSM 327 | Clinical and Pathogenic Microbiology I | 5 |
| CLSM 328 | Clinical and Pathogenic Microbiology II | 5 |
| CLSM 331 | Biochemistry | 5 |
| CLSM 332 | Clinical Chemistry I | 4 |
| CLSM 333 | Clinical Chemistry II | 4 |
| CLSM 341 | Immunohematology I | 3 |
| CLSM 342 | Immunohematology II | 3 |
| CLSM 396 | CLS Junior Seminar | 1 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RELT 423 | Loma Linda Perspectives | 2 |
| **Senior Year** | | |
| AHCJ 498 | Wholeness Portfolio II | 1 |
| CLSM 411 | Urine and Body Fluid Analysis II | 1 |
| CLSM 413 | Diagnostic Microbiology | 6 |
| CLSM 414 | Clinical Parasitology | 2 |

| | | |
|---|---|---|
| CLSM 422 | Hematology III | 6 |
| CLSM 434 | Clinical Chemistry III | 5 |
| CLSM 435 | Immunoassay and Molecular Diagnostic Techniques | 3 |
| CLSM 442 | Immunohematology III | 3 |
| CLSM 451 | Clinical Laboratory Management I | 2 |
| CLSM 452 | Clinical Laboratory Management II | 2 |
| CLSM 453 | Clinical Laboratory Management III | 2 |
| CLSM 455 | Special Procedures | 4 |
| CLSM 471 | Clinical Practicum I | 5 |
| CLSM 472 | Clinical Practicum II | 5 |
| CLSM 473 | Clinical Practicum III | 5 |
| CLSM 474A | Clinical Correlations | 1 |
| CLSM 474B | Clinical Correlations | 1 |
| CLSM 474C | Clinical Correlations | 1 |
| CLSM 496 | Clinical Laboratory Science Seminar I | 1 |
| CLSM 497 | Clinical Laboratory Science Seminar II | 1 |
| CLSM 498 | Clinical Laboratory Science Seminar III | 2 |
| RELT 415 | Christian Theology and Popular Culture | 2 |
| RELT 416 | God and Human Suffering | 2 |
| | **Total Units:** | **126** |

[1] Fulfills service learning requirement

### Normal time to complete the program

Four (4) years — Two (2) years (20 months) at LLU — full-time enrollment required

# Phlebotomy — Certificate

**Program director**
Teri H. Ross

**Medical director**
Paul C. Herrmann

Procedures in phlebotomy education are designed to prepare individuals to collect blood for laboratory analysis, which is necessary for the diagnosis and care of the patient. Ideal for health professionals seeking to expand their current skills, or for those interested in a profession in laboratory medicine, this training program is approved by the California Department of Public Health, Laboratory Field Services.

## The program

The program prepares the modern phlebotomist to perform venipuncture and capillary punctures. Topics include medical terminology, laboratory safety, basic anatomy and physiology, infectious diseases, and medico-legal issues of phlebotomy. A minimum of 40 hours of supervised clinical experience is provided at Loma Linda University Medical Center and other medical affiliates, enabling participants to achieve proficiency in the health-care setting.

## School certificate

Students registering in this certificate program register through the Office of University Records for the courses; but the certificate is issued by the Department of Clinical Laboratory Science in the School of Allied Health Professions. The University Records Office maintains a record of registration but not the certificate; record of the certificate and its awarding are maintained by the Department of Clinical Laboratory Science in the School of Allied Health Professions.

Financial aid is not available to students registered in school certificate programs, which do not meet necessary requirements established by the U.S. Department of Education for aid eligibility.

## Professional registration

Upon successful completion of the certificate program, participants receive a certificate of completion in phlebotomy and are eligible to take examinations such as the national certifying examination offered by the Board of Certification, American Society of Clinical Pathologists (ASCP), 33 West Monroe, Suite 1600, Chicago, IL 60603; telephone, 800/267-2727; website: <http://www.ascp.org" target= (http://www.ascp.org)>; or others recognized by the state of California.

## Approval

The program is approved by the California Department of Public Health (CDPH), Laboratory Field Services (LFS), 850 Marina Bay Parkway, Building P, 1st Floor, Richmond, CA 94804-6403; telephone: 510/620-3792; website: <https://www.cdph.ca.gov/Programs/OSPHLD/LFS/>.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Be 18 years of age or older.
- Possess a high school diploma or GED.

All registrants must have current immunizations (measles, mumps, rubella, tetanus) PPD skin test, proof of hepatitis B vaccine, CPR (American Heart Association) Basic Life Support Certificate, and must pass a background check.

## Program Requirements

| **Required** | | |
|---|---|---|
| AHCJ 105 | Procedures in Phlebotomy | 5 |
| **Total Units** | | **5** |

# Department of Communication Sciences and Disorders

The Communication Sciences and Disorders Program prepares students for careers in the profession of speech-language pathology or audiology. Speech-language pathologists (SLPs) evaluate and treat children and adults who have communication, swallowing, and/or cognitive communication disorders. Difficulties in the areas of speech, language, fluency, swallowing, and voice are associated with a variety of disorders, including developmental delay, hearing impairment, cleft palate, cerebral palsy, stroke, and head injury. Audiologists are involved in prevention, identification, assessment, and rehabilitation of hearing disorders. Students who choose these professions should be interested in working with people.

## Opportunities

The entry level for speech-language pathology is the master's degree. The entry level for audiology is the doctoral degree. Employment opportunities for speech-language pathologists and audiologists are found in speech and hearing clinics, public schools, hospitals, universities, health departments, skilled nursing facilities, home health agencies, rehabilitation centers, industry, research institutes, and private practice. These environments allow for considerable flexibility. There is ample opportunity for employment as a speech-language pathologist.

Employment opportunities for speech-language pathology assistants (SLPAs) include working under the supervision of a speech-language pathologist. Although SLPAs work primarily in schools, there are also employment opportunities in hospitals and private clinics. Students pursuing the Bachelor of Science degree may work toward meeting eligibility requirements for registration in the state of California as speech-language pathology assistants.

## Student professional association

Students are eligible for membership in the National Student Speech-Language-Hearing Association (NSSLHA) and are also encouraged to become members, read the journals, and participate in the many activities sponsored by the local chapter. Information about NSSLHA can be found at <http://www.nsslha.org>. Further, students are encouraged to become members of the California Speech-Language-Hearing Association (CSHA). Information about membership and participation in CSHA events can be found at <http://www.csha.org>.

### Chair

Terry D. Douglas

### Primary faculty

Lamitra Baez

Aieshea Banks

Janine G. Benner

Terry D. Douglas

Julia E. Hollister

Karen J. Mainess

Christina V. Nobriga

Eric Reid

Brian D. Sharp

Jennifer St. Clair

Keith Wolgemuth

## Programs

- Communication Sciences and Disorders — B.S. (p. 77), M.S. (traditional and transitional) (p. 79), Comparison (p. 83)
- Speech-Language Pathology — S.L.P.D. (p. 84)

# Communication Sciences and Disorders — B.S.

**Program director**
Terry Douglas

The curriculum leading to the Bachelor of Science degree in communication sciences and disorders begins Autumn Quarter of the junior year. The freshman and sophomore years, which are taken at an accredited college or university prior to coming to Loma Linda University, provide the fundamentals of a liberal arts education. The emphasis in the junior and senior years is on pre-professional courses and may include practical experience.

Full-time enrollment in the undergraduate program is required; therefore, one of the considerations for acceptance into the bachelor's degree program is the student's ability to manage a full load of coursework. There is no option to enter the program on a part-time basis; neither will a student be allowed to change from full-time to part-time status at any time during program progression. Courses are completed sequentially —with prerequisite courses offered in a given quarter, followed by more advanced courses in a later quarter.

Upon completion of the Bachelor of Science degree, students are prepared to seek admission to a graduate program in speech-language pathology or related disciplines. Students are encouraged to take CMSD 267 Speech-Language Pathology Assistant Fieldwork during their senior year in order to qualify for the speech-language pathology assistant license, issued by the California Speech-Language Pathology and Audiology Board.

## Program learning outcomes

Students who graduate with a Bachelor of Science degree in communication sciences and disorders will meet the University outcomes (p. 19).

By the end of the program, graduates should be able to:

1. Articulate characteristics of typical human speech, language, hearing, communication, and swallowing processes; including their biological, neurological, acoustic, psychological, developmental, and linguistic and cultural bases;
2. Articulate characteristics of atypical human speech, language, hearing, communication, and swallowing; including etiological, biological, neurological, acoustic, psychological, developmental, and linguistic and cultural correlates;
3. Implement knowledge of basic clinical processes for the remediation of human speech, language, hearing, swallowing, and communication disorders and differences;

4. Incorporate cultural responsiveness to diversity (e.g., linguistic, neurological, economic, age, sexual, gender, ability, racial) within academic and/or professional environments;
5. Use logical reasoning skills to evaluate, research, and solve problems in communication sciences and disorders;
6. Incorporate basic components of professional ethics when treating, counseling, advocating for, and documenting care for clients.

# Minimum grade required for graduation

A minimum grade of C (2.0) is required for a course to qualify for graduation.

# Clinical experience

A supervised clinical practicum is recommended but not required in the curriculum leading to the Bachelor of Science degree. Completion of specific courses precedes placement for a practicum and is available for students who have G.P.A.s of 3.0 or above in the major courses.

# Wholeness portfolio

Undergraduate students in the School of Allied Health Professions develop portfolios during the junior and senior years. Students register for AHCJ 328 Wholeness Portfolio I during the junior year and AHCJ 498 Wholeness Portfolio II during the senior year. The purpose of the portfolio is to allow students to demonstrate achievement of the outcomes set by the University. These outcomes were developed to aid students in achieving personal and professional balance in the spiritual, intellectual, social/emotional, and physical domains.

# CLEP

CLEP tests must be taken within one quarter of receiving the degree compliance report; otherwise, the course must be repeated.

# Student progress review

Students must maintain a G.P.A. of 3.0 to ensure regular standing in the program. If the student's G.P.A. drops below 3.0 by the end of an academic quarter, s/he will be placed on academic probation for the following quarter. If the student's G.P.A. does not improve to at least 3.0 by the end of that quarter, they will be dismissed from the program. Each student's progress in the bachelor's degree curriculum is reviewed quarterly. Students are provided written feedback with recommendations for remediation if there are concerns about their academic or clinical performance.

# Speech-language pathology assistant

Students pursuing the Bachelor of Science in speech-language pathology assistant degree may work toward meeting eligibility requirements for registration in the state of California as a speech-language pathology assistant.

# Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

## Application deadline

Applications for the Bachelor of Science degree close June 1.

## Prerequisites

### Domain I: Humanities and religion (28-32 quarter units)

A minimum of 12 quarter units if the student is required to take 16 units of religion from a Seventh-day Adventist university before graduation*

A minimum of 20 quarter units if the student is required to take eight units of religion from Loma Linda University before graduation*

Humanities—selected from at least three of the following content areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed four quarter credits), or philosophy

* Specific religion courses offered at Loma Linda University are required for graduation. The student's academic advisor will assist them in determining how many religion courses will be needed, which religion courses should be taken, and which academic quarters it would be advisable to take these courses.

### Domain II: Scientific inquiry and analysis (24-32 quarter units)

**Natural Sciences (minimum of 12 quarter units):**
Required courses are as follow:

Mathematics requirement: Four semesters of high school advanced mathematics or intermediate algebra taken in college will meet the University's mathematics requirement; however, the student will not receive academic credit for the coursework. College algebra will meet the University's mathematics requirement. In addition, the student will receive academic credit for the course.

Statistics: One course in introductory or basic statistics is required

Natural Sciences: At least one natural science course must include a lab component

One physical science required ( physics or chemistry required)

One biological science required (human anatomy and/or physiology, general biology,microbiology,and life science are examples of biological sciences)

**Social Sciences (minimum of 12 quarter units)**
Must include two (2) content areas: Choose from anthropology, economics, geography, political science, psychology, and sociology

General psychology required

Human growth and development, developmental psychology, or child development required

Elective units to complete 12 quarter units minimum: Choose from anthropology, economics, geography, political science, psychology, and sociology

### Domain III: Communication (9-13 quarter units)

English: Coursework must include a complete sequence in English composition that meets the baccalaureate degree requirements of a four-year college or university (e.g., English 101 and 102)

Speech: One speech or interpersonal communication course required

Computer courses: Not required, but coursework taken in this category would be counted in this domain

### Domain IV: Health and wellness (2-6 quarter units)

Personal health or nutrition: One course required

Physical activity: Must include at least two separate physical activity courses totaling a minimum of one quarter unit

### Electives

The student begins the bachelor's degree curriculum in communication sciences and disorders with 96 quarter units (64 semester units) taken at a college or university other than Loma Linda University. Students who transfer from a community college may transfer a maximum of 105 quarter units (70 semester units). All other credits must come from a senior college. Acceptance into the degree program does not guarantee that students posses all the academic credits needed to graduate. Some students may need to complete additional academic coursework in general education to bring their overall course unit total to a minimum of 96 quarter units while enrolled at this University in order to meet graduation requirements.

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

## Program requirements

Although SLPAs typically receive an associate degree with a specialty in speech-language pathology, students who have completed a bachelor's degree in speech-language pathology or communication sciences and disorders may qualify for the California state-issued SLPA registration after achieving a grade of "P" (Pass) in CMSD 267 Speech-Language Pathology Assistant Fieldwork (two units), offered at Loma Linda University.

Students generally make arrangements to register for CMSD 267 Speech-Language Pathology Assistant Fieldwork in their last year of undergraduate study (senior year). Further information about SLPA registration can be obtained on the web at <http://www.speechandhearing.ca.gov>. Select "Applicants," then "SLP Assistants."

| Junior Year | | Units |
|---|---|---|
| AHCJ 305[1] | Infectious Disease and the Health-Care Provider | 1 |
| AHCJ 328[2, 4] | Wholeness Portfolio I | 1 |
| CMSD 217 | Beginning Sign Language | 3 |
| CMSD 284 | Introduction to Speech-Language Pathology and Audiology | 3 |
| CMSD 314 | Language Science | 4 |
| CMSD 318 | Transcription Phonetics | 3 |
| CMSD 324 | Language Disorders of Children | 4 |
| CMSD 334 | Speech Sound Disorders in Children | 4 |
| CMSD 376 | Anatomy of Speech-Hearing Mechanism | 4 |
| CMSD 388 | Communication across the Life Span | 4 |
| CMSD 445 | Techniques for ESL and Accent Modification | 2 |
| CMSD 454 | Introduction to Audiology | 4 |
| CMSD 485 | Clinical Methods in Speech-Language Pathology | 4 |
| CMSD 486 | Diagnostic Methods in Speech-Language Pathology | 4 |
| PSYC 460 | The Exceptional Individual | 3 |
| Cognates | | |
| RELE 457 | Christian Ethics and Health Care | 2 |
| Choose one course | | |
| RELT 406, 423, 436, or 437 | Adventist Beliefs and Life | 2 |
| **Senior Year** | | |
| AHCJ 498[2] | Wholeness Portfolio II | 1 |
| CMSD 424 | Adult Language Pathology | 4 |
| CMSD 426 | Behavior Management Applications with Special Populations | 4 |
| CMSD 436 | Speech and Hearing Science | 4 |
| CMSD 444 | Organic Speech Disorders | 4 |
| CMSD 448 | Disorders of Fluency | 3 |
| CMSD 449 | Voice Disorders | 3 |
| CMSD 464 | Introduction to Aural Rehabilitation | 4 |
| CMSD 477 | Bilingualism and Biculturalism | 3 |
| CMSD 488 | Autism Spectrum Disorders | 4 |
| Cognates | | |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| RELR 4__ Religion elective, relational | | 2 |
| REL_ 4__ Religion elective | | 2 |
| | **Total Units:** | **96** |

**Optional** [3]

| | |
|---|---|
| CMSD 467 | Speech-Language Pathology and Audiology Practicum |

[1] Can be taken junior or senior year

[2] Course must be registered each quarter:
- 0 units in autumn
- 0 units in winter
- 1 unit in spring

[3] Available for students who have a G.P.A. of 3.0 or above in the major courses.

[4] Fulfills service learning requirement.

### Normal time to complete the program

Four (4) years — two (2) years (six [6] academic quarters) at LLU — full-time enrollment required

# Communication Sciences and Disorders — M.S.

**Program director**
Karen Mainess

The Master of Science degree in communication sciences and disorders offers preparation for careers in the professional practice of speech-language pathology. It provides a basis for graduate study and research at a more advanced level and encourages growth towards independence. The clinical services of the department, Loma Linda University Medical Center, and affiliated practicum sites provide opportunity for supervised clinical experiences that represent the breadth and depth of the profession in a variety of settings.

Upon completion of the Master of Science degree, graduates are eligible to:

- Receive the preliminary speech-language pathology services credential (California Commission on Teacher Credentialing);
- Receive the temporary license in speech-language pathology (California Department of Consumer Affairs); and
- Seek employment as clinical fellows, working towards the certificate of clinical competence (through the Council for Clinical Certification of the American Speech-Language-Hearing Association).

Two tracks lead to the Master of Science degree:

- Individuals who have completed a bachelor's degree in speech-language pathology or in communication disorders may apply for admission to the two-year master's degree program. Postbaccalaureate foundational coursework completed at an institution other than Loma Linda University by applicants who have a bachelor's degree in a field other than speech-language pathology or communication disorders is considered on an individual basis. In general, foundational coursework completed at California state schools where undergraduate courses in communication sciences and disorders are required is acknowledged. Prior to admission or within the first quarter of study (see Program of Study below), California Basic Education Skills Test (CBEST) scores are required.
- Individuals who have a bachelor's degree from an accredited college or university, with a major in a field other than speech-language pathology or communication disorders, and who meet minimum requirements, may apply for admission to the transitional three-year Master of Science degree curriculum.

## The program

The curriculum consists of completing required graduate-level courses, supervised clinical practice, capstone research, and clinical presentations. The traditional Master of Science degree curriculum is two years in length. Full-time students will complete the curriculum in seven quarters, including the summer between the first and the second years. Students begin the curriculum in the Autumn Quarter and go through the program as a cohort. Classes are scheduled in the late afternoon or early evening, and on one Friday per month. During the Winter Quarter and Spring Quarter of the second year, students take the full-time educational fieldwork or adult placement fieldwork.

*Note: Students may be required to go out of state for their full-time fieldwork and, therefore, should be prepared financially.

Students enrolled in the three-year transitional master's degree curriculum will begin their program in the Autumn Quarter and go through as a cohort. During the first year, students complete coursework that provides the necessary foundation for the second- and third-year disorders courses and clinical practice. In the summer following the first year, all students may be required to take the clinical practicum. Beginning with the second year, the transitional master's degree students join the cohort of new students in the two-year master's degree program. The two groups complete the remaining two years simultaneously.

## University student learning outcomes

Students who graduate with a Master of Science degree in communication sciences and disorders will meet the University outcomes (p. 19).

## Program learning outcomes

By the end of their program, students should be able to:

1. Apply knowledge of human communication disorders and differences as well as swallowing disorders;
2. Integrate skills in assessment and intervention of human communication disorders and differences as well as swallowing disorders;
3. Demonstrate knowledge of the role of the school-based speech-language pathologist;
4. Propose, prepare, and present discipline-related research;
5. Implement counseling principles and practices related to the discipline of speech-language pathology with diverse populations and across the life span;
6. Relate knowledge of service learning to the community served.

## California Basic Educational Skills Test (CBEST)

The California Commission on Teacher Credentialing requires that all students pursuing a credential pass the CBEST. The test must be passed before beginning the graduate curriculum, or within the first quarter. It is a measure of reading, writing, and mathematics proficiency, and is required by law for anyone applying for a credential in the public schools of California and Oregon. This test is given by National Evaluation Systems, Inc., Box 340880, Sacramento, CA 95834-0880, 916/928-4001. Additional information may be found at <http://www.cbest.nesinc.com/>.

## Praxis examination

The Praxis, a national standardized and publicly administered test (taken at a national testing service), is a multiple choice examination designed to evaluate a student's broad-based knowledge across the disorders. It is required for ASHA certification, for the California license, and for the California school credential. A passing score of 162 must be achieved, and the test may be taken multiple times. Information about the Praxis may be obtained by going to <http://www.ets.org/praxis (http://www.ets.org/praxis/)>. Students in the Master of Science degree curriculum in communication sciences and disorders are not required to take the Praxis while in the graduate program. However, taking the Praxis before graduation is recommended.

## Remediation

Alumni and graduate students who do not achieve a passing score on the Praxis may take any course and/or seminar offered by the department free of charge in order to refresh knowledge or remediate areas of concern.

Graduate students who demonstrate unsatisfactory performance in the clinical courses CMSD 567 Clinical Practice in Speech-Language Pathology and Audiology, Advanced, CMSD 586 Educational Fieldwork I, CMSD 588 Educational Fieldwork II, CMSD 596 Medical Fieldwork I, or CMSD 597 Fieldwork II will be required to repeat the clinical experience and to register for CMSD 589 Remediation/Advanced Directed Teaching and/or CMSD 599 Remediation/Externship, respectively.

## Student progress review

Each student's progress is reviewed quarterly. Written feedback is provided, along with recommendations for remediation, if needed. In addition, each cohort meets with the graduate advisor as a group twice a year, and on an as-needed basis.

# Accreditation

The Master of Science degree program in speech-language pathology at Loma Linda University is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association, 220 Research Boulevard, #310, Rockville, MD 20850, 800/498-2071 or 301/296-5700; website: <http://www.asha.org> (http://www.asha.org).

The curriculum is also accredited by the California Commission on Teacher Credentialing (CTC) and is approved by the California Department of Consumer Affairs' Speech-Language Pathology and Audiology and Hearing Aid Dispenser's Board (SLPAHADB).

# Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

Acceptable undergraduate preparation includes a bachelor's degree in speech-language pathology or in communicative disorders. Post-baccalaureate foundational coursework completed at an institution other than Loma Linda University by applicants who have a bachelor's degree in a field other than speech-language pathology or communication disorders is considered on an individual basis. In general, foundational coursework completed at California state schools where undergraduate courses in communication sciences and disorders are required is acknowledged. Prior to admission or within the first quarter of study (see Program of Study below), CBEST scores are required.

The admissions committee considers the following qualifications in making admission decisions: personal statement, overall G.P.A., G.P.A. for last 96 quarter units, professional potential, personal interview, on-site writing sample, and letters of recommendation.

*Regular admission* may be granted to applicants who (1) submit a literate personal statement that addresses professional motivation and reasons for selecting Loma Linda University; (2) complete a writing sample that demonstrates appropriate grammar, style, and critical thinking; (3) submit three letters of recommendation (preferably academic); (4) demonstrate professional potential and present well during the interview; (5) have no undergraduate deficiencies; and (6) meet the scholarship requirements for admission—minimum cumulative G.P.A. of 3.0 with a minimum G.P.A. of 3.3 for the last 96 quarter units or 64 semester units (last two undergraduate years). *Note: The required minimum G.P.A. for consideration is not a guarantee of admission.

*Alternate status* may be granted to qualified applicants who are not accepted in the first round of selection.

*Denial of admission* indicates that the applicant did not meet one or more of the admission requirements, that the application was incomplete, or that the application deadline was not met.

## Application deadlines

Online applications open October 1. Applications close January 1 for the two-year master's and on March 1 for the three-year transitional master's.

Applications and all supporting information (transcripts, letters of recommendation) must be submitted by January 1 to be included in the first round of selection for the two-year master's program and March 1 for the three-year transitional master's program.

# Programs

- Communication Sciences - M.S. (p. 81), M.S. (Transitional) (p. 82), Comparison (p. 83)

# Communication Sciences — M.S.

Students who have been accepted into the Master of Science degree curriculum in communication sciences and disorders are already recognized as academic achievers.

Expectations for these students are high. Candidates for the master's degree are expected to:

1. Meet academic and professional standards of excellence;
2. Exhibit the highest quality of work in the classroom, clinic, and as a graduate assistant;
3. Demonstrate excellence by following through on all activities, completing all assignments and commitments in the agreed-upon time frame;
4. Show initiative and support for volunteer and extracurricular professional/student organizations;
5. Exhibit interaction and personal qualities consistent with professionalism.

In addition to courses, degree requirements include:

1. Minimum of one quarter in residence as a graduate student;
2. Minimum G.P.A. of B (3.0), with no course grade below C (2.0);
3. Religion (three units minimum);
4. Completion of the California Basic Education Skills Test (CBEST).

| **First Year** | | **Units** |
|---|---|---|
| CMSD 511 | Graduate Portfolio I | 2 |
| CMSD 523 | Seminar in Early Childhood Language Disorders | 3 |
| CMSD 525 | Seminar in School-Aged Child Language Disorders | 3 |
| CMSD 531 | Service-Learning in Speech-Language Pathology I | 1 |
| CMSD 554 | Swallowing Disorders | 3 |
| CMSD 567 | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | 1 |
| CMSD 575 | Instrumentation in Speech and Hearing I | 1 |
| CMSD 586 | Educational Fieldwork I | 1 |
| CMSD 596 | Medical Fieldwork I | 1 |
| CMSD 598 | Research Methods and Professional Literature in Communication Sciences and Disorders | 3 |
| CMSD 679 | Seminar: Motor Speech Disorders/Augmentative Communication | 3 |
| CMSD 682 | Seminar: Traumatic Brain Injury | 3 |
| CMSD 684 | Seminar: Adult Language Disorders | 3 |
| CMSD 685 | Seminar: Stuttering | 3 |
| CMSD 688 | Seminar: Speech Sound Disorders - Advanced | 3 |
| **Second Year** | | |
| CMSD 567, 586, or 596[1] | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | 1 |
| CMSD 512 | Graduate Portfolio II | 1 |
| CMSD 532[3] | Service-Learning in Speech-Language Pathology II | 1 |
| CMSD 535[3] | Voice Disorders | 3 |
| CMSD 545 | Issues in School Speech-Language Pathology | 3 |

| | | |
|---|---|---|
| CMSD 564 | Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids | 3 |
| CMSD 576 | Instrumentation in Speech and Hearing II | 1 |
| CMSD 587 | Counseling in Communication Disorders | 3 |
| CMSD 588[3] | Educational Fieldwork II | 8 |
| CMSD 597 | Fieldwork II | 8 |
| CMSD 687A or 687B[2] | Seminar: Open Seminar | 4 |
| CMSD 697 | Research | 1 |
| REL_ 5__ | | 3 |
| | **Total Units:** | **74** |

[1] Choose one course
[2] One unit each time seminar is taken
[3] Fulfills service learning requirement

### Normal time to complete the program

Two (2) years (seven [7] academic quarters); full-time enrollment required

# Communication Sciences — M.S. (Transitional)

Students who have been accepted into the transitional Master of Science degree curriculum are already recognized as academic achievers.

Expectations for these students are high. Candidates for the master's degree are expected to:

1. Meet academic and professional standards of excellence;
2. Exhibit the highest quality of work in the classroom and the clinic;
3. Demonstrate excellence in follow through, completing all assignments and commitments in the agreed-upon time frame;
4. Show initiative and support for volunteer and extracurricular professional/student organizations;
5. Exhibit interaction and personal qualities consistent with professionalism.

In addition to courses, degree requirements include:

1. Minimum of one quarter in residence as a graduate student;
2. Minimum G.P.A. of 3.3 for foundational coursework during the first year;
3. Minimum G.P.A. of B (3.0), with no course grade below C (2.0), for years two (2) and three (3) of the master's degree program; a minimum of 45 quarter units of foundational courses, including the following completed during the first year;
4. Religion (three units minimum);
5. Completion of the California Basic Education Skills Test (CBEST).

| **Transitional Year** | | **Units** |
|---|---|---|
| CMSD 514 | Anatomy of Speech-Hearing Mechanism | 3 |
| CMSD 515 | Transcription Phonetics | 2 |
| CMSD 520 | Communication across the Life Span | 3 |
| CMSD 521 | Language Disorders of Children | 3 |
| CMSD 522 | Organic Speech Disorders | 3 |
| CMSD 529 | Adult Language Pathology | 3 |
| CMSD 530 | Language Science | 3 |
| CMSD 534 | Speech Sound Disorders in Children | 3 |
| CMSD 537 | Clinical Methods in Speech-Language Pathology | 3 |
| CMSD 538 | Diagnostic Methods in Speech-Language Pathology | 3 |
| CMSD 539 | Introduction to Audiology | 3 |
| CMSD 547 | Autism Spectrum Disorders | 2 |
| CMSD 548 | Disorders of Fluency | 2 |
| CMSD 549 | Voice Disorders | 2 |
| CMSD 577 | Bilingualism and Biculturalism | 2 |
| **First Year** | | |
| CMSD 511 | Graduate Portfolio I | 2 |
| CMSD 516 | Speech and Hearing Science | 3 |
| CMSD 523 | Seminar in Early Childhood Language Disorders | 3 |
| CMSD 525 | Seminar in School-Aged Child Language Disorders | 3 |
| CMSD 531 | Service-Learning in Speech-Language Pathology I | 1 |
| CMSD 554 | Swallowing Disorders | 3 |
| CMSD 567 | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | 2 |
| CMSD 575 | Instrumentation in Speech and Hearing I | 1 |
| CMSD 586 | Educational Fieldwork I | 1 |
| CMSD 596 | Medical Fieldwork I | 1 |
| CMSD 598 | Research Methods and Professional Literature in Communication Sciences and Disorders | 3 |
| CMSD 679 | Seminar: Motor Speech Disorders/Augmentative Communication | 3 |
| CMSD 682 | Seminar: Traumatic Brain Injury | 3 |
| CMSD 684 | Seminar: Adult Language Disorders | 3 |
| CMSD 685 | Seminar: Stuttering | 3 |
| CMSD 688 | Seminar: Speech Sound Disorders - Advanced | 3 |
| **Second Year** | | |
| CMSD 567, 586, or 596[1] | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | 1 |
| CMSD 512 | Graduate Portfolio II | 1 |
| CMSD 532[3] | Service-Learning in Speech-Language Pathology II | 1 |
| CMSD 535 | Voice Disorders | 3 |
| CMSD 545 | Issues in School Speech-Language Pathology | 3 |
| CMSD 564 | Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids | 3 |
| CMSD 576 | Instrumentation in Speech and Hearing II | 1 |
| CMSD 587 | Counseling in Communication Disorders | 3 |
| CMSD 588[3] | Educational Fieldwork II | 8 |
| CMSD 597 | Fieldwork II | 8 |
| CMSD 687A or 687B[2] | Seminar: Open Seminar | 4 |
| CMSD 697 | Research | 1 |
| REL_ 5__ (Graduate-level religion elective) | | 3 |
| | **Total Units:** | **118** |

[1] Choose one course
[2] One unit each time seminar is taken
[3] Fulfills service learning requirement

### Normal time to complete the program

Three (3) years, 11 academic quarters; full-time enrollment required

# Communication Sciences — M.S., M.S. (Transitional) Comparison

| | Course Title | MS (Transitional) | MS |
|---|---|---|---|
| **Transitional Year** | | | |
| CMSD 514 | Anatomy of Speech-Hearing Mechanism | 3.0 | |
| CMSD 515 | Transcription Phonetics | 2.0 | |
| CMSD 516 | Speech and Hearing Science | 3.0 | |
| CMSD 520 | Communication across the Life Span | 3.0 | |
| CMSD 521 | Language Disorders of Children | 3.0 | |
| CMSD 522 | Organic Speech Disorders | 3.0 | |
| CMSD 529 | Adult Language Pathology | 3.0 | |
| CMSD 530 | Language Science | 3.0 | |
| CMSD 534 | Speech Sound Disorders in Children | 3.0 | |
| CMSD 537 | Clinical Methods in Speech-Language Pathology | 3.0 | |
| CMSD 538 | Diagnostic Methods in Speech-Language Pathology | 3.0 | |
| CMSD 539 | Introduction to Audiology | 3.0 | |
| CMSD 547 | Autism Spectrum Disorders | 2.0 | |
| CMSD 548 | Disorders of Fluency | 2.0 | |
| CMSD 549 | Voice Disorders | 2.0 | |
| CMSD 577 | Bilingualism and Biculturalism | 2.0 | |
| **Totals** | | **43.0** | |
| | **Course Title** | **MS (Transitional)** | **MS** |
| **Master's First Year** | | | |
| CMSD 567 | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | 2.0 | 1.0 |
| CMSD 511 | Graduate Portfolio I | 2.0 | 2.0 |
| CMSD 523 | Seminar in Early Childhood Language Disorders | 3.0 | 3.0 |
| CMSD 525 | Seminar in School-Aged Child Language Disorders | 3.0 | 3.0 |
| CMSD 531 | Service-Learning in Speech-Language Pathology I | 1.0 | 1.0 |
| CMSD 554 | Swallowing Disorders | 3.0 | 3.0 |
| CMSD 575 | Instrumentation in Speech and Hearing I | 1.0 | 1.0 |
| CMSD 586 | Educational Fieldwork I | 1.0 | 1.0 |
| CMSD 596 | Medical Fieldwork I | 1.0 | 1.0 |
| CMSD 598 | Research Methods and Professional Literature in Communication Sciences and Disorders | 3.0 | 3.0 |
| CMSD 679 | Seminar: Motor Speech Disorders/Augmentative Communication | 3.0 | 3.0 |
| CMSD 682 | Seminar: Traumatic Brain Injury | 3.0 | 3.0 |
| CMSD 684 | Seminar: Adult Language Disorders | 3.0 | 3.0 |
| CMSD 685 | Seminar: Stuttering | 3.0 | 3.0 |
| CMSD 688 | Seminar: Speech Sound Disorders - Advanced | 3.0 | 3.0 |
| **Totals** | | **35.0** | **34.0** |
| | **Course Title** | **MS (Transitional)** | **MS** |
| **Master's Second Year** | | | |
| Select of the following: | | 1.0 | 1.0 |
| CMSD 567 | Clinical Practice in Speech-Language Pathology and Audiology, Advanced | | |
| CMSD 586 | Educational Fieldwork I | | |
| CMSD 596 | Medical Fieldwork I | | |
| CMSD 512 | Graduate Portfolio II | 1.0 | 1.0 |
| CMSD 532 | Service-Learning in Speech-Language Pathology II | 1.0 | 1.0 |

| | | | |
|---|---|---|---|
| CMSD 535 | Voice Disorders | 3.0 | 3.0 |
| CMSD 545 | Issues in School Speech-Language Pathology | 3.0 | 3.0 |
| CMSD 564 | Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids | 3.0 | 3.0 |
| CMSD 576 | Instrumentation in Speech and Hearing II | 1.0 | 1.0 |
| CMSD 587 | Counseling in Communication Disorders | 3.0 | 3.0 |
| CMSD 588 | Educational Fieldwork II | 8.0 | 8.0 |
| CMSD 597 | Fieldwork II | 8.0 | 8.0 |
| CMSD 687A or 687B | Seminar: Open Seminar[1] | 4.0 | 4.0 |
| CMSD 697 | Research | 1.0 | 1.0 |
| REL_ 5__ | | 3.0 | 3.0 |
| **Totals** | | **40.0** | **40.0** |
| **Overall Totals** | | **118.0** | **74.0** |

[1] One unit each time seminar is taken

# Speech-Language Pathology — S.L.P.D.

**Program Director**
Keith Wolgemuth

The Doctor of Speech-Language Pathology is a post-entry level professional degree for individuals who want to increase depth of knowledge in the field of speech-language pathology while also acquiring clinical research experience. Graduates of the program will be trained to take positions as master clinicians, clinical researchers, and university clinical faculty.

The post-entry level professional program at Loma Linda University is one of a handful of such programs in the country and is currently the only such program in California. Current practitioners will gain advanced knowledge in the field of speech-language pathology, with specialized training in evidence-based practice, critical thinking, legal and ethical issues, problem solving, and clinical research. Doctoral students will become adept at analyzing and synthesizing the existing research literature as they design and conduct their own clinical study in their area of interest. Doctoral students will be required to complete an applied dissertation research capstone project designed by the student and their faculty mentor. This project will be a clinical research study that will be in the form of a written manuscript for potential publication.

**Student learning outcomes**

In addition to the institutional learning outcomes (p. 19), by the end of the program, the graduate should be able to:

1. Independently conduct clinically based research;
2. Disseminate information from their novel research findings;
3. Demonstrate specialized knowledge in speech-language pathology;
4. Demonstrate knowledge in disciplines outside the field of speech-language pathology.

## Admissions

*Note: If you live in a state that has regulatory requirements for online education, please check if Loma Linda University is able to accept residents of your state for online education. Contact the Admissions office for School of Allied Health Professions, 909-558-4599.*

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Be a speech-language pathologist with a Master's degree (M.A./M.S.) in speech-language pathology or equivalent and six months of professional practice.
- Have a current Certificate of Clinical Competence (CCC), and current licensure in one of the 50 United States.
- Document a minimum graduate GPA of 3.3.
- Provide three letters of reference.
- Submit a two- to three-page written statement describing research interests (and experience, if any), professional experience/accomplishments, reason for pursuing a Doctorate in Speech-Language Pathology, and reason for attending Loma Linda University. If the applicant has a particular faculty mentor in mind, they should be mentioned here.

In the admissions screening process, the applicant's recommendations, interview, personal statement, and work experience are all considered. The most qualified applicants will be selected to be interviewed. The strength of the interview will be evaluated along with the applicant's stated research goals/plans. Admission will be decided based on the perceived potential of the applicant to succeed in this clinical research program as well as availability of a faculty mentor suited to the applicant's research area.

## Program requirements

Courses in the program fall into two broad domains: research and theory. Students will be required to take all courses in each domain

| **Major** | | |
|---|---|---|
| SLPD 550 | Advanced Seminar in Neuroanatomy and Neuroscience | 3 |
| SLPD 570 | Special Topics in Speech-Language Pathology (3) [1] | 9 |
| SLPD 580 | Clinical Issues in Speech-Language Pathology | 3 |
| SLPD 600 | Components of Clinical Inquiry | 3 |
| SLPD 610 | Capstone IRB Proposal | 4 |
| SLPD 621 | Capstone Planning | 3 |
| SLPD 622 | Capstone Proposal | 2 |
| SLPD 623 | Capstone II | 3 |

| | | |
|---|---|---|
| SLPD 624 | Capstone III | 3 |
| SLPD 625 | Capstone IV | 3 |
| SLPD 626 | Dissemination of Research | 3 |
| **Cognates** | | |
| Religion (Choose from two of the following areas) | | 6 |
| RELE_ 5__ Religion elective ethics | | |
| RELR_ 5__ Religion elective relational | | |
| RELT_ 5__ Religion elective theological | | |
| **Electives** | | **6** |
| AHCJ 555 | Writing for Health-Care Professionals | |
| AHCJ 546 | Therapeutic Humor in Health Care | |
| AHCJ 541 | Managing Stress | |
| **Total Units** | | **51** |

[1] Course will be taken three times with a different topic each time.

## Service learning requirement

This requirement may be met by taking a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Normal time to complete the program

9 quarters (2.66 years) — based on part-time enrollment

# Department of Health Informatics, Information Management, and Administration

The Department of Health Informatics, Information Management, and Administration (HIIMA) offers broad-based educational programs related to leadership, informatics, information management, and administration. Professionals in these domains strive to improve patient experiences with respect to quality and satisfaction, the health of populations, and the per capita costs of health care. Graduates possess the necessary leadership skills to ensure a competent workforce in the health-care industry.

## Mission

In harmony with the mission of Loma Linda University and the School of Allied Health Professions, the Department of Health Informatics, Information Management, and Administration is dedicated to:

- Educating competent health informatics, information management, and administration professionals.
- Promoting health informatics, information management, and administration professions.
- Extending the current knowledge of health informatics, information management, and administration professionals at neighboring health-care facilities.
- Challenging students, department faculty, and staff to maintain high standards of ethical and professional behavior.
- Encouraging students, faculty, and staff to seek a meaningful relationship with God and a balanced Christian lifestyle.

## Purpose

To prepare graduates to be competent health informatics, information management, and administration professionals through excellence in classroom instruction, professional practice experience, advisement, and mentoring—emphasizing global service.

### Chair

Debra L. Hamada

### Primary faculty

Pauline J. Calla

Laura Evans

Lida Gharibvand

Debra L.Hamada

Karla G. Lavin Williams

Terri L. Rouse

Ryan Stephan

Braden Tabisula

### Clinical faculty

Kimberly A. Alcaraz

Jere E. Crispens

Marilyn Davidian

Jennifer Guerrero

Melanie Hanson

D.P. Harris

Audrey J. Shaffer

Brenda Taylor

David Wren

Mark E. Zirkelbach

## Programs


- Coding Specialist — Certificate (p. 86)
- Health-Care Administration — B.S. (p. 58)
- Health Informatics — M.S. (p. 87)
- Health Information Management — B.S., Certificate (p. 88)


# Coding Specialist — Certificate

**Program director**
Ryan Stephan

**Advisory committee**
Susan Armstrong
Tim Bristol, Chair
Pauline J. Calla
Deanna Klure
Tanya McCandish
Diana McWaid-Harrah
Diana Medal
Beverly Miller
Evelia Munoz
Carel Randolph
Patricia Small
Guadalupe Valdepena
Angela Zucker

**Invitees**
Debra L. Hamada
Terri L. Rouse
Braden Tabisula

## Medical coding professionals

Health-care facilities need coders who accurately select ICD-10-CM/PCS codes, CPT codes, and HCPCS codes; and identify appropriate DRG or APC assignments for diagnostic and surgical information filed in health records. In most instances, financial reimbursement is directly tied to these codes. The statistical information generated from these codes is used for research, quality improvement in patient care, education, and administrative decision making.

## Opportunities

Coding specialists are in demand in acute care and ambulatory care facilities, physicians' office practices, and long-term care facilities. A variety of government agencies require coding expertise as well. The need for accurate, skilled coders is critical in California and throughout the nation. Available information about job opportunities is provided to alumni.

## The program

The Coding Specialist Program is is an online certificate program that is five quarters in length. Practicum courses in the program require some live, synchronous meetings between instructors and students to ensure the students receive adequate guidance in preparation for the workforce. Before beginning coding courses, students are introduced to foundational concepts in health-care records management as well as disease states and interventions.

## Program learning outcomes

Upon completion of the program, the graduate should be able to:

1. Assess health record documentation to verify that it is accurate, timely, and complete, and that it supports the diagnosis and other clinical findings;
2. Determine the appropriate medical codes for health-care encounters with accuracy and consistency according to official guidelines;
3. Adhere to the format, organization, and mechanical conventions of the ICD-10-CM/PCS, CPT, E & M, and HCPCS coding systems;
4. Facilitate health data collection and processing through coding, indexing, and maintaining disease and operation statistics;
5. Assess compliance with regulatory requirements and reimbursement methodologies;
6. Perform diagnostic-related group and ambulatory patient-classification assignments using decision trees and computerized patient-data groupers;
7. Develop appropriate physician queries to resolve discrepancies in clinical documentation and coding.

## Professional certification

Upon successful completion of the program, the student is eligible to take the national entry-level certification examinations of the American Health Information Management Association.

## Special coursework/credit

Credit for life experience may be offered through waiver or equivalency examination as allowed by University policy.

## Approval

The Loma Linda University Coding Specialist Certificate Program is approved by AHIMA's Professional Certificate Approval Program (PCAP). This designation acknowledges the coding program as having been evaluated through a peer-review process and against a national minimum set of standards for entry-level coding professionals. This process allows academic institutions, health-care organizations, and private companies to be acknowledged as offering an approved coding certificate program. Any PCAP-related inquiries may be addressed to AHIMA, 233 N. Michigan Avenue, 21st Floor, Chicago, IL 60601-5809; telephone 312- 233-1149; email, academic.affairs@ahima.org.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirement:

- High School Diploma or GED

## Program requirements

### Corequisite

The following corequisites/courses must be completed at a regionally accredited college or university:

- Human anatomy and physiology (must be completed before Winter Quarter of first year)
- Medical terminology

| | | |
|---|---|---|
| Year 1 | | |
| HLCS 242 | Coding I | 4 |
| HLCS 243 | Coding II | 4 |
| HLCS 961 | Coding Practicum I | 2 |
| HLIN 220 | Health Information Science and the U.S. Health-Care System | 4 |
| HLIN 248 | Pathopharmacology for Health Information Management | 4 |
| RELE 257 | Health Care Ethics | 2 |
| Year 2 | | |
| HLCS 245 | Coding III | 4 |
| HLCS 250 | Reimbursement and Coding Compliance | 4 |
| HLCS 260 | Seminar and Portfolio for Health-Care Professionals | 2 |
| HLCS 962 | Coding Practicum II | 2 |
| **Total Units** | | **32** |

A minimum grade of C (2.0) is required for all courses in the program.

### Normal time to complete the program

Fifteen (15) months based on less than half-time enrollment; no full-time option available

# Health Informatics — M.S.

**Program director**
Debra L. Hamada

**Program coordinator**
Braden Tabisula

**Advisory committee**
Maha Hag Alshiekh, chair
Kirk Campbell
Dawn Cardillo
Kent Chow
Jere E. Chrispens
D. P. Harris
Joyce Hopp
Craig Jackson
Art Kroetz
Ghee McConnell
Jennifer Miller
Rodney Roath
Terri L. Rouse
Brenda Taylor
David Wren
Mark Zirkelbach

**Invitees**
Pauline J. Calla

Debra L. Hamada
Ryan Stephan
Braden Tabisula

## Program Overview

The dynamics within the health-care industry are creating an information-intensive environment that professionals must navigate as they deliver health care to patients. Clinical and nonclinical professions in this industry will be required to be knowledgeable and proficient in the development and use of information technology. The future success or failure of health-care organizations will be predicated on their abilities to effectively and efficiently manage the valuable asset of information. This curriculum blends the topics of leadership, system theory and management, technology, data analytics, project management, process improvement, data management, and regulatory constraints in order to prepare graduates for critical leadership roles in health-care organizations. As informatics leaders, graduates will assist in developing information systems in health care that positively impact patient care at individual, local, and national levels.

## Opportunities

As the health-care industry develops under vastly expanding regulatory mandates, there is a need for information systems that will meet the needs of all stakeholders. The demand for informatics professionals is steadily increasing as health-care organizations look for greater numbers of skilled workers. There is a projected need for more than 50,000 new information technology workers in the coming years. Health informatics professionals are employed in a wide variety of health settings, including acute care, outpatient care, long-term care, research facilities, software development companies, government agencies, rehabilitation facilities, consulting firms, and others.

## Program learning outcomes

Upon completion of this program, the graduate should be able to:

1. Conduct information system analysis, design, implementation and management;
2. Evaluate data structure, function and transfer of information, socio-technical aspects of health computing, and human-computer interaction;
3. Recommend information technology, including but not limited to, computer networks, databases and system administration, security, and programming;
4. Develop effective verbal and written communications;
5. Ensure successful project management;
6. Assess quality and performance issues in health care using data analytics and performance improvement tools.

## Accreditation

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following:

- Provide evidence of completion of a bachelor's degree from an accredited U.S. college or university or the foreign equivalent.
- Provide three letters of recommendation that indicate a strong academic background and professional readiness.
- Interview, if deemed necessary.
- Minimum G.P.A. of 3.0. The Graduate Record Examination (GRE) may be requested and considered for G.P.A.s less than 3.0.

## Program requirements

| | | |
|---|---|---|
| **Year 1** | | |
| AHCJ 555 | Writing for Health-Care Professionals | 3 |
| AHRM 514 | Biostatistics | 3 |
| HLIF 510 | Health-Care Information Systems | 4 |
| HLIF 515 | The U.S. Health-Care System | 4 |
| HLIF 525 | Management of Health-Care Data and Information | 2 |
| HLIF 545 | System Design, Implementation, and Management | 3 |
| HLIF 548 | Human Computer Interactions | 2 |
| HLIF 565 | Technical Structures in Health Informatics | 3 |
| **Year 2** | | |
| HLIF 520 | Data Management: Modeling and Development | 3 |
| HLIF 526 | Quality and Performance Improvement for Health Care | 2 |
| HLIF 530 | Data Analytics and Decision Support | 3 |
| HLIF 540 | Leadership Perspectives and Practice | 4 |
| HLIF 550 | Systems Security in Health Care | 2 |
| HLIF 555 | Health-Care Vendor and Project Management | 3 |
| HLIF 570 | Professional Portfolio [1] | 2 |
| Choose one: | | 2 |
| HLIF 575 | Capstone Project and Special Topics in Health Informatics | |
| HLIF 584 | Professional Practicum and Seminar for Health Informatics | |
| REL_ 5__ Graduate-level Religion | | 3 |
| **Total Units** | | **48** |

[1] Fulfills service learning requirement

### Non-course requirements

An LLU G.P.A. of 3.0 must be maintained throughout the program.

A minimum grade of C (2.0) is required for each course in the program.

### Normal time to complete the program

Two (2) years (six [6] academic quarters) based on full time enrollment

# Health Information Management — B.S., Certificate

**Program director**
Pauline J. Calla

**Clinical coordinator**
Ryan Stephan

**Recruitment coordinator**
Pauline J. Calla

**Advisory committee**
Felicia Chao, Chair
Kristen Borth
Deborah Critchfield
Cynthia Doyon
Craig Jackson, ex officio
Raymound Mikaelian
Jennifer Miller
Eric Morales
Gilbert Rodriquez
Frieda Smith
Braden Tabisula
Brenda Taylor
Marvin Torres
Sally Urquiza

**Invitees**
Pauline J. Calla
Debra L. Hamada
Terri L. Rouse
Ryan Stephan

## Program overview

The Health Information Manager (HIM) maintains health information systems that serve the needs of patients, the health-care team, and the administrative staff. It is an excellent career choice for the person who desires a profession in health care that combines interests in data analytics, computer science, business, management, informatics, law, and medicine. This unique mixture provides the HIM professional with great opportunities in a variety of different settings and job titles, along with substantial income.

HIMs have opportunities to assist in the development and implementation of health information systems for quality patient care, financial reimbursement, medical research, health-care planning, and health-care quality evaluation. Other responsibilities include privacy, security, and data governance.

One of the many career options chosen by the HIM professional is the management of a health information department. In this position, managers evaluate and motivate employees, provide leadership in department planning and organizing, determine department policies, and budget department resources. Managers are also involved in decision making and health-care committees.

A HIM designs, develops, and maintains systems for storage, retrieval, and dissemination of information in accordance with federal, state, and local statutes and regulations. This person works with the medical staff and other health professionals in research, administrative studies, functions relative to health information, and patient-care evaluation. The HIM in a health-care facility provides management and leadership in planning and organizing the department, motivating and evaluating employees, and providing in-service programs for departmental employees or other personnel. In addition, strategic planning involvement for health information systems is an important function.

The health information management curriculum is offered in two pathways as follow:

1. Bachelor's degree completion program.
2. Postbaccalaureate degree certificate program for applicants with a bachelor's degree.

The Health Information Management Program, leading to the Bachelor of Science degree, begins with the Autumn Quarter. Freshman and sophomore years, which are taken at an accredited college or university, afford the fundamentals of a liberal arts education and provide background in science, humanities, social studies, and business. Concentration on health information administration subject matter begins at Loma Linda University in the junior year and continues through the senior year.

Students are advised to complete the curriculum in two years as scheduled. Those electing to study on a part-time basis must complete all coursework within a period specified by University policy.

## Opportunities

Health Information Management provides job flexibility for the person seeking work in a variety of settings. Many are employed by hospitals and medical centers. However, the job market is rapidly expanding beyond hospitals. New openings are available in home-health agencies, long-term care facilities, outpatient care, mental health facilities, private medical practices and clinics, insurance companies, health management organizations, commercial and industrial firms, government agencies, legal offices, software vendors, and education.

Job positions include, but are not limited to: HIM director, privacy officer, security officer, chief compliance officer, EHR implementation specialist, data application or system analyst, data integrity analyst, consultant, cancer registrar, medical office administrator, HIM revenue cycle auditor, revenue cycle manager, REC/HIE exchange director, meaningful use specialist, data quality manager, documentation and coding specialist, and coding manager.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Conduct assessment and management of data and information needs for a variety of health-care settings;
2. Advocate effective strategies for health information protection—privacy, security, and confidentiality;
3. Recommend technology, database models, and data analytic tools to support decision making and strategic planning;
4. Discuss and apprise revenue cycle management principles, strategies and processes;
5. Monitor and analyze compliance with standards, regulations, and laws documentation related to health care;
6. Formulate management and leadership plans and strategies in legal and ethical manners to utilize resources effectively and efficiently;
7. Integrate pathophysiology, pharmacology, anatomy and physiology, medical terminology, computer concepts and application, and math statistics into the practice of health information administration.

## Professional practice experience

Two complimentary types of clinical experience are offered. The first is a variety of assignments and simulated exercises that will acquaint

the student with managing information in all aspects of the health-care environment. The second is a minimum of 40-hour affiliation during Spring Quarter of the senior year. Arrangements for internships and affiliation sites are made through the program director and the clinical coordinator. Students are responsible for their own transportation, food, and lodging during this affiliation.

## Professional registration

Upon completion of either the B.S. degree or the certificate, and upon recommendation of the faculty, graduates are eligible to take the qualifying examination of the American Health Information Management Association, 233 North Michigan Avenue, 21st Floor, Chicago, IL 60601-5809, for the designation of Registered Health Information Administrator.

## Professional association

Students and graduates are eligible for becoming members of the American Health Information Management Association and their respective Component State Associations. The purpose of these associations is to promote the art and science of health information management. They grant student memberships at a nominal cost to undergraduates in approved schools. Students are expected to become members of these associations, pay the nominal dues, read the journals, and become familiar with the professional activities.

## Credit by examination or evaluation

Applicants who have comparable education or experience may be able to gain credit per University policy.

## Accreditation

The Health Information Management Program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM), 200 East Randolph Street, Suite 5100, Chicago, IL 60601; telephone: 312/235-3255; website: <www.cahiim.org (http://www.cahiim.org)>.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

### Health Information Management—B.S.

To be eligible for admission to the B.S. degree curriculum in health information management, the applicant must have completed a minimum of 90 quarter units at an accredited college or university.

#### Domain 1: Religion and humanities (20 quarter units)

**Humanities**

Choose a minimum of three areas from: history, literature, modern language, philosophy, and art/music appreciation

**Religion**

Included in this minimum are four units of religion per year of attendance at a Seventh-day Adventist college or university

#### Domain 2: Scientific inquiry and analysis (24-32 quarter units)

**Natural sciences (12 units minimum)**

Human anatomy and physiology with laboratory, complete sequence

Intermediate algebra (or two years of high school equivalent)

Choose remaining units from: chemistry, geology, mathematics, astronomy, physics, statistics

**Social sciences (12 units minimum)**

Cultural anthropology or an approved course dealing with cultural diversity

Psychology (one course minimum)

Choose one additional course from: sociology, economics, geography, political science

#### Domain 3: Communication (9-13 quarter units)

English composition, complete sequence

Business communications or Interpersonal communication

#### Domain 4: Health and wellness (2-6 quarter units)

Personal health or nutrition

Two physical activity courses

#### Other

Medical terminology

Electives to meet the minimum total requirement of 90 quarter units

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

### Health Information Management—Certificate

To be eligible for admission, the applicant must have a bachelor's degree from an accredited college or university.

#### Prerequisites

Human anatomy and physiology with laboratory, complete sequence—concurrent with first quarter
Medical terminology
Intermediate algebra or two years of high school math
Psychology course
Business communications or Interpersonal communication

## Programs

Health Information Management — B.S. (p. 90), Certificate (p. 91)

# Health Information Management — B.S.

| Junior Year | | Units |
|---|---|---|
| HCBL 345 | Project Management in Health Care | 3 |
| HCBL 346 | Legal and Ethical Environment in Health Care | 3 |
| HLIN 220 | Health Information Science and the U.S. Health-Care System | 4 |
| HLIN 248 | Pathopharmacology for Health Information Management | 4 |
| HLIN 320 | Health Information Science for Alternative Care Settings | 4 |
| HLIN 334 | Clinical Classification Systems | 4 |
| HLIN 335 | Advanced Classification Systems and Coding Compliance | 4 |
| HLIN 340[1] | Seminar and Portfolio for Health Information Management | 4 |

| | | |
|---|---|---|
| HLIN 347 | Advanced Information Privacy and Security | 4 |
| HLIN 354 | Professional Practice Experience | 3 |
| HLIN 430 | Quality Management and Performance Improvement in Health Care | 3 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| REL_ 4__ Upper-division religion course | | 2 |
| **Senior Year** | | |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| HCBL 434 | Financial Management for Health Care | 3 |
| HCBL 471 | Information Systems Management in Health Care I | 4 |
| HLIN 344 | Health-Care Informatics and Database Management | 4 |
| HLIN 435 | Seminar and Portfolio for Health Information Management II | 4 |
| HLIN 437 | Data Analytics and Visualizations for Health Care | 4 |
| HLIN 438 | Revenue Cycle Management for Health Care | 4 |
| HLIN 439 | Management in Health Care | 4 |
| HLIN 440 | Leadership and Strategy Management in Health Care | 4 |
| HLIN 454 | Professional Practice Experience II | 4 |
| HLIN 472 | Information Systems Management in Health Care II | 4 |
| RELT 423, 406, 436, or 437 (choose one course) | Loma Linda Perspectives | 2 |
| REL_ 4__ Upper-division religion course | | 2 |
| | **Total Units:** | **91** |

[1] Fulfills service learning requirement

Graduation Requirements: A minimum grade of C (2.0) is required for all courses in the program. 180 units (maximum junior college units = 105; 60 units must be upper division).

An G.P.A. of 2.0 from LLU must be maintained throughout the program.

### Normal time to complete the program

Four (4) years — two (2) years (six [6] academic quarters) at LLU based on full-time enrollment

# Health Information Management — Certificate

| **Junior Year** | | **Units** |
|---|---|---|
| HCBL 345 | Project Management in Health Care | 3 |
| HCBL 346 | Legal and Ethical Environment in Health Care | 3 |
| HLIN 220 | Health Information Science and the U.S. Health-Care System | 4 |
| HLIN 248 | Pathopharmacology for Health Information Management | 4 |
| HLIN 320 | Health Information Science for Alternative Care Settings | 4 |
| HLIN 334 | Clinical Classification Systems | 4 |
| HLIN 335 | Advanced Classification Systems and Coding Compliance | 4 |
| HLIN 340 | Seminar and Portfolio for Health Information Management | 4 |
| HLIN 347 | Advanced Information Privacy and Security | 4 |
| HLIN 354 | Professional Practice Experience | 3 |
| HLIN 430 | Quality Management and Performance Improvement in Health Care | 3 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| **Senior Year** | | |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| HCBL 434 | Financial Management for Health Care | 3 |
| HCBL 471 | Information Systems Management in Health Care I | 4 |
| HLIN 344 | Health-Care Informatics and Database Management | 4 |
| HLIN 435 | Seminar and Portfolio for Health Information Management II | 4 |
| HLIN 437 | Data Analytics and Visualizations for Health Care | 4 |
| HLIN 438 | Revenue Cycle Management for Health Care | 4 |
| HLIN 439 | Management in Health Care | 4 |
| HLIN 440 | Leadership and Strategy Management in Health Care | 4 |
| HLIN 454 | Professional Practice Experience II | 4 |
| HLIN 472 | Information Systems Management in Health Care II | 4 |
| | **Total Units:** | **85** |

A minimum grade of C (2.0) is required for all courses in the program.

An G.P.A. of 2.0 from LLU must be maintained throughout the program. A minimum of 50 units is required for completion.

### Normal time to complete the program

Two (2) years (six [6] academic quarters) at LLU

# Department of Nutrition and Dietetics

The Department of Nutrition and Dietetics offers degree programs that lead to professional careers. Graduates are prepared to be registration eligible; and upon passing boards, be employed as clinical dietitians in hospitals and as directors of health-care and school food service facilities. Some own private practices, offering consulting services to long-term care facilities, sports teams, and other venues. The classroom-based B.S and M.S. coordinated programs that lead to RD/RDN (registered dietitian/registered dietitian nutritionist) eligibility are accredited by the Academy of Nutrition and Dietetics' Accreditation Council for Education in Nutrition and Dietetics. As a coordinated program, both didactic coursework and 1,200 hours of supervised practice are included in the curriculum. In addition to the ACEND-accredited coordinated programs, two master's-level degrees (online and classroom-based) are offered for dietitians with bachelor's degrees who want to further their educations.

### Chair
Edward K. Bitok

### Primary faculty
Edward Bitok

Cory Gheen

Cindy Kosch

JeJe Noval

Kyndra J. Woosley

### Clinical faculty
Adleit F. Asi

Margie I. Carson

Vivien Choi

Febra Johnson

Kalvin Lazcano

Leann Onasch

Jean Sellars

Khongmany Wells

Maryellen Westerberg

Pamela Yong

### Associated faculty
Ifeanyi Nwachukwu

Michael Paalani

Sujatha Rajaram

## Programs

- Nutrition and Dietetics — M.S. (Prior RD) (p. 92)
- Nutrition and Dietetics (Coordinated Programs) — B.S. (p. 94), B.S. and M.S (p. 95)., M.S. (Prior B.S./B.A.), (p. 96) M.S. (Post DPD), (p. 97) Comparison (p. 99)

# Nutrition and Dietetics (Prior RD) — MS

This is a one-year (4 quarters) program and begins every Summer Quarter. A research project requirement is included in the curriculum.

Opportunities for a registered dietitian who has completed a master's degree are enhanced by the additional education at the graduate level. By 2024, a master's degree will be required for entry-level employment.

The curriculum is identical to that of the third year of the Nutrition and Dietetics—B.S. and M.S. Coordinated Program in dietetics.

## Program learning outcomes

At the end of this program, the graduate should be able to:

1. Plan, process, and perform nutrition-related research while protecting the public;
2. Demonstrate an ability to translate evidence-based literature into formats the lay public can understand, including use of videos, writing articles, and counseling;
3. Evaluate emerging trends in nutrition and give competent, evidence-based answers to the public;
4. Use metabolic pathways to determine patient and client nutritional needs.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Be a registered dietitian
- Have a 3.0 or above G.P.A.
- Complete an interview (by phone or in person)

## Program requirements

| Graduate Year | | Units |
|---|---|---|
| AHCJ 548 | Human Resource Management in the Health-Care Environment | 3 |
| AHRM 604 | Research-Proposal Writing | 3 |
| DTCS 526 | Pharmacology in Medical Nutrition Therapy | 2 |
| DTCS 584 | Contemporary Issues in the Dietetic Profession | 4 |
| DTCS 589[1] | Capstone Course in Nutrition and Dietetics | 3 |
| DTCS 694 | Research | 4 |
| EPDM 509 | Principles of Epidemiology | 3 |
| NUTR 506 | Nutritional Metabolism | 3 |
| NUTR 510 | Advanced Public Health Nutrition | 3 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| Elective: Any graduate-level course approved by advisor | | 7 |
| REL_ 5__ Religion Elective | | 3 |
| | **Total Units:** | **48** |

[1] Fulfills service learning requirement

### Normal time to complete the program

One (1) year (four [4] academic quarters) at LLU based on full-time enrollment; part time permitted

# Nutrition and Dietetics — Coordinated Programs

**Advisory committee**
Gurinder Bains
Lee Berk
Margie Carson
Elena Chai
Dorothy Chen-Maynard
Teslyn Henry-King
Robin Hernandez
Celine Heskey
Georgia Hodgkin
Gayle Hoxter
Craig Jackson, ex officio
Febra Johnson
Arthur Marshak
JeJe Noval
Larry Roberts
Jean Sellars
Khongmany Wells

The registered dietitian (RD) is a vital member of the health-care team in the field of health promotion and medical nutrition therapy. This profession focuses on the field of health promotion. Medical nutrition therapy centers on the science of nutrition, the art of food presentation, and management in providing nutrition care—as well as instruction in proper food choices throughout life. Individuals and groups benefit from the work of the registered dietitian, potentially leading to better health and longer life. Dietetic practice is the application of principles derived from integrating knowledge of food, nutrition, biochemistry, physiology, business and management, journalism, and behavioral and social sciences, as well as the artistic presentation of food to achieve and maintain health, prevent disease, and facilitate recovery from illness.

The coordinated program—a joint effort of the School of Allied Health Professions and the School of Public Health—offers students the option to pursue one of three degrees:

- B.S. degree in nutrition and dietetics;
- M.S. degree in nutrition and dietetics;
- M.P.H. degree in public health nutrition (described in the Nutrition Program of the School of Public Health section of the CATALOG).

Each of these degrees culminates in eligibility to take the registration examination for dietitians. The student obtains the credential in dietetics upon successful completion of the registration examination offered by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. The coordinated program in dietetics combines didactic and supervised professional practice experiences to develop professional competencies concurrently with cognitive and technical skills that enable the graduate to establish eligibility to become a registered dietitian.

The M.S. degree prepares entry-level dietitians to join the profession in areas of advanced practice as well as specialty areas that will allow them to contribute to the wholeness of humankind. The graduate is awarded an M.S. degree in nutrition and dietetics. The curriculum comprises didactic and supervised professional practice experiences in a health-sciences, liberal arts environment to prepare an educated graduate.

This curriculum includes theory, laboratory, research, and clinical experiences; 1,200 hours of supervised professional practice experiences are scheduled in medical nutrition therapy, community, and administrative nutrition. Students participate as active members of the nutrition-care team in clinical settings.

Four choices are available to earn a Master of Science degree in nutrition and dietetics at Loma Linda University.

## Opportunities

Members of the dietetics profession practice in a variety of environments —including hospitals and other health-care facilities, schools and universities, government and community agencies, business, and industry. A growing number of dietitians are employed in physicians' offices, clinics, home health-care agencies, mass communications, and many other entrepreneurial roles.

By successfully passing the registration examination for dietitians, practice opportunities as a specialist in medical nutrition therapy, administrative dietetics, nutrition education, community nutrition, or research are available. There is increased recognition of the importance of nutrition in the fields of medicine, dentistry, and health promotion—with emphasis on fitness and optimal well-being. This indicates that the dietitian's scope of practice is steadily broadening.

The registered dietitian in medical nutrition therapy applies the science of nutrition to the care of people through health promotion and disease prevention, and uses medical nutrition therapy in the treatment of disease. As a member of the patient-care team, the registered dietitian (RD) is responsible for assessing, implementing, and monitoring the nutritional care of patients. In addition, the RD may serve professionally as a nutrition practitioner in health care; a teacher in an educational institution; a research dietitian; or a nutrition consultant-educator in municipal, state, or federal departments of health.

The dietitian in administration is accountable for the food service system. In a health-care institution, they are responsible for the effective functioning of food service from the standpoint of patients, administration, medical staff, and personnel. The administrative RD may also teach; manage food systems in educational, public, or commercial facilities; serve as a consultant to health-care or educational institutions; or enter the field of research.

Community registered dietitians practice in diverse settings, translating nutrition science into improved health status. Opportunities may include forming partnerships with various organizations, mastering technology, enacting regulations and policies that protect and improve the public's health, and creatively managing scarce resources. Dietitians working in the community exhibit high-quality leadership and planning skills.

## Professional registration

Upon satisfactory completion of the program and upon recommendation of the faculty, the graduate will receive a verification statement and be eligible to take the registration examination for dietitians in order to become a registered dietitian.

## Professional association

Students and graduates are eligible for membership in the Academy of Nutrition and Dietetics. The association grants student membership at a nominal rate to students in accredited programs.

The national office of the Academy of Nutrition and Dietetics is located at 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995. Along with membership in the Academy of Nutrition and Dietetics, students become members of the California Dietetic Association. Students are also encouraged to join the California Dietetic Association–Inland District.

## Goals of the coordinated program

### Program Goal 1

The program will prepare students to be competent graduates who are eligible to write the registration examination for dietitians to become entry-level practitioners.

#### Program Objectives for Goal 1

1. Eighty percent (80%) of graduates who write the registration examination for dietitians will pass within the first year.
2. Eighty percent (80%) of students who enter the B.S., M.P.H., or M.S. degree program will complete program/degree requirements within 150 percent of the program length.

### Program Goal 2

Provide professionally trained registered dietitians with either an emphasis in medical nutrition therapy or public health nutrition who may be employed by or contribute to the health-care and educational systems of the Seventh-day Adventist Church, or local, national, or international entities.

#### Program Objectives for Goal 2

1. Seventy percent (70%) or more of coordinated program graduates who seek employment in dietetics will be employed within twelve months of program completion.*
2. Sixty percent (60%) of coordinated program graduates will contribute to the community and/or provide professional leadership in the field of dietetics within five years of graduation.

   Students admitted into the B.S. + M.S. degree in nutrition and dietetics program satisfy CP requirements when the B.S. degree is completed. They continue their graduate education and do not typically seek employment until conclusion of the M.S. degree.

## Accreditation

The coordinated program in dietetics is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995; telephone, 800/877-1600, ext. 5400; email, ACEND@eatright.org; website: <http://www.eatrightpro.org/acend (https://www.eatrightpro.org/acend/)>.

## Programs

- Nutrition and Dietetics — B.S. (p. 94), B.S. and M.S. (p. 95), M.S. (Prior B.S.) (p. 96), M.S. (post DPD), (p. 97) Comparison (p. 99)

# Nutrition and Dietetics — B.S.

The B.S. degree prepares entry-level dietitians to join the profession and contribute to the wholeness of humankind. The graduate is awarded the Bachelor of Science degree and is eligible to write the registration examination of the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. The B.S. degree curriculum includes didactic and supervised professional practice experiences in a health-science and liberal-arts environment to prepare an educated graduate. Admission at this University begins with the junior year of college. The applicant will present records of at least two years of education from an accredited college or university to meet specific subject requirements.

The seven-quarter professional curriculum includes theory, laboratory, and clinical experiences. Ten weeks of clinical experiences are scheduled at the end of the junior year and again during the senior year. Students participate as active members of the nutrition-care team in clinical and community settings. Administrative affiliation experiences involve decision-making assignments in volume feeding operations in school food service or health care.

## Program learning outcomes

At the end of this program, the graduate should be able to:

1. Integrate scientific information and translation of research into practice;
2. Demonstrate beliefs, values, attitudes, and behaviors consistent with the professional dietitian nutritionist level of practice;
3. Develop and deliver information, products, and services to individuals, groups, and populations;
4. Apply principles of strategic management and systems in the provision of services to individuals and organizations.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- have a G.P.A. of 3.0 or above (science and nonscience)
- complete an interview (by phone or in person)
- complete program prerequisites

Listed below are the required admission and prerequisite requirements to obtain a bachelor's degree from Loma Linda University.

### Prerequisites

| | |
|---|---|
| **Humanities** | |
| 20 quarter credits or 14 semester units | 20 |
| Select a minimum of three areas from the following: history, literature, philosophy, foreign language, art/music appreciation, or art/music history | |
| Must include 4 units of religion per year, if attending a Seventh-day Adventist college or university (1 unit for every 12 units of course work taken at a Seventh-day Adventist institution). | |
| **Natural sciences** | |
| 12 quarter units minimum | 12 |
| College algebra or higher | |

| | |
|---|---|
| Anatomy and physiology with laboratory, complete sequence (two terms) | |
| General chemistry with laboratory, 2 semesters/3 quarters required. | |
| Microbiology with laboratory | |
| **Social sciences** | |
| 12 quarter units minimum | 12 |
| Psychology elective (one course minimum) | |
| Sociology elective (one course minimum) | |
| Social Science elective: Anthropology , Economics, Geography, Political Science, Psychology or Sociology | |
| **Communication** | |
| 9 quarter units minimum | 9 |
| English composition, complete sequence | |
| Speech | |
| **Health and wellness** | |
| 2 quarter units minimum | 2 |
| Two physical activity courses | |
| Human nutrition | |
| **Additional requirement** | |
| Medical terminology certificate or course | |
| **Total Units** | **55** |

**Total minimum units required: 96 quarter units (64 semester units)**
For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

## Program requirements

| **Junior Year** | | **Units** |
|---|---|---|
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| DTCS 302 | Food Selection and Presentation | 5 |
| DTCS 304[2] | Community Nutrition | 4 |
| DTCS 305[1] | Professional Issues in Nutrition and Dietetics | 2 |
| DTCS 321 | Nutrition and Human Metabolism | 4 |
| DTCS 329 | Organic Chemistry with Applications for Nutrition | 4 |
| DTCS 334 | Biochemistry with Applications for Nutrition | 4 |
| DTCS 338 | Introduction to Clinical Nutrition | 2 |
| DTCS 340 | Nutrition through Life Stages | 3 |
| DTCS 342 | Medical Nutrition Therapy I | 5 |
| DTCS 343 | Medical Nutrition Therapy II | 5 |
| DTCS 371 | Quantity Food Purchasing, Production, and Service | 5 |
| DTCS 372 | Food Systems Organization and Management | 4 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| REL_ 4__ Upper-division religion | | 2 |
| **Senior Year** | | |
| AHCJ 407 | Financial Management | 2 |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| DTCS 395 | Nutrition and Dietetics Practicum | 12 |
| DTCS 405 | Senior Seminar | 1 |
| DTCS 445 | Nutrition Care Management | 4 |
| DTCS 446 | Nutrition Counseling and Education | 3 |
| DTCS 452 | Advanced Nutrition | 4 |
| DTCS 453 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 461 | Food Science | 4 |
| DTCS 473 | Medical Nutrition Therapy Affiliation | 12 |
| DTCS 476 | Exercise Physiology in Medical Nutrition Therapy | 3 |
| REL_ 4__ Upper-division religion | | 2 |
| RELT 436 | Adventist Heritage and Health | 2 |
| | **Total Units:** | **110** |

[1] Registered twice to fulfill unit requirement
[2] Fulfills service learning requirement

### Normal time to complete the program

Four (4) years total — two (2) years (seven [7] academic quarters) at LLU — based on full-time enrollment; part time permitted

# Nutrition and Dietetics — B.S. and M.S.

Students desiring an M.S. degree in nutrition and dietetics who do not have a bachelor's degree may take this three-year course of study at Loma Linda University. The first two years of the curriculum offer the opportunity to complete a bachelor's degree and take the registration examination at the end of this time period in order to become an RD (registered dietitian). Students complete the master's degree during the third year—having enhanced their skills by completing additional graduate didactic courses.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Integrate scientific information and translation of research into practice;
2. Demonstrate beliefs, values, attitudes, and behaviors consistent with the professional dietitian nutritionist level of practice;
3. Develop and deliver information, products, and services to individuals, groups, and populations;
4. Apply principles of strategic management and systems in the provision of services to individuals and organizations;
5. Plan, process, and perform nutrition-related research while protecting the public;
6. Demonstrate an ability to translate evidence-based literature into formats that the lay public can understand, including use of videos, writing articles, and counseling;
7. Evaluate emerging trends in nutrition and give competent, evidence-based answers to the public;
8. Use metabolic pathways to determine patient and client nutritional needs.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- a 3.0 G.P.A. or above (science and non-science)
- an interview (by telephone or in person)
- program prerequisites—see course listing for B.S. degree prerequisites (p. 94), including minimum units required

- a 3.0 cumulative G.P.A. at completion of undergraduate courses in order to progress to the graduate level

## Program requirements

For total unit requirements for graduation for the B.S. degree, see Division of General Studies, LLU General Education Requirements (p. 27) (Section II).

| Junior Year | | Units |
|---|---|---|
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| DTCS 302 | Food Selection and Presentation | 5 |
| DTCS 304[2] | Community Nutrition | 4 |
| DTCS 305[1] | Professional Issues in Nutrition and Dietetics | 2 |
| DTCS 321 | Nutrition and Human Metabolism | 4 |
| DTCS 329 | Organic Chemistry with Applications for Nutrition | 4 |
| DTCS 334 | Biochemistry with Applications for Nutrition | 4 |
| DTCS 338 | Introduction to Clinical Nutrition | 2 |
| DTCS 340 | Nutrition through Life Stages | 3 |
| DTCS 342 | Medical Nutrition Therapy I | 5 |
| DTCS 343 | Medical Nutrition Therapy II | 5 |
| DTCS 371 | Quantity Food Purchasing, Production, and Service | 5 |
| DTCS 372 | Food Systems Organization and Management | 4 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| REL_ 4__ Upper-division religion | | 2 |
| **Senior Year** | | |
| AHCJ 407 | Financial Management | 2 |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| DTCS 395 | Nutrition and Dietetics Practicum | 12 |
| DTCS 405 | Senior Seminar | 1 |
| DTCS 445 | Nutrition Care Management | 4 |
| DTCS 446 | Nutrition Counseling and Education | 3 |
| DTCS 452 | Advanced Nutrition | 4 |
| DTCS 453 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 461 | Food Science | 4 |
| DTCS 473 | Medical Nutrition Therapy Affiliation | 12 |
| DTCS 476 | Exercise Physiology in Medical Nutrition Therapy | 3 |
| REL_ 4__ Upper-division religion | | 2 |
| RELT 436 | Adventist Heritage and Health | 2 |
| **Graduate Year** | | |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | 3 |
| AHRM 604 | Research-Proposal Writing | 3 |
| DTCS 526 | Pharmacology in Medical Nutrition Therapy | 2 |
| DTCS 584 | Contemporary Issues in the Dietetic Profession | 4 |
| DTCS 589[2] | Capstone Course in Nutrition and Dietetics | 3 |
| DTCS 694 | Research | 4 |
| EPDM 509 | Principles of Epidemiology | 3 |
| NUTR 506 | Nutritional Metabolism | 3 |
| NUTR 510 | Advanced Public Health Nutrition | 3 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| Elective: Any graduate-level course approved by advisor | | 7 |
| REL_ 5__ Graduate-level religion | | 3 |
| | **Total Units:** | **158** |

[1] Registered twice to fulfill unit requirement

[2] Fulfills service learning requirement

### Comprehensive Examination

The written comprehensive examination is designed to establish that the student has a broad understanding of nutrition and dietetics, statistics, and basic research methodology. The comprehensive examination will be administered after students have successfully completed the majority of required courses—typically during the Spring Quarter of the student's graduate year.

### Normal time to complete the program

Three (3) years— two (2) years (seven [7] academic quarters) of undergraduate work for the B.S. plus one (1) year (four [4] academic quarters) of graduate-level courses at LLU — based on full-time enrollment; part time permitted

# Nutrition and Dietetics (Prior B.S./B.A.) — M.S.

Students desiring an M.S. degree in nutrition and dietetics who have a bachelor's degree in a field other than nutrition take one year of basic undergraduate foundation courses in nutrition. The second and third years consist of nutrition and dietetics courses offered at the master's degree level, including both the didactic coursework and the supervised professional practice. Program completion establishes eligibility for writing the registration examination for dietitians and becoming a registered dietitian. Listed below are the required admission and prerequisite requirements to obtain a master's degree from Loma Linda University.

## Program learning outcomes

At the end of this program, the graduate should be able to:

1. Integrate scientific information and translation of research into practice;
2. Demonstrate beliefs, values, attitudes, and behaviors consistent with the professional dietitian nutritionist level of practice;
3. Develop and deliver information, products, and services to individuals, groups, and populations;
4. Apply principles of strategic management and systems in the provision of services to individuals and organizations;
5. Plan, process, and perform nutrition-related research while protecting the public;
6. Demonstrate an ability to translate evidence-based literature into formats that the lay public can understand, including use of videos, writing articles, and counseling;
7. Evaluate emerging trends in nutrition and give competent, evidence-based answers to the public;
8. Use metabolic pathways to determine patient and client nutritional needs.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- have a 3.0 G.P.A. or above (science and non-science)
- complete an interview (by telephone or in person)
- Graduate Record Exam (GRE)
- complete program prerequisites

## Prerequisites

- College algebra or higher
- Anatomy and physiology with laboratory, complete sequence (2 terms)
- General chemistry with laboratory, two semesters/three quarters
- Microbiology with laboratory
- Human nutrition
- Medical terminology certificate or course

# Program requirements

| Junior Year | | Units |
|---|---|---|
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| DTCS 302 | Food Selection and Presentation | 5 |
| DTCS 304 | Community Nutrition | 4 |
| DTCS 305[1] | Professional Issues in Nutrition and Dietetics | 2 |
| DTCS 321 | Nutrition and Human Metabolism | 4 |
| DTCS 329 | Organic Chemistry with Applications for Nutrition | 4 |
| DTCS 334 | Biochemistry with Applications for Nutrition | 4 |
| DTCS 338 | Introduction to Clinical Nutrition | 2 |
| DTCS 340 | Nutrition through Life Stages | 3 |
| DTCS 342 | Medical Nutrition Therapy I | 5 |
| DTCS 343 | Medical Nutrition Therapy II | 5 |
| DTCS 371 | Quantity Food Purchasing, Production, and Service | 5 |
| DTCS 372 | Food Systems Organization and Management | 4 |
| **Graduate Year** | | |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | 3 |
| AHRM 571 | Statistics and Research for Health Professionals I | 3 |
| AHRM 572 | Statistics and Research for Health Professionals II | 3 |
| AHRM 604 | Research-Proposal Writing | 3 |
| DTCS 506 | Professional Seminar in Nutrition and Dietetics | 1 |
| DTCS 526 | Pharmacology in Medical Nutrition Therapy | 2 |
| DTCS 545 | Nutrition Care Management | 4 |
| DTCS 554 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 566 | Food Chemistry and Experimental Foods | 4 |
| DTCS 574 | Advanced Food Systems Management | 3 |
| DTCS 576 | Exercise Physiology in Medical Nutrition Therapy | 3 |
| DTCS 589[1] | Capstone Course in Nutrition and Dietetics | 3 |
| DTCS 694 | Research | 4 |
| EPDM 509 | Principles of Epidemiology | 3 |
| NUTR 506 | Nutritional Metabolism | 3 |
| NUTR 510 | Advanced Public Health Nutrition | 3 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| NUTR 526 | Nutrition Counseling and Education | 2 |
| Elective: Any graduate-level course approved by advisor | | 4 |
| RELE 5__ Graduate-level Ethics | | 3 |
| | **Total Units:** | **115** |

Affiliation and practicum units are required in addition to the didactic units listed above.

| **Affiliation and practicum** | | |
|---|---|---|
| DTCS 778 | Clinical Nutrition Affiliation (6, 12) | 12 |
| DTCS 795 | Nutrition and Dietetics Graduate Practicum | 12 |
| **Total Units** | | **24** |

[1] Fulfills service learning requirement

## Comprehensive Examination

The written comprehensive examination is designed to establish that the student has a broad understanding of nutrition and dietetics, statistics, and basic research methodology. The comprehensive examination will be administered after students have successfully completed the majority of required courses—typically during the Spring Quarter of the student's third year in the M.S. program.

## Normal time to complete the program

One (1) year (three [3] academic quarters) of undergraduate preparatory work plus two (2) years (eight [8] academic quarters) of graduate course work at LLU — based on full-time enrollment

# Nutrition and Dietetics (Post DPD) — M.S.

The M.S. degree for graduates of a bachelor-level didactic program in dietetics (DPD) is specifically designed for those who choose not to pursue a standard dietetic internship, but who wish to complete a coordinated master's degree and supervised practice experience, establishing eligibility for writing the registration examination for dietitians. This curriculum builds upon didactic coursework in nutrition and dietetics, culminating with an M.S. degree and a verification statement covering both didactic and supervised practice requirements.

# Program learning outcomes

By the end of this program, the graduate should be able to:

1. Integrate scientific information and translation of research into practice;
2. Demonstrate beliefs, values, attitudes, and behaviors consistent with the professional dietitian nutritionist level of practice;
3. Develop and deliver information, products, and services to individuals, groups, and populations;
4. Apply of principles of strategic management and systems in the provision of services to individuals and organizations;
5. Plan, process, and perform nutrition-related research while protecting the public;

6. Demonstrate ability to translate evidence-based literature into formats lay public can understand, including use of videos, writing articles, and counseling;
7. Evaluate emerging trends in nutrition and give competent, evidence-based answers to the public;
8. Use metabolic pathways to determine patient and client nutritional needs.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Bachelor's degree from an ACEND-accredited didactic program in dietetics
- have a 3.0 G.P.A. or above (science and nonscience)
- Graduate Record Exam (GRE)
- complete an interview (by telephone or in person)
- complete program prerequisites
- provide a DPD verification statement (or equivalent if international)

## Prerequisites

- College algebra or higher
- Anatomy and physiology with laboratory, complete sequence (two terms)
- General chemistry with laboratory, two semester/three quarters
- Microbiology with laboratory

# Program requirements

| Junior Year | | Units |
|---|---|---|
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| **Graduate Year** | | |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | 3 |
| AHRM 571 | Statistics and Research for Health Professionals I | 3 |
| AHRM 572 | Statistics and Research for Health Professionals II | 3 |
| AHRM 604 | Research-Proposal Writing | 3 |
| DTCS 506 | Professional Seminar in Nutrition and Dietetics | 1 |
| DTCS 526 | Pharmacology in Medical Nutrition Therapy | 2 |
| DTCS 545 | Nutrition Care Management | 4 |
| DTCS 554 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 574 | Advanced Food Systems Management | 3 |
| DTCS 576 | Exercise Physiology in Medical Nutrition Therapy | 3 |
| DTCS 589[1] | Capstone Course in Nutrition and Dietetics | 3 |
| DTCS 694 | Research | 4 |
| EPDM 509 | Principles of Epidemiology | 3 |
| NUTR 506 | Nutritional Metabolism | 3 |
| NUTR 510 | Advanced Public Health Nutrition | 3 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| Elective: Any graduate course approved by advisor | | 2 |
| Elective: nutrition-related graduate course | | 2 |
| RELE 5___ Graduate-level ethics course | | 3 |
| | **Total Units:** | **62** |

Affiliation and practicum units are required in addition to the didactic units listed above.

| Affiliation and practicum | | |
|---|---|---|
| DTCS 778 | Clinical Nutrition Affiliation (6, 12) [2] | 24 |
| DTCS 795 | Nutrition and Dietetics Graduate Practicum | 12 |
| **Total Units** | | **36** |

[1] Fulfills service learning requirement

[2] Multiple registrations required to fulfill unit requirement

**Comprehensive Examination**

Comprehensive Examination is designed to establish that the student has a broad understanding of nutrition and dietetics, statistics, and basic research methodology. The written comprehensive examination will be administered after students have successfully completed the majority of required courses. The comprehensive examination will typically occur during the spring quarter of the student's second year in the MS program.

## Normal time to complete the program

Two (2) years (eight [8] academic quarters) at LLU — based on full-time enrollment

# Nutrition and Dietetics — B.S., B.S. and M.S., M.S. (Prior B.S.), M.S. (DPD), M.S. for RDs Comparison

| | Course Title | BS | BS and MS | MS (Prior BS) | MS (DPD) | MS for RDs |
|---|---|---|---|---|---|---|
| **Junior Year** | | | | | | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1.0 | 1.0 | 1.0 | 1.0 | |
| DTCS 302 | Food Selection and Presentation | 5.0 | 5.0 | 5.0 | | |
| DTCS 304 | Community Nutrition | 4.0 | 4.0 | 4.0 | | |
| DTCS 305 | Professional Issues in Nutrition and Dietetics (REL_ 4__ Upper-division religion) [1] | 2.0 | 2.0 | 2.0 | | |
| DTCS 321 | Nutrition and Human Metabolism | 4.0 | 4.0 | 4.0 | | |
| DTCS 329 | Organic Chemistry with Applications for Nutrition | 4.0 | 4.0 | 4.0 | | |
| DTCS 334 | Biochemistry with Applications for Nutrition | 4.0 | 4.0 | 4.0 | | |
| DTCS 338 | Introduction to Clinical Nutrition | 2.0 | 2.0 | 2.0 | | |
| DTCS 340 | Nutrition through Life Stages | 3.0 | 3.0 | 3.0 | | |
| DTCS 342 | Medical Nutrition Therapy I | 5.0 | 5.0 | 5.0 | | |
| DTCS 343 | Medical Nutrition Therapy II | 5.0 | 5.0 | 5.0 | | |
| DTCS 371 | Quantity Food Purchasing, Production, and Service | 5.0 | 5.0 | 5.0 | | |
| DTCS 372 | Food Systems Organization and Management | 4.0 | 4.0 | 4.0 | | |
| RELE 457 | Christian Ethics and Health Care | 2.0 | 2.0 | | | |
| REL_ 4__ Upper division religion | | 2.0 | | | | |
| REL_ 4__ Upper division religion | | | 2.0 | | | |
| **Totals** | | **52.0** | **52.0** | **48.0** | **1.0** | |
| | **Course Title** | **BS** | **BS and MS** | **MS (Prior BS)** | **MS (DPD)** | **MS for RDs** |
| **Senior Year** | | | | | | |
| AHCJ 407 | Financial Management | 2.0 | 2.0 | | | |
| AHRM 471 | Statistics and Research for Health Professionals I | 3.0 | 3.0 | | | |
| AHRM 472 | Statistics and Research for Health Professionals II | 3.0 | 3.0 | | | |
| DTCS 395 | Nutrition and Dietetics Practicum | 12.0 | 12.0 | | | |
| DTCS 405 | Senior Seminar | 1.0 | 1.0 | | | |
| DTCS 445 | Nutrition Care Management | 4.0 | 4.0 | | | |
| DTCS 446 | Nutrition Counseling and Education | 3.0 | 3.0 | | | |
| DTCS 452 | Advanced Nutrition | 4.0 | 4.0 | | | |
| DTCS 453 | Advanced Medical Nutrition Therapy | 3.0 | 3.0 | | | |
| DTCS 461 | Food Science | 4.0 | 4.0 | | | |
| DTCS 473 | Medical Nutrition Therapy Affiliation | 12.0 | 12.0 | | | |
| DTCS 476 | Exercise Physiology in Medical Nutrition Therapy | 3.0 | 3.0 | | | |
| RELT 436 | Adventist Heritage and Health | 2.0 | 2.0 | | | |
| REL_ 4__ Upper-division Religion | | 2.0 | | | | |
| REL_ 4__ Upper-division Religion | | | 2.0 | | | |
| **Totals** | | **58.0** | **58.0** | | | |
| | **Course Title** | **BS** | **BS and MS** | **MS (Prior BS)** | **MS (DPD)** | **MS for RDs** |
| **Graduate Program** | | | | | | |
| AHCJ 548 | Human Resource Management in the Health-Care Environment | | 3.0 | 3.0 | 3.0 | 3.0 |
| AHRM 604 | Research-Proposal Writing | | 3.0 | 3.0 | 3.0 | 3.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| DTCS 526 | Pharmacology in Medical Nutrition Therapy | | 2.0 | 2.0 | 2.0 | 2.0 |
| DTCS 584 | Contemporary Issues in the Dietetic Profession | | 4.0 | | | 4.0 |
| DTCS 589 | Capstone Course in Nutrition and Dietetics | | 3.0 | 3.0 | 3.0 | 3.0 |
| DTCS 694 | Research | | 4.0 | 4.0 | 4.0 | 4.0 |
| EPDM 509 | Principles of Epidemiology | | 3.0 | 3.0 | 3.0 | 3.0 |
| NUTR 506 | Nutritional Metabolism | | 3.0 | 3.0 | 3.0 | 3.0 |
| NUTR 510 | Advanced Public Health Nutrition | | 3.0 | 3.0 | 3.0 | 3.0 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | | 4.0 | 4.0 | 4.0 | 4.0 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | | 4.0 | 4.0 | 4.0 | 4.0 |
| NUTR 519 | Phytochemicals | | 2.0 | 2.0 | 2.0 | 2.0 |
| REL_ 5__ Graduate-level Religion | | | 3.0 | | | |
| Elective: Any graduate-level course approved by advisor | | | 7.0 | | | |
| AHRM 571 | Statistics and Research for Health Professionals I | | | 3.0 | 3.0 | |
| AHRM 572 | Statistics and Research for Health Professionals II | | | 3.0 | 3.0 | |
| DTCS 506 | Professional Seminar in Nutrition and Dietetics | | | 1.0 | 1.0 | |
| DTCS 545 | Nutrition Care Management | | | 4.0 | 4.0 | |
| DTCS 554 | Advanced Medical Nutrition Therapy | | | 3.0 | 3.0 | |
| DTCS 566 | Food Chemistry and Experimental Foods | | | 4.0 | | |
| DTCS 574 | Advanced Food Systems Management | | | 3.0 | 3.0 | |
| DTCS 576 | Exercise Physiology in Medical Nutrition Therapy | | | 3.0 | 3.0 | |
| NUTR 526 | Nutrition Counseling and Education | | | 2.0 | | |
| RELE 5__ Graduate-level Ethics | | | | 3.0 | | |
| Elective: Any graduate-level course approved by advisor | | | | 4.0 | | |
| RELE 5__ Graduate-level Ethics | | | | | 3.0 | |
| Elective: Nutrition-related graduate course | | | | | 2.0 | |
| Elective: Any graduate-level course approved by advisor | | | | | 2.0 | |
| Elective: Any graduate-level course approved by advisor | | | | | | 7.0 |
| REL_ 5__ Graduate-level Religion | | | | | | 3.0 |
| **Totals** | | | **48.0** | **67.0** | **61.0** | **48.0** |
| **Overall Totals** | | **110.0** | **158.0** | **115.0** | **62.0** | **48.0** |

[1] Registered twice to fulfill unit requirement

| | Course Title | BS | BS and MS | MS (Prior BS) | MS (DPD) | MS for RDs |
|---|---|---|---|---|---|---|
| **Affiliation and practicum** | | | | | | |
| DTCS 778 | Clinical Nutrition Affiliation[2] | | | 12.0 | 24.0 | |
| DTCS 795 | Nutrition and Dietetics Graduate Practicum[2] | | | 12.0 | 12.0 | |
| **Totals** | | | | **24.0** | **36.0** | |

[1] Multiple registrations required to fulfill unit requirement.

[2] Affiliation and practicum units do not count toward minimum didactic units required for the degree.

# Department of Occupational Therapy

*Transforming lives through occupation, service, and advocacy.*

Through the therapeutic use of everyday activities or occupations, occupational therapists help people across the life span—from infancy through older adults—to participate in the things they want and need to do. Common occupational therapy interventions include helping children with disabilities to participate fully in school and social situations, helping people recovering from injury to regain skills, and providing support for older adults experiencing physical and cognitive changes. Practice settings are diverse— hospitals, schools, behavioral health clinics, outpatient clinics, and community sites with at-risk youth and survivors of domestic violence.

Occupational therapy services may include comprehensive evaluations of the client's home and other environments (e.g., workplace or school), recommendations for adaptive equipment and training in its use, and guidance and education for family members and caregivers. Occupational therapy practitioners have a "wholistic" (whole-person) perspective focusing on adapting the environment to fit the person, considering the person as an integral part of the therapy team.

Following the mission of this University, students immerse themselves in the community, exploring emerging areas of practice including: aging, at-risk youth, domestic violence settings, lifestyle medicine, obesity, and trauma-exposed children.

## Opportunities

Occupational therapy is an exciting field with its broad population areas and diverse settings. The American Occupational Therapy Association has identified eight areas of focus: children and youth, evidence-based practice, health and wellness, mental health, productive aging, rehabilitation, disability, and participation; work and industry.

Occupational therapy fosters entrepreneurship that promotes health and wellness as well as meaningful occupational participation. Occupational therapists are moving into areas such as health promotion, obesity, "telehealth," and domestic violence.

## Professional associations

Students are eligible for membership in the American Occupational Therapy Association and Occupational Therapy Association of California —two organizations that foster development and improvement of service and education. Students are encouraged to become members, read the journal, and attend local professional meetings. The national association address is: American Occupational Therapy Association, 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-49294. Website: <http://www.aota.org>; telephone: 800/729-2682. The state association address is: Occupational Therapy Association of California, P.O. Box 276567, Sacramento, CA 95827-6567. Website: <http://www.otaconline.org>; telephone: 888/686-3225.

### Chair
Liane H. Hewitt

### Program director, M.O.T.
Heather A. Javaherian-Dysinger

### Program director, O.T.D.
Julie D. Kugel

### Primary faculty
Liane H. Hewitt

Praveen Injeti

Heather A. Javaherian-Dysinger

Dragana Krpalek

Julie D. Kugel

Aaron Moesser

Sharon L. Pavlovich

Douglas R. Rakoski

Heather A. Roese

Arezou Salamat

### Clinical faculty
Beth Aune

Erica V. Johnson-Herrera

Danielle J. Meglio

Harold T. Neuendorff

Yvette M. Paquin

Diana Su-Erickson

Aaron A. Weis

Christine M. Wietlisbach

### Associated faculty
Noha Salim Daher

Michael S. Deleon

Lida Gharibvand

Cindy Hoang

Ehren Ngo

## Programs


- Master of Occupational Therapy (M.O.T.) (p. 101)
- Doctor of Occupational Therapy (O.T.D.) (p. 103)


# Occupational Therapy (entry level) — M.O.T.

**Program director**
Heather A. Javaherian-Dysinger

**Academic fieldwork coordinator**
Aaron Moesser

In keeping with its mission, "Transforming lives through occupation, advocacy, and service," the Loma Linda University Department of Occupational Therapy aims to graduate compassionate, service-oriented leaders who demonstrate excellence and integrity in advancing practice and facilitating occupational engagement among individuals,

communities, and societies. Graduates will demonstrate critical thinking, leadership, and service to "wholistically" promote health and occupational justice. The engaged educational process will transform students into compassionate practitioners, advocates, and visionaries who utilize research and evidence-based practice to meet the needs of our changing society.

Curricular threads: transformative nature of occupation; evidence-based practice and research; health, lifestyle, and wellness; service-learning; and advocacy, justice, and civic responsibility.

## Clinical experience

Aligning with the unique mission of Loma Linda University, our students have the opportunity to experience fieldwork in community practices and emerging areas, as well as traditional sites. Students will participate in two Level I fieldwork experiences, exposing them to different areas of practice to observe and begin building an understanding of occupational therapy practice. Students participate in service-learning projects, using their skills to create and implement programs for community partners. Each student then completes two Level II fieldwork experiences. The fieldwork coordinator works with the student to arrange the fieldwork sites. Students are responsible for their own transportation and must complete the fieldwork within twenty-four months of the didactic course work. Students must also complete a background check and any specific facility requirements prior to beginning fieldwork.

### CPR certification

Students are required to have current adult and child cardiopulmonary resuscitation (CPR) certification for all scheduled clinical experience. All CPR certifications must be completed at a health-care provider level accredited through the American Heart Association. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

### Immunizations

For all scheduled fieldwork experience, students are required to have immunizations for MMR, TDAP, hepatitis B series, and varicella as well as a yearly tuberculosis test.

## Program goals

1. Graduate experts in the therapeutic use of occupation and theory to envision possibilities and transform lives and communities through service and advocacy (measured through program learning outcomes 1, 2, 3, and 4).
2. Graduate critical thinkers who engage in evidence-based practice (measured through program learning outcomes 1, 3, and 4).
3. Graduate advocates whose personal and professional use of occupation promotes health, lifestyle, quality of life, and wellness (measured through program learning outcomes 1, 2, 3, and 4).

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Articulate the importance of the history and philosophical base of the profession of occupational therapy, using occupation as the therapeutic basis of transformation and meaning;
2. Describe the importance of balancing areas of occupation with the achievement of health and wellness for the clients in a holistic perspective;
3. Design occupation-based intervention plans and strategies (including goals and methods to achieve them) on the basis of the stated needs of the client as well as data gathered during the evaluation process in collaboration with the client and other health professionals;
4. Use scholarly literature to make evidence-based decisions.

## Professional registration and certification

Upon satisfactory completion of the occupational therapy entry-level M.O.T. degree, including completion of Level II fieldwork within 24 months of completion of academic preparation, and upon recommendation of the faculty, the graduate is eligible to take the national certification examination administered by the National Board for Certification in Occupational Therapy (NBCOT). The board offers computerized examinations on demand throughout the year. After successful completion of this examination, the individual will be a registered occupational therapist (OTR).

Many states require licensure in order to practice. The student should consult the Occupational Therapy Board for the state in which they plan to practice. The American Occupational Therapy Association provides recognition essential to the practice of occupational therapy in the United States and most foreign countries.

When the graduate applies to write the certification examination with NBCOT, they will be asked to answer questions related to the topic of felony convictions, which may affect a candidate's ability to sit for the national certification examination or obtain state licensure. For further information on these limitations, contact NBCOT at One Bank Street, Suite 300, Gaithersburg, MD 20878; telephone: 301/990-7979; website: <nbcot.org (http://www.nbcot.org)>. Graduates practicing in the state of California must acquire licensure from the California Board of Occupational Therapy. For further information, contact CBOT at 916/263-2294; email: <cbot@dca.ca.gov>. The office address is 1610 Arden Way, Suite 121, Sacramento, CA 95815.

## M.O.T. in transition

The M.O.T. degree program is transitioning to the entry-level Doctor of Occupational Therapy (O.T.D.) degree beginning in the summer of 2022. This new program has been granted candidacy status by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-AOTA and its Web address is <www.acoteonline.org (http://llucatalog.llu.edu/allied-health-professions/occupational-therapy-mot/www.acoteonline.org)>.

The M.O.T. program is closed to admission beginning with the 2022-2023 academic year. Applications for the entry-level O.T.D. begin July 2021 for the first cohort which will begin in June 2022.

For program information visit: <https://alliedhealth.llu.edu/academics/occupational-therapy (https://alliedhealth.llu.edu/academics/occupational-therapy/)>.

## Accreditation

The Master of Occupational Therapy Program was re-accredited in May 2013 with a full 10-year accreditation status through May 2023. The program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE), c/o Accreditation Department, American Occupational Therapy Association (AOTA), 6116 Executive Boulevard,

Suite 200, North Bethesda, MD 20852-4929; telephone: 301/652-AOTA; website: <www.acoteonline.org (http://www.acoteonline.org/)>.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Earned a prior bachelor's degree in any major from an accredited college or university.
- A minimum science prerequisite G.P.A. of 3.20, and a minimum cumulative G.P.A. of 3.20.
- Complete program prerequisites no later than December of the year prior to submission of an application.
- Complete observation experience—a minimum of 40 hours of documented observation in occupational therapy settings is required before application will be considered for admission.

## Prerequisites

The applicant must complete the following subject requirements at an accredited college or university:

Human anatomy*
Human physiology*
Human life span development
Statistics*
Medical terminology

* These courses must have been taken within 5 years prior to application to our program.

# Program requirements

| | | |
|---|---|---|
| **First Year** | | |
| **Summer Quarter** | | **Units** |
| AHCJ 510 | Human Gross Anatomy | 9 |
| OCTH 501 | Professional Foundations I | 3 |
| OCTH 505 | Occupation-Based Activity Analysis | 3 |
| OCTH 701 | Service in Occupational Therapy Practice | 1 |
| **Autumn Quarter** | | |
| AHCJ 524 | Pharmacology | 2 |
| OCTH 502 | Professional Foundations II: Human Occupation | 3 |
| OCTH 510 | Functional Kinesiology | 1 |
| OCTH 514 | Conditions in Occupational Therapy: Behavioral Health | 4 |
| OCTH 522 | Analysis and Intervention: Behavioral Health | 3 |
| OCTH 570 | Critical Inquiry and Evidence-Based Practice I | 1 |
| **Winter Quarter** | | |
| OCTH 506 | Functional Neuroscience | 3 |
| OCTH 508 | Splinting | 1 |
| OCTH 511 | Conditions in Occupational Therapy: Orthopedic | 4 |
| OCTH 521 | Analysis and Intervention I: Orthopedic | 3 |
| RELE 564 | Ethics and Health Disparities | 3 |
| **Spring Quarter** | | |
| OCTH 507 | Trends in Neuroscience | 2 |
| OCTH 512 | Conditions in Occupational Therapy: Neuroscience | 4 |
| OCTH 523 | Analysis and Intervention: Neuroscience | 3 |
| OCTH 530 | Sensorimotor | 2 |
| OCTH 712 | Level I Fieldwork | 1 |
| **Second Year** | | |
| **Summer Quarter** | | |
| AHCJ 705 | Infectious Disease and the Health Care Provider | 1 |
| OCTH 503 | Professional Foundations III | 1 |
| OCTH 509 | Design and Technology | 2 |
| OCTH 560 | Occupational Therapy Advocacy and Leadership | 3 |
| OCTH 574 | Critical Inquiry and Evidence-Based Practice II | 3 |
| **Autumn Quarter** | | |
| OCTH 515 | Conditions in Occupational Therapy: Infants, Children, Youth | 4 |
| OCTH 524 | Analysis and Intervention: Infants, Children, Youth | 3 |
| OCTH 534 | Introduction to Sensory Processing | 2 |
| OCTH 545 | Current Trends in Occupational Therapy Practice | 3 |
| OCTH 551 | Occupation and Wellness | 2 |
| **Winter Quarter** | | |
| OCTH 516 | Conditions in Occupational Therapy: General Medicine | 4 |
| OCTH 527 | Analysis and Intervention: General Medicine | 3 |
| OCTH 575 | Critical Inquiry and Evidence-based Practice III | 2 |
| OCTH 702[1] | Service Learning I | 3 |
| OCTH 713 | Level I Fieldwork | 1 |
| **Spring Quarter** | | |
| OCTH 517 | Introduction to Physical Agent Modalities | 1 |
| OCTH 552 | Professional Transition | 3 |
| OCTH 576 | Critical Inquiry and Evidence-based Practice IV | 2 |
| OCTH 703 | Service Learning II: Level I Fieldwork | 3 |
| RELR 536 | Spirituality and Everyday Life | 3 |
| **Third Year** | | |
| **Summer Quarter** | | |
| OCTH 721 | Level II Fieldwork Experience 1 | 8 |
| **Autumn Quarter** | | |
| OCTH 722 | Level II Fieldwork Experience 2 | 8 |
| | **Total Units:** | **121** |

[1] Fulfills service learning requirement

A minimum G.P.A. of 3.00 is required quarterly as well as cumulatively throughout the program.

## Normal time to complete the program

Three (3) years (10 academic quarters); full-time enrollment required

# Occupational Therapy — O.T.D. (Postprofessional)

**Program director**
Julie D. Kugel

The Doctor of Occupational Therapy degree curriculum provides occupational therapists an opportunity to further their educations through its flexible online format. The online community fosters learning

and professional growth through creative learning experiences, critical reflections, and discussions.

Coursework includes emphasis on spirituality, diversity, critical reasoning, advocacy, participation, education, and research. The capstone project is individually designed by the students, allowing them to creatively explore new areas of practice and to engage in innovative research and programming.

The intensive track is designed for students who want to complete the postprofessional program as full-time students rather than as a part-time sequence, completing the program in six as opposed to nine quarters.

# Program learning outcomes

By the end of this program, the graduate should be able to:

1. Interact with and serve the community by promoting health and the integration of mind, body, and spirit;
2. Contribute to the profession's body of knowledge through written dissemination of research and oral presentations;
3. Advocate for the profession, client, and those in need through participation in community and professional organizations;
4. Commit to lifelong learning through disciplined advancement of knowledge and participation in professional activities.

# Admissions

If you live in a state that has regulatory requirements for online education, please check if Loma Linda University is able to accept residents of your state for online education. You may check for LLU State Authorization (https://home.llu.edu/llu-state-authorization/) online or contact the Admissions office for School of Allied Health Professions, 800/422-4558.

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- Must have earned a master in occupational therapy degree or another related field. Applicants may have a bachelor's degree in occupational therapy and a master's degree in occupational therapy or another related field, or they may have a bachelor's degree in a related field and a master's degree in occupational therapy.
- Minimum graduate G.P.A. of 3.0.
- Six months of professional practice.
- Applicants from the United States must be certified by the National Board of Certification in Occupational Therapy (NBCOT).
- Applicants from other countries must submit verification of licensure and certification in occupational therapy.

The applicant's recommendations, interview, personal statement, and work experience are also considered in the admissions screening process.

# Program requirements

| | | |
|---|---|---|
| **Major** | | |
| OCTH 600 | Occupational Science and Health Promotion | 3 |
| OCTH 601 | Spirit of Diverse Abilities I | 3 |
| OCTH 602 | Spirit of Diverse Abilities II | 3 |
| OCTH 604 | Health, Society, and Participation [1] | 3 |
| OCTH 605 | Education for Health Professionals | 3 |
| OCTH 606 | Leadership for Health Professionals | 3 |
| **Cognates** | | |
| AHRM 605 | Critical Analysis of Scientific Literature | 3 |
| OCTH 632 | Capstone I: Introduction to Theory & Research | 4 |
| OCTH 633 | Capstone Proposal: IRB or Program Development | 4 |
| OCTH 634 | Capstone II | 3 |
| OCTH 635 | Capstone III | 4 |
| OCTH 636 | Capstone IV | 4 |
| OCTH 637 | Professional Publication and Dissemination | 4 |
| RELE 524 | Bioethics and Society | 3 |
| RELR 535 | Spirituality and Mental Health | 3 |
| ____ ___ | Elective | 3 |
| **Total Units** | | **53** |

[1] Fulfills service learning requirement

## Normal time to complete the program

2.67 years (nine [9] academic quarters) — based on less than full-time enrollment

# Department of Orthotics and Prosthetics

**Chair**
Johannes Schaepper

**Program Directors**
Aileen Kingsley
MSOP/Hybrid Director

Michael Moor
BS/MSOP Director

**Primary faculty**
Michael Davidson

Julie Jones

Aileen Kingsley

Matt Mausner

Michael Moor

Johannes Schaepper

## Program

- Orthotics and Prosthetics — M.S.O.P. (Entry Level) (p. 105)

# Orthotics and Prosthetics — M.S.O.P.

Loma Linda offers two educational pathways for completion of a Master of Science in Orthotics and Prosthetics (M.S.O.P.) degree:

**Program director, B.S./M.S.O.P. track**
Michael Moor

**Program director, M.S.O.P. hybrid track**
Aileen Kingsley

The B.S./M.S.O.P is a mixed, undergraduate and graduate track, accepting students both with and without a bachelor's degree. This is an on campus, 2½-year (10 quarters) program. Six of the ten quarters are undergraduate level and four quarters are graduate level. This is one of the most robust orthotics and prosthetics curricula in the country with 156 academic units. Undergraduate students will simultaneously earn a B.S. in health sciences, and an M.S.O.P. in 0rthotics and prosthetics. Bachelor-prepared students will graduate with an M.S.O.P. degree.

The M.S.O.P/hybrid is a 2-year, blended-learning track. The first year is fully online and the second year in-person on the Mentone campus. This track uses a spiral learning format: the first year in theory; and the second year in-person and in-practice, concentrating on clinical, technical, and patient management skills. Quarters seven and eight include two summative courses in which students demonstrate and test their learning—both in practice and in theory. Students who complete this track will graduate with an M.S.O.P. degree.

The curriculum for both M.S.O.P. tracks is designed according to NCOPE's published 2017 standards of the profession, providing the student with the knowledge, behaviors, and skills required to qualify for acceptance into orthotics and prosthetic residencies, as well as for entry into the clinical practice of orthotics and prosthetics.

## Professional association

Students and graduates are eligible for membership in the American Academy of Orthotics and Prosthetics (AAOP). The objective of the association is to foster development and improvement of service and education. This organization grants membership at a nominal cost to students of approved schools. The student is required to become a member of this association while in the program, and is encouraged to read the *Journal of Orthotics and Prosthetics* as well as attend AAOP-sponsored or AAOP-approved local or national meetings.

## Professional practice requirements

Satisfactory completion of the M.S.O.P. degree curriculum requirements qualifies the student to enter an NCOPE-accredited residency site of their choice. After completing a 12-month prosthetic and a 12-month orthotic residency—or an 18-month combined ortho-prosthetic residency, the resident is eligible to sit for the certification examination offered by the American Board of Certification (ABC) in orthotics and prosthetics. Passing the ABC examination will earn certification in orthotics, certification in prosthetics, or dual certification as a prosthetist-orthotist. In addition to certification, and depending on the state where the certified practitioner intends to practice, it may be necessary for the student to pass a state licensure examination in order to practice their profession.

## Clinical experience

Supervised clinical experience is obtained in a variety of settings during the program through clinical rotations and weekly grand rounds. These ongoing, weekly clinical rotations are an essential part of a student's academic and professional requirements, and prepare them for the final quarter clinical affiliations required for the completion of the M.S.O.P. degree curriculum.

All clinical assignments will be made by the academic coordinator for clinical education. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preferences. Although the department makes an effort to accommodate the student's preference, the student agrees to accept clinical assignments made by the department at any of the affiliated facilities.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Exercise keen insight, progressive care, and critical judgment through careful evaluation in clinical care, skills application, and thinking throughout the profession;
2. Adhere to guiding principles and recognized ethics of the profession;
3. Value and apply new technology, investigation, and knowledge to patient care and the profession through a commitment to discovery and education;
4. Examine the importance of embracing and serving the unmet and ever-changing needs of a diverse world;
5. Participate in teamwork within and across disciplines in all aspects of the profession.

## Accreditation

Accreditation for the entry-level Master of Science in Orthotics and Prosthetics degree was granted on September 23, 2013, by the National Commission on Orthotic and Prosthetic Education (NCOPE), 330 John

Carlyle Street, Suite 200, Alexandria, VA 22314; telephone: 703/836-7114; website: <http://www.ncope.org/> in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763; telephone: 727/210-2350; website: <https://www.caahep.org/>.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant to the B.S./M.S.O.P track must also complete the following requirements:

- A minimum of 64 semester or 96 quarter credit units at a regionally accredited college or university.
- A minimum G.P.A. of 3.0 in both science and non-science courses.
- A minimum 80 hours of observational field experience at a minimum of two orthotics and prosthetics facilities of their choice. A letter of attestation from the facility owner or clinical supervisor is needed from each facility prior to the start of the program.

Applicants to the M.S.O.P/hybrid track must complete the following requirements:

- A bachelor's degree from an accredited college or university, or the equivalent of a four (4) year U.S. bachelor's degree from a non-U.S. degree-granting institution that is recognized by the appropriate government agency.
- A minimum G.P.A. of 3.0 in both science and non-science courses.
- A minimum 80 hours of observational field experience at a minimum of two orthotics and prosthetics facilities of their choice. A letter of attestation from the facility owner or clinical supervisor is needed from each facility prior to the start of the program.

The following prerequisites and general education courses will provide the knowledge, behavior, and skills required of students in a professional curriculum in the orthotics and prosthetics program. Individuals who already have an earned bachelor's degree in any field from a regionally accredited institution need to complete only the prerequisites denoted with an asterisk (*).

The minimum subject admission requirements are listed below.

Note: Grades of C- and below are not transferable for credit.

### Domain 1: Religion and humanities (20 quarter/14 semester units, minimum)

**Humanities (14 quarter/10 semester units minimum)**

Humanities to include one course in each of the following areas: history, philosophy, and a third area selected from the following.

Fine arts
Literature
Modern language
Performing/visual arts (not to exceed four quarter units)

**Religion**

Religion is required only if a student attended a Seventh-day Adventist college or university for a portion of their prerequisites—four quarter units of religion per year. A maximum of eight quarter units may apply toward Domain I.

### Domain 2: Scientific inquiry and analysis

Encompasses both the natural and social sciences.

**Natural sciences—All courses are required, credits may vary**

*Human anatomy with laboratory or biology with laboratory

*Physiology

*Chemistry with laboratory

*Physics with laboratory

*Statistics

**Social sciences—Required (12 quarter/8 semester units, minimum)**

General psychology

*Growth and developmental or abnormal psychology

### Domain 3: Communication (9 quarter/6 semester units, minimum)

**English**

Complete sequence in English composition that meets the baccalaureate degree requirements

One course in basic communication skills (speech)

### Domain 4: Health and wellness (3 quarter/2 semester units, minimum)

Two activity courses in physical education

### Domain 5: Electives

Courses in Domain 5: Electives can be used to meet the minimum number of units (96 quarter/64 semester units) required for admission.

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

# Program requirements

## B.S./M.S.O.P. track

**Junior Year**

| | | |
|---|---|---|
| **Autumn Quarter** | | |
| AHCJ 362 | Anatomy | 3 |
| AHCJ 375 | Physiology | 3 |
| ORPR 301 | Orthotics and Prosthetics Laboratory and Technical Skills | 3 |
| ORPR 305 | Orthotic Fitting Techniques | 3 |
| ORPR 310 | Patient Management, Assessment, and Documentation | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| RELR 427 | Crisis Counseling | 2 |
| **Winter Quarter** | | |
| AHRM 471 | Statistics and Research for Health Professionals I | 3 |
| ORPR 315 | Pedorthics | 3 |
| ORPR 325 | Medical Terminology | 3 |
| ORPR 402 | Pathology I | 3 |
| ORPR 405 | Gait Analysis | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| **Spring Quarter** | | |
| AHRM 472 | Statistics and Research for Health Professionals II | 3 |
| ORPR 320 | Biomechanical Evaluation | 3 |
| ORPR 330 | Lower Extremity Orthotics I | 3 |

| | | |
|---|---|---|
| ORPR 340 | Lower Extremity Prosthetics I | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| ORPR 414 | Kinesiology I | 3 |
| RELT 423 | Loma Linda Perspectives | 2 |
| **Senior Year** | | |
| **Summer Quarter** | | |
| AHCJ 422 | History of Disability | 3 |
| DTCS 301 | Human Nutrition | 3 |
| ORPR 404 | Materials Science in Orthotics and Prosthetics | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| ORPR 415 | Lower Extremity Orthotics II | 3 |
| ORPR 425 | CAD/CAM Technologies | 3 |
| **Autumn Quarter** | | |
| AHCJ 320 | ADL and Assistive Devices | 3 |
| ORPR 323 | Economics, Business Management, and Entrepreneurship | 3 |
| ORPR 345 | Spinal Orthotics | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| ORPR 420 | Lower Extremity Prosthetics II | 3 |
| ORPR 439 | Computers and Electronics for O&P Clinicians | 3 |
| ORPR 491 | Research I | 1.5 |
| **Winter Quarter** | | |
| AHCJ 315 | Psychosocial Aspects of Health Care | 3 |
| ORPR 410 | Orthotic and Prosthetic Clinical Rotation | 1 |
| ORPR 430 | Upper Extremity Orthotics | 3 |
| ORPR 435 | Upper Extremity Prosthetics | 3 |
| ORPR 440 | Bionics and Cyborg Technology | 3 |
| RELE 455 | Christian Understanding of Sexuality | 2 |
| | **Total Units:** | **102.5** |

**Graduate Year**

| **Spring Quarter** | | **Units** |
|---|---|---|
| AHCJ 516 | Clinical Imaging | 3 |
| ORPR 510 | Advanced Clinical Rotations | 1 |
| ORPR 522 | Self-Care Portfolio and Community Outreach | 0 |
| ORPR 526 | Prosthetics III | 3 |
| ORPR 544 | Applied Functional Neuroanatomy | 3 |
| ORPR 575 | Couples, Families, and Disabilities | 3 |
| ORPR 592 | Research II | 1.5 |
| **Summer Quarter** | | |
| AHCJ 507 | Pharmacology in Rehabilitation | 3 |
| ORPR 510 | Advanced Clinical Rotations | 1 |
| ORPR 528 | Prosthetics IV | 3 |
| ORPR 522 | Self-Care Portfolio and Community Outreach | 0 |
| ORPR 538 | Biomechatronics | 3 |
| ORPR 593 | Research III | 3 |
| RELE 524 | Bioethics and Society | 3 |
| **Autumn Quarter** | | |
| AHCJ 545 | Legal and Ethical Issues in the Health Professions | 3 |
| ORPR 510 | Advanced Clinical Rotations | 1 |
| ORPR 522 | Self-Care Portfolio and Community Outreach | 2 |
| ORPR 527 | Orthotics III | 3 |
| ORPR 540[1] | Rehabilitative Care in Developing Nations | 3 |
| ORPR 506 | Advanced Specialty Tracks in Orthotics and Prosthetics | 3 |
| **Winter Quarter** | | |
| ORPR 514 | Clinical Affiliation | 8 |
| | **Total Units:** | **53.5** |

[1] Fulfills service learning requirement

### Normal time to complete the program

Two (2) years (six [6] academic quarters) at LLU at the undergraduate level and one (1) year (four [4] academic quarters) at the graduate level; full-time enrollment required

## M.S.O.P./hybrid track

**First Year**

| **Summer Quarter** | | **Units** |
|---|---|---|
| ORPR 507 | Anatomy for O and P Professionals | 2 |
| ORPR 508 | Physiology for O and P Professionals | 2 |
| ORPR 516 | Orthotics and Prosthetics Materials Science and Technical Skills | 2 |
| ORPR 517 | Patient Assessment/Kinesiology | 2 |
| ORPR 558 | Clinical Rotation | 1 |
| **Autumn Quarter** | | |
| ORPR 509 | Pathology for O and P Professionals | 2 |
| ORPR 511 | Spinal Orthotics | 2 |
| ORPR 519 | Biomechanical Evaluation and Gait Analysis | 2 |
| ORPR 531 | Upper-Extremity Orthotics | 2 |
| ORPR 535 | Upper-Extremity Prosthetics | 2 |
| ORPR 558 | Clinical Rotation | 1 |
| **Winter Quarter** | | |
| ORPR 524 | Psychosocial Aspects of Health Care | 2 |
| ORPR 541 | Lower-Extremity Orthotics I | 2 |
| ORPR 545 | Lower-Extremity Prosthetics I | 2 |
| ORPR 558 | Clinical Rotation | 1 |
| ORPR 561 | Statistics and Research for OP Professionals I | 2 |
| **Spring Quarter** | | |
| ORPR 529 | Practice Management | 2 |
| ORPR 548 | Pharmacology in Rehabilitation | 2 |
| ORPR 551 | Lower-Extremity Orthotics II | 2 |
| ORPR 555 | Lower-Extremity Prosthetics II | 2 |
| ORPR 558 | Clinical Rotation | 1 |
| ORPR 562 | Statistics and Research for OP Professionals II | 2 |
| **Second Year** | | |
| **Summer Quarter** | | |
| ORPR 512 | Spinal Clinical Training | 2 |
| ORPR 513 | Spinal Technical Skills | 2 |
| ORPR 530 | Patient Management and Documentation | 2 |
| ORPR 532 | Upper-Extremity Orthotics Clinical Training | 2 |
| ORPR 533 | Upper-Extremity Orthotics Technical Skills | 2 |
| ORPR 536 | Upper-Extremity Prosthetics Clinical Training | 2 |
| ORPR 537 | Upper-Extremity Prosthetics Technical skills | 2 |
| ORPR 559 | Advanced Clinical Rotation | 1 |
| **Autumn Quarter** | | |

| | | |
|---|---|---|
| ORPR 530 | Patient Management and Documentation | 2 |
| ORPR 540[1] | Rehabilitative Care in Developing Nations | 3 |
| ORPR 542 | Lower-Extremity Orthotics I Clinical Training | 2 |
| ORPR 543 | Lower-Extremity Orthotics I Technical Skills | 2 |
| ORPR 546 | Lower-Extremity Prosthetics I Clinical Training | 2 |
| ORPR 547 | Lower-Extremity Prosthetics I Technical Skills | 2 |
| ORPR 559 | Advanced Clinical Rotation | 1 |
| ORPR 564 | Research Proposal | 2 |
| **Winter Quarter** | | |
| ORPR 530 | Patient Management and Documentation | 2 |
| ORPR 552 | Lower-Extremity Orthotics II Clinical Training | 2 |
| ORPR 553 | Lower-Extremity Orthotics II Technical Skills | 2 |
| ORPR 556 | Lower-Extremity Prosthetics II Clinical Training | 2 |
| ORPR 557 | Lower-Extremity Prosthetics II Technical skills | 2 |
| ORPR 559 | Advanced Clinical Rotation | 1 |
| ORPR 565 | OP Clinical and Technical Summative Review and ABC Board Prep | 2 |
| ORPR 575 | Couples, Families, and Disabilities | 3 |
| RELR 527 | Crisis Care and Counseling | 3 |
| **Spring Quarter** | | |
| ORPR 560 | Clinical Affiliation | 8 |
| ORPR 566 | OP Theoretical Summative Review and ABC Board Prep | 2 |
| | **Total Units:** | **100** |

[1] Fulfills service learning requirement

## Normal time to complete the program

Two (2) years (8 academic quarters); full-time enrollment required

# Department of Physical Therapy

The full spectrum of entry-level and postprofessional physical therapy degree programs is provided, including Physical Therapist Assistant (A.S.), entry-level Doctor of Physical Therapy (D.P.T.), postprofessional Doctor of Physical Therapy (D.P.T.), and Doctor of Philosophy (Ph.D.).

### Chair
Lawrence E. Chinnock

### Primary faculty
Bruce D. Bradley

Lawrence E. Chinnock

Timothy K. Cordett

Michael DeLeon

Gina Gang

Henry Garcia

Jeremy Hubbard

Susan M. Huffaker

Eric G. Johnson

Theresa M. Joseph

Everett B. Lohmann III

Bradford D. Martin

Pablo Mleziva

Todd Nelson

Ronald M. Rea

R. Wesley Swen

Christine Wilson

### Clinical faculty
Christine Eddow

Steven D. Newton

Kristel J. Zuppan

### Associated faculty
Lee S. Berk

Noha Daher

Michael Davidson

Jeff Gang

Heather Javaherian-Dysinger

Ehren Ngo

Ernest R. Schwab

## Programs


- Physical Therapist Assistant — A.S. (p. 109)
- Physical Therapy — D.P.T. (Entry Level) (p. 111), D.P.T. (Postprofessional) (p. 111), Ph.D. (p. 111)


# Physical Therapist Assistant — A.S.

**Program director**
R. Jeremy Hubbard

**Director of clinical education**
Jennifer Rae Rubio

**Advisory committee**

Karla Barton
Brandi Bolanos
Lisa Ewan
Frank Holder
Carrie Kresser
Douglas Moore
Adam Smith
Steven Snitzer

The physical therapist assistant (PTA) is a skilled paraprofessional health-care provider who implements the plan of care for patients under the direction and supervision of a licensed physical therapist. Following established procedures, the PTA may train patients in exercises and activities of normal daily living; perform treatment interventions; utilize special equipment; assist in performing tests, data collection, and complex treatment procedures; and observe and document the patient's responses.

Physical therapists and PTAs may serve as part of a rehabilitation team—including occupational therapists, nurses, speech and hearing therapists, respiratory therapists, recreational therapists, physicians, social workers, chaplains, vocational counselors, dietitians, and psychologists. This team has as its objective the optimum functional restoration and rehabilitation of patients disabled by illness or injury.

## The program

The Physical Therapist Assistant Program, a 15-month curriculum which begins with the sophomore year, leads to the Associate in Science degree and professional licensure. Instruction begins in June, and students participate in graduation ceremonies the following June. Program completion occurs when clinical performance requirements are met—typically by the end of September.

## Clinical learning experiences

The program includes supervised, one-on-one clinical instruction across the human life span in a variety of settings, including acute and sub-acute inpatient facilities and outpatient clinics. Students complete three six-week, full-time clinical experiences, all coordinated and monitored by the director of clinical education or the program director. Although the program makes an effort to accommodate each student's preference, students agree to accept clinical assignments made by the program at any of the affiliated facilities, whether local or out of state. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preference.

## Transportation

Students are required to have their own transportation to and from clinical sites.

## CPR certification

Students are required to hold current certification in adult, child, and infant cardiopulmonary resuscitation (CPR) during all scheduled clinical experiences. Basic life-support CPR certification for health-care providers must be completed via the American Heart Association. Certification may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102, Loma Linda, California.

## Professional licensing

Satisfactory completion of all degree requirements, including all clinical experience courses, will qualify the graduate for the National Physical Therapy Examination (NPTE) for physical therapist assistants. State licensure or certification is required to practice as a PTA in all 50 states and in the District of Columbia. Information about licensing or certification in the state in which one wishes to practice can be found online at <http://www.apta.org/licensure (http://www.apta.org/licensure/)>.

## Professional association

Students and graduates are eligible for membership in the American Physical Therapy Association which fosters the development and improvement of physical therapy services and education. The organization grants student membership at a reduced cost to undergraduates of approved schools. The student is required to become a member of this association while in the program. The national office of the American Physical Therapy Association is at 1111 North Fairfax Street, Alexandria, VA 22314.

## Program philosophy statement

In accordance with the motto of Loma Linda University,"To make man whole,"and the mission of the School of Allied Health Professions,"To continue the teaching and healing ministry of Jesus Christ," the program is committed to the highest development of the physical, emotional, mental, and spiritual capacities of its faculty and students. Promoting wholeness constitutes a caring commitment to the well-being of others, to students, and to program personnel; to active engagement in the advancement of the profession; and to a living consecration to God. Students in this program will have opportunities to develop a commitment to excellence in service for others and their profession as well as to develop a biblically informed faith and a commitment to lifelong spiritual growth.

## Program mission

The Physical Therapist Assistant Program affirms the mission and values of Loma Linda University and the School of Allied Health Professions by providing an educational program that prepares physical therapist assistants with balanced intellectual development, social skills, competent practice, and spiritual connection.

## Program goals

In order to achieve the mission of the Physical Therapist Assistant Program, the program goals are to:

1. Provide adequate space, equipment, and resources in an appropriate learning environment for the technical portion of physical therapist assistant education;
2. Provide opportunities for graduates to practice the concept of wholeness in terms of physical, mental, and spiritual concerns when addressing the needs of the patient/client;
3. Maintain compliance with the Standards and Required Elements for accreditation of PTA educational programs, published by the Commission on Accreditation in Physical Therapy Education.

## Program learning outcomes

Upon program completion, the graduate should be able to:

1. Demonstrate entry-level knowledge and skills appropriate for safe practice as a physical therapist assistant with effective clinical reasoning and lifelong-learning skills;
2. Provide physical therapy interventions and services under the direction and supervision of licensed physical therapists in a variety of settings;
3. Exhibit ethical behavior consistent with legal and professional standards when interacting with instructors, classmates, patients/clients and family members, and clinical personnel, including compassionate respect for differences;
4. Demonstrate consideration of the close interrelationship of physical, mental, and spiritual concerns when addressing the needs of patients/clients and others.

## Accreditation

The Physical Therapist Assistant Program at Loma Linda University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Avenue, Suite 100, Alexandria, VA 22305-3085; 800/ 999-2782; e-mail: accreditation@apta.org; website: http://www.capteonline.org. (http://www.capteonline.org/)If needing to contact the program/institution directly, please call 909/558-4634 or email studypta@llu.edu (jmendes@llu.edu).

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- a minimum G.P.A. of 2.50 in the three basic science prerequisite courses and a minimum G.P.A. of 2.50 in the remaining non-science prerequisite courses
- transfer of prerequisite courses from an accredited college or university. Note: Grades below C (2.0) are not transferable for credit.
- a personal interview
- a writing assessment done at the time of the interview
- documentation of work or observation experience; specifically, at least 20 hours of work or observation in an *inpatient* physical therapy setting and at least 20 hours in an *outpatient* physical therapy setting, plus additional work/observation hours in either an inpatient or an outpatient physical therapy setting for a minimum total of 80 hours.

### Prerequisites

All prerequisite courses must be completed prior to entering the program. An application for admission may be submitted while some coursework is in progress if the student expects to complete the required coursework before the program begins. Individuals who have earned a bachelor's degree from an accredited college or university need to complete only the courses denoted with an asterisk (*):

Humanities: Four units from one of the topics listed; history, literature, philosophy, foreign language, art/music appreciation/ history

*Human anatomy and physiology, complete sequence with laboratory components (preferred); or general biology, complete sequence with laboratory components (accepted)
*Introductory physics with laboratory component, one quarter/semester
*Two years high school mathematics with grades C or above, or intermediate algebra in college or a college statistics course
*General psychology
*Human growth and development or developmental psychology or abnormal psychology
English composition, complete sequence
*Speech (preferred) or Interpersonal communication (accepted)
Personal health/nutrition, or two physical education/activity courses
*Medical terminology

If needed, elective courses may be taken to meet the minimum total requirements of 48 quarter units or 32 semester units

## Program requirements

| | | |
|---|---|---|
| **Sophomore** | | |
| **Summer Quarter 1** | | **Units** |
| PTAS 201 | Anatomy | 4 |
| PTAS 205 | Introduction to Physical Therapy | 1 |
| PTAS 206 | Documentation Skills | 1 |
| PTAS 212 | Physical Therapy Procedures | 3 |
| PTAS 231 | Physical Therapy Biophysical Agents | 3 |
| PTAS 265 | Professional Seminar | 0 |
| PTAS 275 | Psychosocial Aspects of Health | 2 |
| RELE 257 | Health Care Ethics | 2 |
| **Autumn Quarter** | | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| PTAS 203 | Applied Kinesiology | 3 |
| PTAS 204 | Applied Gait | 1 |
| PTAS 224 | General Medicine I | 3 |
| PTAS 225 | Neurology | 3 |
| PTAS 227 | Therapeutic Exercise | 2 |
| PTAS 236 | Applied Electrotherapy | 3 |
| PTAS 265 | Professional Seminar | 0 |
| **Winter Quarter** | | |
| PTAS 226 | Orthopaedics I | 3 |
| PTAS 234 | General Medicine II | 1 |
| PTAS 238 | Wound Care | 1 |
| PTAS 243 | Applied Geriatrics | 3 |
| PTAS 252 | Applied Neurology | 3 |
| PTAS 264 | Applied Orthotics and Prosthetics | 2 |
| PTAS 265 | Professional Seminar | 0 |
| RELR 275 | Whole Person Care | 2 |
| **Spring Quarter** | | |
| PTAS 241 | Applied Pediatrics | 2 |
| PTAS 251 | Orthopaedics II | 3 |
| PTAS 261 | Physical Therapy Practice | 1 |
| PTAS 265[1] | Professional Seminar | 1 |
| PTAS 293 | Physical Therapist Assistant Clinical Experience I | 6 |
| **Summer Quarter 2** | | |
| PTAS 294 | Physical Therapist Assistant Clinical Experience II | 6 |
| PTAS 295 | Physical Therapist Assistant Clinical Experience III | 6 |
| | **Total Units:** | **72** |

[1] Fulfills service learning requirement

A minimum grade of C (2.0) is required for all courses in the program.

### Normal time to complete the program

1.33 years (Five [5] academic quarters) at LLU — full-time enrollment typical; half-time enrollment (3.25 years) by permission only

# Physical Therapy — D.P.T. (Entry Level), D.P.T. (Postprofessional), Ph.D.

Physical therapists are highly educated, licensed health-care professionals who provide services to patients/clients with impairments, disabilities, or changes in physical function and health status as a result of injury, disease, or other causes.

Physical therapists teach patients how to prevent injury or disability and manage conditions to achieve long-term health benefits. They examine each individual and develop a plan, using treatment techniques to promote the ability to move, reduce pain, restore function, and prevent disability. In addition, physical therapists work with individuals to prevent the loss of mobility before it occurs by developing fitness- and wellness-oriented programs for healthier and more active lifestyles.

Physical therapists provide care for people in a variety of settings, including hospitals, private practices, outpatient clinics, home-health agencies, schools, sports and fitness facilities, work settings, and skilled nursing facilities. State licensure is required in each state in which a physical therapist practices.

In addition to the Associate in Science degree (PTA, found in the previous section of the CATALOG), the program options within the Department of Physical Therapy include:

- Entry-level Doctor of Physical Therapy.
- Postprofessional Doctor of Physical Therapy.
- Doctor of Philosophy.

## Programs

- Physical Therapy — D.P.T. (Entry Level) (p. 112), D.P.T. (Postprofessiona (p. 113)l) (p. 111), (http://llucatalog.llu.edu/allied-health-professions/physical-therapy/dsc-postprofessional/) Ph.D. (p. 115)

# Physical Therapy — D.P.T. (Entry Level)

**Program director**
Lawrence E. Chinnock

**Directors of clinical education**
Henry Garcia
Theresa Joseph

The entry-level Doctor of Physical Therapy (D.P.T.) degree is for individuals who have no previous degree in physical therapy or who have an associate's degree in the field of physical therapy. The D.P.T. degree curriculum lasts for three years. Individuals must have an earned bachelor degree in any field prior to entering the program.

## Clinical experience

Supervised experience is obtained in a variety of settings and at different times during the course of study. First-year students complete a four-week clinical experience during the spring module. Second-year students complete a four-week clinical experience following the spring module. The major clinical experiences are during the third year. Student are assigned experiences as follows: 12 weeks during the autumn module, 11 weeks during the winter module, and 10 weeks during the spring module.

The director of clinical education (or a designee) plans and schedules all clinical assignments. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preference. Although the department makes an effort to accommodate the student's preference, the student agrees to accept the clinical assignments made by the department at any of the affiliated facilities, whether local or out of state. Students should expect that at least one rotation will be beyond commuting distance from Loma Linda University. Many clinical sites will require the student to have a current flu vaccine if the rotation is during flu season. Therefore, the University requires that all students receive the flu vaccine on a yearly basis.

## Program learning outcomes

Upon completion of the degree, the graduate should be able to:

1. Conduct a safe and effective physical therapy practice;
2. Demonstrate compassion and respect during interactions with individuals from different ethnic and cultural backgrounds;
3. Think critically and integrate evidence-based practice into their clinical decision-making skill set;
4. Apply ethical and legal parameters surrounding the profession of physical therapy;
5. Provide evidence-based clinical care utilizing collaborative relationships among the patient, physical therapist, and other health-care practitioners;
6. Make use of effective verbal and nonverbal communication with instructors, classmates, and clinical personnel as needed to work effectively as a member of a health-care team.

## Professional association

Students and graduates are eligible for membership in the American Physical Therapy Association (APTA). The objective of the association is to foster development and improvement of service and education. This organization grants student membership at a nominal cost to students in member schools. The student is required to become a member of this association while in the program, and is encouraged to read the journal and attend the APTA-sponsored meetings.

## Professional registration

Satisfactory completion of the entry-level D.P.T. degree requirements qualifies the student to sit for the National Physical Therapy Examination. Information about the state registries of physical therapists can be obtained at the office of the department chair. All states require that a physical therapist pass the national qualifying examination for license to practice. A California application form and fee are submitted to the Physical Therapy Board of California, 2005 Evergreen Street, Suite 2600, Sacramento, CA 95815; telephone: 916-561-8200; website: <http://www.ptbc.ca.gov/>.

## Accreditation

The entry-level Doctor of Physical Therapy Program at Loma Linda University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Avenue, Alexandria, Virginia 22305-3085; telephone: 800/999-2782; email: accreditation@apta.org; website: <http://www.capteonline.org> (http://www.capteonline.org).

## Admissions

Admission is based on a selective process. Criteria used include: G.P.A., completion of subject requirements, interview, and recommendations. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- an earned bachelor's degree in any field from an accredited college or university
- a minimum prerequisite G.P.A. of 3.4
- anatomy and physiology, complete sequence with laboratory
- general chemistry, complete sequence with laboratory
- general physics, complete sequence with laboratory
- two additional biological science courses (e.g. cell biology, microbiology, exercise physiology, upper division anatomy and/or physiology,)
- statistics
- medical terminology
- general psychology
- human growth and development (developmental psychology, child psychology)
- one course in basic communication (speech)
- work/observation experience—A minimum of 80 hours of work / observation experience is required prior to beginning the degree. Of the 80 hours, a minimum of 20 hours must be in an inpatient physical therapy setting and a minimum of 20 hours must be in an outpatient physical therapy setting.
- GRE

### Technology requirement

Students are required to have an iPad that can be brought to class with them as the majority of quizzes and tests are completed on the device. A $65 technology fee is charged each year.

## Program requirements

| First Year | | Units |
|---|---|---|
| AHCJ 510 | Human Gross Anatomy | 9 |
| AHCJ 705 | Infectious Disease and the Health Care Provider | 1 |
| AHCJ 721[1] | Wholeness Portfolio I | 1 |
| PHTH 505 | Integrated Clinical Experience | 1 |
| PHTH 506 | Exercise Physiology | 3 |
| PHTH 508 | PT Communication and Documentation | 2 |
| PHTH 509 | Biophysical Agents | 3 |
| PHTH 510 | Kinesiology | 3 |
| PHTH 513 | Therapeutic Procedures | 3 |
| PHTH 514 | Manual Muscle Testing | 3 |
| PHTH 516 | Histology | 2 |
| PHTH 519 | Locomotion Studies | 3 |
| PHTH 521A | Orthopaedics 1A | 3 |
| PHTH 528 | Therapeutic Exercise I | 3 |
| PHTH 539 | Integrative Physiology | 4 |
| PHTH 557 | Pediatrics I | 3 |
| PHTH 563 | Research I | 2 |
| PHTH 564 | Research II | 1 |
| PHTH 565 | Research III | 1 |
| PHTH 566 | Pathology | 4 |
| PHTH 568 | Integrative Neueroanatomy | 4 |
| PHTH 569 | Clinical Neurology | 2 |
| PHTH 571 | Short Clinical Experience I | 2 |
| PHTH 586 | Orthotics and Prosthetics | 2 |
| RELE 707 | Ethics for Allied Health Professionals | 2 |
| RELR 775 | Whole Person Care | 2 |
| RELT 718 | Adventist Heritage and Health | 2 |
| **Second Year** | | |
| AHCJ 722 | Wholeness Portfolio II | 1 |
| PHTH 501 | Neurology I | 3 |
| PHTH 502 | Neurology II | 3 |
| PHTH 503 | Neurology III | 3 |
| PHTH 505 | Integrated Clinical Experience | 1 |
| PHTH 511 | Clinical Orthopaedics | 2 |
| PHTH 512 | Clinical Psychiatry | 2 |
| PHTH 517 | Movement Science | 2 |
| PHTH 518 | Aspects of Health Promotion | 2 |
| PHTH 521B | Orthopaedics 1B | 3 |
| PHTH 522 | Orthopaedics II | 3 |
| PHTH 523 | Orthopaedics III | 3 |
| PHTH 525 | General Medicine | 3 |
| PHTH 526A | Cardiopulmonary I | 3 |
| PHTH 526B | Cardiopulmonary II | 3 |
| PHTH 530 | Therapeutic Exercise II | 3 |
| PHTH 534 | Soft Tissue Techniques | 2 |
| PHTH 540 | Concepts of Acute Care | 2 |
| PHTH 555 | Medical Screening | 2 |
| PHTH 558 | Pediatrics II | 3 |
| PHTH 559 | Geriatrics | 2 |
| PHTH 561 | Physical Therapy Administration | 4 |
| PHTH 575 | Orthopaedics IV | 1 |
| PHTH 587 | Pharmacology | 2 |
| PHTH 595 | Clinical Imaging | 3 |
| PHTH 597 | Specialized Interventions in Physical Therapy | 2 |
| RELT 740 | World Religions and Human Health | 3 |
| **Third Year** | | |
| PHTH 504 | Neurology IV | 1 |
| PHTH 572 | Short Clinical Experience II | 2 |
| PHTH 596 | Orthopaedics V | 3 |
| PHTH 701 | Long Clinical Experience I | 5 |
| PHTH 702 | Long Clinical Experience II | 5 |
| PHTH 703 | Long Clinical Experience III | 5 |
| | **Total Units:** | **158** |

[1] Fulfills service learning requirement

### Noncourse requirement

Program completion and eligibility to sit for the National Physical Therapy Examination (NPTE) is dependent on successful completion of all coursework and passing a final comprehensive examination.

### Normal time to complete the program

Three (3) years (12 academic quarters) — full-time enrollment required

# Physical Therapy — D.P.T. (Postprofessional)

**Program director**
Everett B. Lohmann III

The postprofessional Doctor of Physical Therapy (PP-D.P.T.) degree is designed for the individual with a degree in physical therapy who wishes to pursue advanced studies within the profession.

Two tracks lead to the postprofessional Doctor of Physical Therapy degree:

- The 66-unit track is designed for individuals with a bachelor's degree in physical therapy from an accredited program, or who have the equivalent of a U.S. bachelor's degree in physical therapy.
- The 45-unit track is designed for individuals with a bachelor's degree in physical therapy from an accredited program, or who have the equivalent of a U.S. bachelor's degree in physical therapy, and have earned a master's degree.

## Technology requirement

Students are required to have an iPad for the courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to a personal computer (minimum: 800 MHz multimedia) with Internet access (minimum: 56 k.b.p.s. [connected at 44+ k.b.p.s.]). A $65 technology fee is charged in year one for the 45-unit track and years one and two for the 66-unit track.

## Program learning outcomes

In addition to the stated institutional learning outcomes (p. 19), by the end of this program, the graduate should be able to:

1. Demonstrate a commitment to discovery;
2. Apply basic sciences to physical therapy practice;
3. Provide advanced patient-specific physical therapy care;
4. Select best practice and examination techniques based on scientific evidence.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- Must have earned a bachelor's degree in physical therapy from an accredited program or have the equivalent of a four (4) year U.S. bachelor's degree in physical therapy.
- Must have earned a master's degree (45-unit track only).
- Upon evaluation of transcripts, additional corequisites may be required, and sequencing of courses may be modified.

There is no GRE requirement for acceptance into this program.

# Program requirements

## 45-unit track

| | | |
|---|---|---|
| **Required** | | |
| AHCJ 519 | Graduate Wholeness Portfolio [1] | 1 |
| PTGR 511 | Advanced Clinical Practice I: Orthopaedic Rehabilitation | 3 |
| PTGR 512 | Advanced Clinical Practice II | 3 |
| PTGR 513 | Advanced Clinical Practice III | 3 |
| PTGR 514 | Professional Systems in Management I | 3 |
| PTGR 515 | Cardiopulmonary Approaches to Assessment, Wellness, and Disease | 3 |
| PTGR 516 | Movement Science of the Upper Quarter | 3 |
| PTGR 517 | Movement Science: Lower Quarter Biomechanical Relationships | 3 |
| PTGR 519 | Home Health Physical Therapy for the Post-Acute Patient | 3 |
| PTGR 553 | Clinical Reasoning and Critical Thinking in Physical Therapy | 3 |
| PTGR 571 | Advanced Physiology I: Neurobiology | 3 |
| PTGR 578 | Medical Screening for Physical Therapists | 3 |
| PTGR 579 | Clinical Imaging for Physical Therapist | 3 |
| PTGR 594 | Evidence-Based Practice in Physical Therapy | 2 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3 |
| **Electives** | | |
| **Choose 3 units from the following:** | | **3** |
| PTGR 501 | Advanced Orthopaedic Specialty Tracks I | |
| PTGR 505 | Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities | |
| PTGR 509 | Function-Based Rehabilitation | |
| PTGR 518 | Topics in Rehabilitation | |
| PTGR 529 | Integumentary and Lymphatic Systems: Evaluation and Intervention | |
| **Total Units** | | **45** |

[1] Fulfills service learning requirement

### Normal time to complete the program

One (1) year (four [4] academic quarters) — based on full-time enrollment

## 66-unit track

| | | |
|---|---|---|
| **Required** | | |
| AHCJ 519 | Graduate Wholeness Portfolio [1] | 1 |
| PTGR 501 | Advanced Orthopaedic Specialty Tracks I | 3 |
| PTGR 505 | Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities | 3 |
| PTGR 506 | Soft-Tissue Mobilization | 3 |
| PTGR 509 | Function-Based Rehabilitation | 3 |
| PTGR 510 | Neurologic Upper Extremity Management | 3 |
| PTGR 511 | Advanced Clinical Practice I: Orthopaedic Rehabilitation | 3 |
| PTGR 512 | Advanced Clinical Practice II | 3 |
| PTGR 513 | Advanced Clinical Practice III | 3 |
| PTGR 514 | Professional Systems in Management I | 3 |
| PTGR 515 | Cardiopulmonary Approaches to Assessment, Wellness, and Disease | 3 |
| PTGR 516 | Movement Science of the Upper Quarter | 3 |
| PTGR 517 | Movement Science: Lower Quarter Biomechanical Relationships | 3 |
| PTGR 519 | Home Health Physical Therapy for the Post-Acute Patient | 3 |
| PTGR 529 | Integumentary and Lymphatic Systems: Evaluation and Intervention | 3 |
| PTGR 553 | Clinical Reasoning and Critical Thinking in Physical Therapy | 3 |
| PTGR 571 | Advanced Physiology I: Neurobiology | 3 |
| PTGR 573 | Pathokinesiology of Gait | 3 |
| PTGR 577 | Pharmacology in Physical Therapy | 3 |
| PTGR 578 | Medical Screening for Physical Therapists | 3 |
| PTGR 579 | Clinical Imaging for Physical Therapist | 3 |
| PTGR 594 | Evidence-Based Practice in Physical Therapy | 2 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3 |
| **Total Units** | | **66** |

[1] Fulfills service learning requirement

### Normal time to complete the program

1.5 years (six [6] academic quarters) — based on full-time enrollment

# Physical Therapy — Ph.D.

**Program director**
Everett B. Lohman III

The Department of Physical Therapy offers the Doctor of Philosophy (Ph.D.) degree in physical therapy. This research-oriented program for physical therapists emphasizes pain and movement sciences as well as lifestyle health and wellness, preparing graduates for research, teaching, and administration. Successful completion of a comprehensive written examination, written dissertation, and an oral defense of the dissertation are required. The diploma will be awarded upon completion of the curriculum and recommendation by the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies.

Program Description

Designed for the working professional, the Ph.D. in physical therapy synergizes with the University's Motto, "To Make Man Whole." Physical therapists who are currently treating or teaching will benefit from a modern, evidence-based curriculum aimed at caring for the whole person. Face-to-face classes, two evenings a week, facilitate the balance of work and study. Aligned closely with our core values, this program provides physical therapy graduates with the skills and experience necessary to pursue careers as researchers and educators.

It is the goal of the program to prepare graduates with:

- Skills to design and conduct novel, original research; provide evidence of an understanding of research design and the ability to formulate and develop methodologies; collect and reduce data; interpret results; draw defensible conclusions; and effectively disseminate research findings;
- Qualities of lifelong learning and commitment to scholarship after graduation;
- Skills to add to the body of knowledge in physical therapy research literature through publications and presentations;
- Ability to demonstrate a commitment to conducting research in neurology, orthopaedics, pain science, movement science, or lifestyle health and wellness;
- Ability to demonstrate a commitment to providing whole-person care;
- Skills to serve as an educator in entry-level, postprofessional, and graduate-level physical therapy programs;
- Ability to demonstrate personal and group leadership skills at institutional, professional, national, and global levels.

## Program learning outcomes

In addition to the stated institutional student learning outcomes (p. 19), by the end of this program, the graduate should be able to:

1. Demonstrate a commitment to discovery;
2. Demonstrate a commitment to the dissemination of knowledge through publications and presentations;
3. Demonstrate a commitment to developing treatment plans that follow current evidence-based and best practice guidelines.

## Technology requirement

Students are required to have iPads for courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to personal computers (minimum: 800 MHz multimedia) with Internet access (minimum: 56 k.b.p.s. [connected at 44+ k.b.p.s.]). A $65 technology fee is charged in years one and two.

## Research funding

Each student will be required to conduct one or more research projects in partial fulfillment of the requirements for the Doctor of Philosophy degree in physical therapy. Typical costs for student research projects range from $2,500 to $10,000. The physical therapy department will cover the first $2,500 of approved research expenses. The student and/or sponsor will be required to cover research-related expenses over this amount. When necessary, the program director and dissertation chair will assist the student in attempting to secure funding for unmet research expenses. Additional financial support may be awarded by application for seed-grant funding through the SAHP Research Committee.

## General requirements

For more information about program requirements and practices for graduate students, the student should consult the Policies and General Regulations in Section II and the School of Allied Health Professions in Section III of this CATALOG. The student should also consult the Doctor of Philosophy's 26 elements for program-specific requirements. These elements can be found at <http://alliedhealth.llu.edu/academics/physical-therapy/degree-options/physical-therapy-phd (http://alliedhealth.llu.edu/academics/physical-therapy/degree-options/physical-therapy-phd/)>.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions (p. 47) admissions requirements, the applicant must also complete the following requirements:

- Bachelors of Science degree in Physical Therapy plus a master's degree, a Masters of Physical Therapy degree, or a Doctor of Physical Therapy degree from an accredited program, or equivalency.
- Minimum grade point average of 3.3 in academic and professional coursework.
- Proof of physical licensure in the U.S. or equivalency in the country of training.

Must also submit:

- At least one example of written work (e.g., personal essay, term paper, publication, master's thesis or project).
- Curriculum vitae, including work history, formal education, continuing education, licensure and certification, professional organizations, honors, awards, publications, presentations, and grants.
- A formal letter outlining research interests.
- A structured oral interview.

## Program requirements

Required units:

- 89 – for students with a Bachelor of Science degree in physical therapy plus a Masters of Physical Therapy (MPT) degree or another appropriate master's degree
- 72 – for students with a Doctor of Physical Therapy (D.P.T.) degree

| | | |
|---|---|---|
| **Domain 1: Core courses** | | |
| PTGR 550 | Introduction to Psychoneuroimmunology: The Science of Whole Person Care | 3 |
| PTGR 552 | Pain Science: Interactions of the Brain and Body | 3 |
| PTGR 580 | Movement Science: Bio-control | 3 |
| PTGR 591 | Biomechanics I | 3 |
| PTGR 599 | Comprehensive Examination | 0 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3 |
| **Domain 2: Clinical and Applied Sciences [1]** | | **12-24** |
| Select from the following: (12 units required for students with a prior D.P.T. degree and 24 units required for students with a prior M.S./M.P.T. degree) [2] | | |
| PTGR 501 | Advanced Orthopaedic Specialty Tracks I | |
| PTGR 502 | Advanced Orthopaedic Specialty Tracks II | |
| PTGR 504 | Science and Biomechanics of the Fascia and the Art of Myofascial Release | |
| PTGR 505 | Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities | |
| PTGR 506 | Soft-Tissue Mobilization | |
| PTGR 508 | Current Topics in Neurological Rehabilitation | |
| PTGR 509 | Function-Based Rehabilitation | |
| PTGR 510 | Neurologic Upper Extremity Management | |
| PTGR 511 | Advanced Clinical Practice I: Orthopaedic Rehabilitation | |
| PTGR 512 | Advanced Clinical Practice II | |
| PTGR 513 | Advanced Clinical Practice III | |
| PTGR 515 | Cardiopulmonary Approaches to Assessment, Wellness, and Disease | |
| PTGR 516 | Movement Science of the Upper Quarter [3] | |
| PTGR 517 | Movement Science: Lower Quarter Biomechanical Relationships [3] | |
| PTGR 518 | Topics in Rehabilitation [4] | |
| PTGR 519 | Home Health Physical Therapy for the Post-Acute Patient | |
| PTGR 520 | Cervical Spine | |
| PTGR 521 | Lumbar Spine | |
| PTGR 522 | Assessment and Management of the Knee | |
| PTGR 523 | Advanced Neurological Rehabilitation | |
| PTGR 524 | Women's Health Issues I | |
| PTGR 529 | Integumentary and Lymphatic Systems: Evaluation and Intervention | |
| PTGR 531 | Advanced Orthopaedic Procedures I | |
| PTGR 532 | Advanced Orthopaedic Procedures II | |
| PTGR 533 | Advanced Orthopaedic Procedures III | |
| PTGR 534 | Sensory Integration Disorders | |
| PTGR 535 | Sensory Integration Disorders II | |
| PTGR 536 | Sensory Integration Disorders III | |
| PTGR 551 | Clinical Translation of Pain Science | |
| PTGR 571 | Advanced Physiology I: Neurobiology | |
| PTGR 573 | Pathokinesiology of Gait | |
| PTGR 577 | Pharmacology in Physical Therapy | |
| PTGR 578 | Medical Screening for Physical Therapists | |
| PTGR 579 | Clinical Imaging for Physical Therapist | |
| PTGR 584 | Functional Magnetic Resonance Imaging | |
| PTGR 585 | Three-dimension Medical Imaging Quantitation | |
| PTGR 592 | Biomechanics II | |
| **Domain 3: Lifestyle health and wellness** | | **3-6** |
| Select from the following: (3 units required for students with a prior D.P.T. degree and 6 units required for students with a prior M.S./M.P.T. degree) | | |
| AHCJ 528 | Lifestyle Health and Wholeness | |
| AHCJ 541 | Managing Stress | |
| AHCJ 546 | Therapeutic Humor in Health Care | |
| AHCJ 568 | Spirituality and Health: The Wholeness Connection | |
| HPRO 515 | Mind-Body Interactions and Health Outcomes | |
| **Domain 4: Education, administration, and leadership** | | **9** |
| Select from the following: | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | |
| AHCJ 509 | Transformational Teaching and Learning | |
| AHCJ 515 | Curriculum Development in Higher Education | |
| AHCJ 556 | Administration in Higher Education | |
| AHCJ 564 | Collaborative Learning in Higher Education | |
| PTGR 514 | Professional Systems in Management I | |
| **Domain 5: Religion** | | |
| One course from each area (RELE, RELR, & RELT) required: | | |
| RELR 540 | Wholeness and Health [7] | 3 |
| Choose one course from the followings: | | 3 |
| RELE 524 | Bioethics and Society | |
| RELE 525 | Ethics for Scientists | |
| RELE 534 | Ethical Issues in Public Health | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 567 | World Religions and Bioethics | |
| RELE 568 | Bioethics and the Law | |
| RELE 588 | Philosophical Ethics | |
| Choose one course from the followings: | | 3 |
| RELT 500 | Biblical Hermeneutics | |
| RELT 540 | World Religions and Human Health | |
| RELT 557 | Theology of Human Suffering | |
| RELT 617 | Seminar in Religion and the Sciences | |
| **Domain 6: Research and statistics (24-26 units)** | | |
| Not required of all students. See footnotes for details. | | 0-3 |
| Required: | | |
| AHRM 581 | Research and Statistics I | 3 |
| AHRM 582 | Research and Statistics II | 3 |
| PTGR 594 | Evidence-Based Practice in Physical Therapy [5] | 2 |
| PTGR 693 | Research and Statistics III: Development and Approval of Research Topic and Questions | 3 |
| PTGR 694 | Proposal Development and Institutional Review Board Approval | 3 |
| PTGR 695 | Research and Statistics V: Data Collection (3) [6] | 6 |
| PTGR 696 | Research and Statistics VI: Data Analysis | 3 |
| PTGR 699 | Research and Statistics VII - Dissertation | 3 |
| **Total Units** | | **72-89** |

[1] All courses will be focused toward research topic.

[2] Courses to be selected in consultation with program director and dissertation chair to enhance the student's knowledge base in regards to their research topic.

[3] PTGR 516 Movement Science of the Upper Quarter and/or PTGR 517 Movement Science: Lower Quarter Biomechanical Relationships (or equivalency) required for students who have not taken these courses in prior M.P.T. or D.P.T. program.

[4] PTGR 518 Topics in Rehabilitation are courses related to special topics in rehabilitation (e.g., Sports Medicine, Manual Therapy, Neurological).

[5] Required for M.S./M.P.T. Required for D.P.T. if course, or equivalent, not taken prior to entrance into the program.

[6] Course to be taken twice – each registration (3 units) pertains to the data collection for one of the two required papers.

[7] Fulfills service learning requirement

**Comprehensive Examination**

PTGR 599 Comprehensive Examination is designed to establish that the student has a broad understanding of physical therapy, research biostatistics and basic research methodology, education, bioethics, and professionalism. Since education is a component of the comprehensive exam, students are encouraged to select a minimum of 9 units of teaching/education-related courses from Domain 5. The written comprehensive examination will be administered after students have successfully completed the majority of required courses in Domains 1-6. The comprehensive examination will typically occur during the summer quarter of the student's second year in the Ph.D. in Physical Therapy program.

## Noncourse requirement

**Advancement to Candidacy**

The student may apply for advancement to candidacy after a) passing the comprehensive examination, b) securing support from their research guidance committee, and c) successfully defending their research topic and questions. The candidate's capacity for original, independent investigation and scholarly achievements must be demonstrated by the presentation and oral defense of an acceptable dissertation in order to participate in the commencement ceremony. The candidate must submit a written dissertation to the Faculty of Graduate Studies. The candidate must also submit a minimum of two papers for publication. One paper must be accepted for publication to fulfill program completion requirements.

## Normal time to complete the program

Four (4) years (16 academic quarters) — full-time enrollment required

# Department of Physician Assistant Sciences

Physician assistants (PAs) are health professionals who are licensed to practice medicine under physician supervision. Physician assistants are qualified by graduation from an accredited physician assistant educational program and through certification by the National Commission on Certification of Physician Assistants. Within the physician/PA relationship, the PA exercises autonomy in medical decision making and provides a broad range of diagnostic and therapeutic services. The clinical role of a PA includes primary and specialty care in medical and surgical settings in rural and urban areas. The PA's practice is centered on patient care and may also include educational, research, and administrative activities.

For more information, call 909/558-7295; email: <pa@llu.edu>; or visit the department website at <llu.edu/allied-health/sahp/pa (http://www.llu.edu/allied-health/sahp/pa/)>.

**Chair**
Catherine Oms

**Program director**
Courtney Marquez

**Medical director**
Wessam Labib

**Program assessment director**
Rasha Abdrabou

**Didactic director**
Mark Milliron

**Didactic coordinators**
Erin Gysbers

Shannon Rivera

**Clinical director**
Kristin Batla

**Clinical coordinators**
Lauren Bolda

Charles Huynh

**Adjunct Faculty**
Yasmin Chene

Mirella Cortez

Bethania Siviero

William Wilson

## Program

Physician Assistant — M.P.A. (p. 118)

# Physician Assistant — M.P.A.

Loma Linda University offers a professional course of study leading to the Master of Physician Assistant (M.P.A.) degree. This degree prepares students for medical work as mid-level health-care professionals.

The program consists of didactic and clinical phases that run concurrently for eight quarters over a 24-month period. A new class is accepted annually. Students are selected from a variety of clinical backgrounds. Each applicant is evaluated based on the following: experience in patient care, duration of experience, level of patient contact, and degree of responsibility.

## Mission statement

The Loma Linda University Department of Physician Assistant (PA) Sciences educates primary-care physician assistants who will provide health care in collaboration with physicians as active members of a professional health-care team. We are committed to excellence and compassion for the whole person and quality health care for underserved communities locally and globally, in accordance with the mission of Loma Linda University and the School of Allied Health Professions.

## Vision

Graduates of the Loma Linda University Master of Physician Assistant Program will be recognized for professional excellence, integrity, empathy, teamwork, and advocating lifestyle changes to promote wholeness.

## Program learning outcomes

In addition to the stated institutional learning outcomes (p. 19), at the end of this program, the graduate should be able to:

1. Apply the basic sciences to physician assistant sciences;
2. Demonstrate clinical skills in patient-care settings;
3. Demonstrate critical thinking skills in physician assistant sciences and practice;
4. Exhibit professionalism appropriate for physician assistants;
5. Provide culturally proficient, whole-person care to individuals and communities;
6. Demonstrate a commitment to the promotion of the physician assistant profession.

## Goals

1. Provide a curriculum whose required academic content and clinical experience equip graduates to provide competent medical care that will enhance the services of the medical profession.
2. Graduate PAs who enhance the services of supervising physicians as part of the physician-PA team and collaborate with other members of an interdisciplinary health-care team to provide quality patient care.
3. Graduate PAs who will utilize their education and training to make significant contributions to the health of the community.
4. Graduate PAs who improve access to medical services by providing whole-person care to those living in underserved communities.
5. Graduate PAs who are culturally competent and able to care for diverse populations with compassion and excellence.
6. Graduate PAs who will provide care with the highest ethical standards.

7. Graduate PAs who will be lifelong learners and actively engaged in the PA profession.

# Housing

On-campus housing is available for men and women. For information on the men's dormitory (Daniells' Residence), call 909/558-4561. For information on the women's dormitory (Lindsay Hall), call 909/558-4561.

# Financial assistance

For information regarding funding opportunities, see Student Aid (p. 42) in the financial polices section of this CATALOG.

# Accreditation

View our Accreditation History (http://www.arc-pa.org/accreditation-history-loma-linda-university/).

The Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA), 1200 Findley Road, Suite 275, Johns Creek, GA 30097; telephone, 770/476-1224; email, <accreditationservices@arc-pa.org>; website, <http://www.arc-pa.org>; has granted Accreditation-Continued status to the Loma Linda University Physician Assistant program sponsored by Loma Linda University**.** Accreditation-Continued is an accreditation status granted when a currently accredited program is in compliance with the ARC-PA *Standards*.

Accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the *Standards*. The approximate date for the next validation review of the program by the ARC-PA will be March 2027. The review date is contingent upon continued compliance with the Accreditation *Standards* and ARC-PA policy.

# Admissions

Applications are accepted between May 1 and October 1, 11:59 pm EST. Applications must be made through the Central Application Service for Physician Assistants. This service is available at <caspaonline.org (https://portal.caspaonline.org/)>. In addition, completion of a secondary application from Loma Linda University is required. Completed applications and all supporting documents must be received by the Department of Physician Assistant Sciences no later than December 15, 11:59 pm PST. Priority deadline – August 1, 11:59 p.m. PST. Required interviews are granted to qualified applicants upon invitation by the admissions committee. The applicant must also complete the following requirements:

- A baccalaureate degree from an accredited institution, completed by December 31 of the year of application.
- An overall G.P.A. of at least 3.0 or higher and a science G.P.A. of 3.0 or higher on a 4.0 scale.
- Three letters of reference, including one from a practicing MD/DO/PA who you have worked under in a direct, hands-on, paid patient care experience. Letter of reference from MD/DO/PA **must** be typed on official letterhead. This letter **cannot** be from a friend or relative, and **cannot** be from a shadowing experience.
- Documented paid patient-care experience of 2,000 hours minimum by August 31st of the year of matriculation. It is preferred that this requirement be completed by the time the application is submitted. Student clinical, externship, internship, foreign medical hours, shadowing, and volunteer experience are not acceptable. Direct patient-care experiences are those professions which provide patient assessment, treatment, patient-care plans, and/or diagnostic testing. Preferred applicants will have direct patient-care experience working in clinical settings that involve a range of patient responsibility and a high level of critical thinking.
- All prerequisite coursework completed at an accredited college before being admitted to a program in the School of Allied Health Professions. All prerequisite courses must contain a letter grade to be accepted for our admissions process. Please note that a passing grade is considered a C or better, and C- grades or below are not accepted for prerequisite courses. Prerequisite courses will not be accepted which were changed to Pass/Fail (P/F) due to closure of their academic institution during the COVID-19 pandemic.
- If you are an international applicant, please note that WES has temporarily suspended all in-office operations due to COVID-19. In response to the COVID-19 pandemic, an AERC Detailed Evaluation Report will be accepted as both evaluation and transcript for a given institution for the duration of this outbreak. Be sure to pay for your original documents to be mailed back to you. All application deadlines will remain the same. Please visit the AERC website or contact them to learn about their processing time, requirements, and pricing. http://aerc-eval.com (http://aerc-eval.com/) / 626-339-4404 / aerc@verizon.net.
- Admission into the PA Program at Loma Linda University is contingent upon a criminal background check. Falsification of this information or omission of criminal misconduct is not acceptable and may result in retraction of offer of admission.
- Prerequisites:
  - All prerequisite coursework must be taken at an institution accredited in the United States.
  - Due to the COVID-19 pandemic, the Loma Linda University Department of Physician Assistant Sciences has approved temporary updates to the admissions requirements above for the **2021-2022 CASPA Application Cycle.** For more information, please visit our COVID-19 Updates page at https://alliedhealth.llu.edu/academics/physician-assistant/admissions-physician-assistant/physician-assistant-admission-requirements (https://alliedhealth.llu.edu/academics/physician-assistant/admissions-physician-assistant/physician-assistant-admission-requirements/)
  - A maximum of 3 total prerequisite courses may be outstanding at the time of application; with no more than 2 science prerequisites pending.
  - Science courses must be for science majors and include an on-campus or hybrid laboratory component (at least 50% of the lab on campus). It is required that all prerequisite science courses have been taken within the last 10 years. Introductory courses are not accepted as meeting our science prerequisite course criteria.
  - All outstanding prerequisites must be completed by the end of Spring Quarter of the year of matriculation.
  - *Please note that following closure of the 2021-2022 CASPA cycle, the prerequisite course requirement will be reassessed and may return to the original status of a maximum of 1 science and 1 non-science outstanding at the time of application for future application cycles.*

## Prerequisite courses

The final determination on whether a course will meet our criteria will rest with the admissions committee. College-level prerequisite courses include the following:

Human anatomy and physiology with an on-campus laboratory component, complete sequence OR separate courses in human anatomy with an on-campus laboratory component and human physiology with an on-campus laboratory component. Must cover all organ systems. (Introductory, X or XL courses not accepted)

General chemistry, one-year sequence with an on-campus laboratory component OR a sequence in inorganic, organic, AND biochemistry with an on-campus laboratory component. (three quarters or two semesters; inorganic can be introduction to chemistry or general chemistry I only. Organic and biochemistry cannot be introductory; X or XL courses are not accepted)

General microbiology with an on-campus laboratory component. Must cover the four medically important areas: bacteria, viruses, fungi, and protozoa. (Introductory, X or XL courses are not accepted)

General psychology (general psychology, introduction to psychology, human growth and development or developmental psychology)

General sociology (general sociology, introduction to sociology, principles of sociology or medical sociology)
**or**
Cultural anthropology (cultural anthropology or introduction to cultural anthropology)

College-level algebra (college algebra, AP calculus, pre-calculus, calculus or trigonometry)

English composition, one year sequence (language courses not accepted; coursework must come from an accredited U.S. institution)

## Recommended

Statistics (will not satisfy the algebra prerequisite)
Medical terminology
Conversational Spanish

## Preference given to

Seventh-day Adventists

Graduates of Loma Linda University

Applicants from underrepresented populations

Applicants with a history of meaningful, continuous involvement in community service consistent with the mission and values of Loma Linda University

Applicants with documented military service

# Program requirements

| First Year | | Units |
|---|---|---|
| PAST 501 | Anatomy for Physician Assistants I | 2 |
| PAST 502 | Anatomy for Physician Assistants II | 2 |
| PAST 503 | Anatomy for Physician Assistants III | 2 |
| PAST 504 | Primary Care Pediatrics | 3 |
| PAST 505 | Women's Health Care | 3 |
| PAST 511 | Pharmacology for Physician Assistants I | 2 |
| PAST 512 | Pharmacology for Physician Assistants II | 2 |
| PAST 513 | Pharmacology for Physician Assistants III | 2 |
| PAST 530 | Diagnostic Techniques for Physician Assistants I | 1 |
| PAST 531 | Diagnostic Techniques for Physician Assistants II | 1 |
| PAST 532 | Diagnostic Techniques for Physician Assistants III | 1 |
| PAST 533 | Diagnostic Techniques for Physician Assistants IV | 1 |
| PAST 547 | Basic Medical Science | 3 |
| PAST 551 | Normal and Pathologic Physiology for Physician Assistants I | 2 |
| PAST 552 | Normal and Pathologic Physiology for Physician Assistants II | 2 |
| PAST 553 | Normal and Pathologic Physiology for Physician Assistants III | 2 |
| PAST 554 | Clinical Skills for Physician Assistants | 3 |
| PAST 556 | Preventive Medicine and Health Promotion | 2 |
| PAST 558 | Psychiatry for Physician Assistants | 3 |
| PAST 571 | Integrative Spanish for Physician Assistants | 3 |
| PAST 572[1] | Culture and Community for Physician Assistants | 3 |
| PAST 575 | Clinical Correlation for Physician Assistants I | 1 |
| PAST 576 | Clinical Correlation for Physician Assistants II | 1 |
| PAST 577 | Clinical Correlation for Physician Assistants III | 1 |
| PAST 578 | Clinical Correlation for Physician Assistants IV | 1 |
| PAST 581 | Physical Diagnosis for Physician Assistants I | 2 |
| PAST 582 | Physical Diagnosis for Physician Assistants II | 3 |
| PAST 583 | Physical Diagnosis for Physician Assistants III | 2 |
| PAST 584 | Physical Diagnosis for Physician Assistants IV | 2 |
| PAST 591 | Clinical Medicine for Physician Assistants I | 3 |
| PAST 592 | Clinical Medicine for Physician Assistants II | 3 |
| PAST 593 | Clinical Medicine for Physician Assistants III | 3 |
| PAST 594 | Clinical Medicine for Physician Assistants IV | 2 |
| PAST 601 | Evidence-Based Medicine for Physician Assistants I | 2 |
| PAST 602 | Evidence-Based Medicine for Physician Assistants II | 2 |
| RELE 505 | Clinical Ethics | 3 |
| **Second Year** | | |
| PAST 516A | Physician Assistant Professional Issues | 1 |
| PAST 516B | Physician Assistant Professional Issues | 1 |
| PAST 603A | Capstone | 1 |
| PAST 603B | Capstone | 1 |
| PAST 701 | Rotation I | 6 |
| PAST 702 | Rotation II | 6 |
| PAST 703 | Rotation III | 6 |
| PAST 704 | Rotation IV | 6 |
| PAST 705 | Rotation V | 6 |
| PAST 706 | Rotation VI | 6 |
| PAST 707 | Rotation VII | 6 |
| PAST 708 | Rotation VIII | 6 |
| | **Total Units:** | **128** |

[1] Fulfills service learning requirement

Eight six-week clinical rotations, including: family medicine, internal medicine, pediatrics, obstetrics/gynecology, general surgery, emergency medicine, behavioral medicine, and one elective are required.

## Normal time to complete the program

2.33 years (eight [8] academic quarters) — full-time enrollment required

# Department of Radiation Technology

The Department of Radiation Technology is made up of diverse specialties, where radiographers image body structures. They can specialize in CT, MRI, imaging informatics, mammography, nuclear medicine, sonography, or radiation therapy. While CT and MRI both produce cross-sectional images of the body, MRI utilizes a magnetic field rather than ionizing radiation. Nuclear medicine employs the nuclear properties of radioactive and stable nuclides to make diagnostic evaluations of the anatomic or physiologic conditions of the body. Sonography uses sound waves to image the human body. Radiation therapy employs medical use of ionizing radiation to treat cancer and control malignant cell growth. Professionals in these areas are able to communicate effectively, think critically, demonstrate professionalism by treating all persons with respect, assume responsibility and accountability for their actions, and adhere to the rules of confidentiality.

### Chair
Laura L. Alipoon

### Associate chairs
Michael F. Iorio

Timothy Seavey

### Primary faculty
Laura L Alipoon

Brenda L. Boyd

Kathryn M. Cockrill

J. Robert Cruise II

Carol A. Davis

William J. Edmunds

Raynold Ho

Michael F. Iorio

Arthur W. Kroetz

Brigit C. Mendoza

Teresa R. Mosley

James Rippetoe

Timothy Seavey

### Secondary faculty
Joseph Hewes

Reinhard W. Schulte

### Clinical faculty
Ronda Adey

Irene M. Bielitz

David Gentry

Noriece R. Kisinger

Sara Leeds

Anh M. Ly

Enoch Montalban

Ruth Reyes-Padilla

Glenn A. Rouse

Shelia A. Wilson

### Associated faculty
Noha S. Daher

Baldev Patyal

## Programs

- Cardiac and Vascular Imaging (CVI) — Certificate (p. 121)
- Cardiac Electrophysiology Technology — A.S. (p. 123)
- Diagnostic Medical Sonography — B.S. (p. 124), Certificate (p. 126)
- Medical Dosimetry — Certificate (B.S. in Physics Track) (p. 127), Certificate (Radiation Therapist Track) (p. 128), Comparison (p. 128)
- Medical Radiography — A.S. (p. 129)
- Nuclear Medicine Technology — B.S. (p. 131)
- Radiation Sciences — B.S. (p. 135), M.S.R.S. (p. 138)
- Radiation Therapy Technology — B (p. 139).S. (p. 139)
- Radiologist Assistant — M.S.R.S. (p. 141)
- Special Imaging — CT, MRI, CT/MRI Certificate (p. 142) Comparison (p. 144)

# Cardiac and Vascular Imaging (CVI) — Certificate

**Program director**
Kate Cockrill

Cardiac interventional and vascular interventional technologists work in a highly specialized field operating sophisticated imaging equipment. This technology provides detailed fluoroscopic images of the human body, assisting physicians with quality patient diagnosis and treatment.

The Cardiac and Vascular Imaging Program is a full-time, 12-month certificate program that requires four quarters beginning in autumn. During the program, students receive structured coursework along with clinical instruction. There are no arrangements for part-time or evening status. Clinical sites are available in a variety of regions in Southern California. The University cannot guarantee that the student will be assigned close to their residence.

The program's load requires 40 hours per week, which includes didactic and clinical experience, the latter involving up to four 8-hour days per week. Didactic courses are 100 percent online. Clinical affiliation courses require the student to be at the affiliated hospitals.

Students will be required to submit current immunization records and undergo a background check during the registration process. Further details regarding these two requirements can be found in the Admission Policies and Information (p. 23) section of this CATALOG. Students will be responsible for paying fees associated with immunizations and

background checks. Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

## Program learning outcomes

At the end of this program, the graduate should be able to:

1. Demonstrate clinical competency in cardiac interventional radiography and/or vascular interventional radiography;
2. Provide competent advanced clinical life support;
3. Effectively communicate in the health sciences.

## The CVI student profile

1. Enthusiastic and interested in maintaining high standards of academics, clinical performance, and patient care.
2. Possesses a broad knowledge of human anatomy and computer skills.
3. Demonstrates strong academic performance in science and related courses.
4. Detail-oriented and able to work under pressure while demonstrating critical-thinking and problem-solving skills.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Recommendations: meaningful recommendations must be from prior teachers, work supervisors, or health professionals who are knowledgeable about your qualifications
- Current ARRT registry in Radiography (R)
- Current California Certified Radiologic Technologist (CRT) license
- Current Basic Life Support (BLS) card with the American Heart Association
- A minimum G.P.A. of 2.5 maintained in all didactic and clinical course work
- Venipuncture is highly recommended
- One year of professional experience in imaging is highly recommended

An applicant who is completing a program in radiologic technology prior to the start of the program may apply as long as they have completed ARRT, CRT, and BLS requirements by the program start date. Prospective students must reside (for the entirety of their degree) in a state that has authorized LLU to teach distance education. Discuss additional clinical sites with the program director. Please refer to the LLU State Authorization (https://home.llu.edu/llu-state-authorization/) webpage for additional information

**Observation experience**

A minimum of eight hours of career observation in cardiac and/or vascular imaging is required. The career observation form is available as a download from the forms page on the website.

**Interviews**

Cardiovascular and Interventional (CVI) Program interviews are conducted in June or July. All applicants will be interviewed by the program director and representatives of the School of Allied Health Professions. Applicants residing in Southern California should plan for a personal interview on campus at Loma Linda. Applicants will be notified by phone and/or email of their interview schedule. Applicants are rated in the following four areas:

- Work experience or training background
- Recommendations
- Academic record
- Communication skills, knowledge, and motivation.

**Selection**

After all applicants have been interviewed, the selection committee for the CVI Program meets to make the final selections. Selections are usually decided by mid-July, and confirmation of each decision is mailed to the respective applicant from the Office of Admissions for the School of Allied Health Professions.

**Application deadline**

- Applications are accepted starting January of each year.
- Deadline for applications is June 30th
- Applicants should submit applications early as there are limited number of slots available for interviews.

## Program requirements

| | | |
|---|---|---|
| **First Year** | | |
| **Autumn Quarter** | | **Units** |
| CEPT 245 | Cardiovascular Anatomy and Physiology | 3 |
| CEPT 251 | Cardiac Electrophysiology and Rhythm Recognition I | 2 |
| RTSI 345 | Cardiac/Interventional Procedures | 3 |
| RTSI 975[1] | Cardiac/Interventional (CVI) Affiliation | 3 |
| **Winter Quarter** | | |
| AHCJ 402 | Pathology I | 4 |
| CEPT 252 | Cardiac Electrophysiology and Rhythm Recognition II | 2 |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RTSI 351 | Angio/Interventional Procedures I | 3 |
| RTSI 975[1] | Cardiac/Interventional (CVI) Affiliation | 3 |
| **Spring Quarter** | | |
| RTSI 344 | Interventional Pharmacology | 4 |
| RTSI 356 | Vascular Anatomy and Physiology | 3 |
| RTSI 360 | Cardiac Imaging Review | 1 |
| RTSI 975[1] | Cardiac/Interventional (CVI) Affiliation | 3 |
| **Summer Quarter** | | |
| RTSI 352 | Angio/Interventional Procedures II | 3 |
| RTSI 359 | Vascular Imaging Review | 1 |
| RTSI 975[1] | Cardiac/Interventional (CVI) Affiliation | 3 |
| | **Total Units:** | **43** |

[1] Multiple registrations required to meet unit requirement.

### Normal time to complete the program

One (1) year (four [4] academic quarters) — based on part-time enrollment

# Cardiac Electrophysiology Technology — A.S.

**Program director**
J. Robert Cruise

Electrophysiology is a subspecialty of cardiology that focuses on treating heart rhythm abnormalities. The cardiac electrophysiology technologist assists the cardiologist during invasive procedures, including diagnostic electrophysiology studies, arrhythmia mapping, catheter ablation for supraventricular and ventricular tachycardias; and for pacemaker, implantable cardioverter defibrillator, and cardiac resynchronization therapy device implantations.

The Cardiac Electrophysiology Technology Program leads to an Associate in Science degree. The program is based on one year of prerequisites completed at any regionally accredited college or university. The four quarters of coursework at Loma Linda University begin with Autumn Quarter of the sophomore year. All didactic coursework is taught online. Clinical experiences are conducted at affiliated cardiac electrophysiology departments within the State of California and other approved states.

## CPR certification

Students are required to have current health-care provider adult, child, and infant cardiopulmonary resuscitation (CPR) certification for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. This may be completed prior to beginning the program of study or be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate clinical competence;
2. Communicate effectively;
3. Exhibit critical-thinking and problem-solving skills;
4. Demonstrate the values and attitudes of an entry-level cardiac electrophysiology technologist.

## Certification

Upon completion of the program, students will be eligible for certification by the International Board of Heart Rhythm Examiners (IBHRE) and Cardiovascular Credentialing International (CCI).

## Accreditation

The Cardiac Eletrophysiology Program is accredited by the the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Joint Review Committee on Education in Cardiovascular Technology (JRC-CVT), 25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763; telephone: 727/210-2350; website: <www.caahep.org (http://www.caahep.org/)>.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

Minimum G.P.A. of 2.4 and prerequisites as follow:

### Prerequisites

Religion: four units per year of attendance at a Seventh-day Adventist college or university

College algebra

Anatomy and physiology (complete sequence with lab)

Introductory physics or high school physics

Medical terminology

Choose one from the following: general psychology, general sociology, cultural anthropology

College English composition, complete sequence

Electives to meet the minimum total requirement of 39 quarter units or 26 semester units for the A.S. degree

## Program requirements

| **Autumn Quarter** | | **Units** |
|---|---|---|
| AHCJ 326 | Fundamentals of Health Care | 2 |
| AHCJ 328[1] | Wholeness Portfolio I | 0 |
| CEPT 245 | Cardiovascular Anatomy and Physiology | 3 |
| CEPT 248 | Cardiovascular Patient Assessment | 2 |
| CEPT 251 | Cardiac Electrophysiology and Rhythm Recognition I | 2 |
| CEPT 258 | Fundamentals of Biomedical Science | 2 |
| CEPT 261 | Cardiac Electrophysiology Science I | 3 |
| CEPT 275 | Cardiovascular Pharmacology | 3 |
| **Winter Quarter** | | |
| AHCJ 328[1] | Wholeness Portfolio I | 0 |
| AHCJ 402 | Pathology I | 4 |
| CEPT 252 | Cardiac Electrophysiology and Rhythm Recognition II | 2 |
| CEPT 262 | Cardiac Electrophysiology Science II | 3 |
| CEPT 271 | Cardiology Diseases and Therapeutics I | 2 |
| CEPT 281 | Cardiac Electrophysiology Procedures I | 3 |
| CEPT 321 | Cardiac Electrophysiology Clinical Practicum I | 1.5 |
| **Spring Quarter** | | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| AHCJ 328[2] | Wholeness Portfolio I | 1 |
| CEPT 253 | Cardiac Electrophysiology and Rhythm Recognition III | 3 |
| CEPT 263 | Cardiac Electrophysiology Science III | 3 |
| CEPT 272 | Cardiology Diseases and Therapeutics II | 2 |
| CEPT 282 | Cardiac Electrophysiology Procedures II | 3 |
| CEPT 285 | Cardiology | 3 |
| CEPT 322 | Cardiac Electrophysiology Clinical Practicum II | 1.5 |
| **Summer Quarter** | | |
| CEPT 323 | Cardiac Electrophysiology Clinical Practicum III | 2 |
| CEPT 345 | Case Studies in Cardiac Electrophysiology | 2 |
| CEPT 348 | Cardiac Electrophysiology Seminar | 3 |
| RELE 457 | Christian Ethics and Health Care | 2 |

| | | |
|---|---|---|
| REL_ 4__ (Religion elective) | | 2 |
| RTMR 284 | Radiation Protection and Biology | 2 |
| | **Total Units:** | **63** |

[1] Students receive academic credit for this course in the third quarter of registration.

[2] Fulfills service learning requirement

### Normal time to complete the program

Two (2) years — One (1) year (four [4] academic quarters) at LLU, based on full-time enrollment

# Medical Sonography — B.S., Certificate

**Program director**
Erin Marshall

**Medical directors**
Ramesh C. Bansal
Glenn A. Rouse

**Clinical coordinators**
Bridgette Clark
Emily Unterseher

The diagnostic ultrasound profession is a multispecialty field comprised of diagnostic medical sonographers (DMS) with subspecialties in abdomen, obstetrics/gynecology, breast, and pediatrics; vascular technologists (RVT); and diagnostic cardiac sonographers (DCS) with subspecialties in adult, pediatrics, and fetal echocardiography.

The diagnostic ultrasound professional performs patient assessments, acquiring and analyzing data obtained using ultrasound diagnostic technologies. The sonographer provides a summary of findings to the physician to aid in patient diagnosis and management. They utilize independent judgment and systematic problem-solving methods to produce quality diagnostic information. A sonographer must complete comprehensive clinical training and obtain a credential by successfully passing the American Registry of Diagnostic Medical Sonographers (ARDMS) national boards.

## Professional credentialing

Upon completion of either the Bachelor of Science degree or certificate requirements, the student is eligible to sit for the national board examination of the ARDMS.

All students are required to take and pass the ARDMS Standard Physics and Instrumentation (SPI) Examination before completion of the program.

## CPR certification (American Heart Association only)

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experiences. CPR certification must be completed at the American Heart Association health-care provider level and prior to beginning the program. CPR classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102. It is suggested that CPR Certification completion should be done upon acceptance to the program.

## Accreditation

The medical sonography curricula in both general sonography and echocardiography have been accredited since 1985 by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and reviewed annually by the Joint Review Committee on Education in Diagnostic Medical Sonography. Contact information for CAAHEP is: 254 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763; 727/210-2350; e-mail: <caahep@caahep.org>.

## Program Requirements

- Diagnostic Medical Sonography — B.S. (p. 124)
- Diagnostic Cardiac Sonography — Certificate (p. 126)

# Diagnostic Medical Sonography — B.S.

The Bachelor of Science degree in diagnostic medical sonography has two concentrations. A general and vascular 27-month curriculum (nine academic quarters) leads to eligibility to take the registered vascular technology (RVT) and registered diagnostic medical sonography (RDMS) national ARDMS board examinations. A second concentration in cardiac sonography is offered as a 24-month curriculum (eight academic quarters), also leading to eligibility to take the registered cardiac national boards RDCS. Last, a one-year certificate in cardiac sonography is offered, leading to the same eligibility with ARDMS.

General sonographers perform examinations evaluating organs such as the liver, kidneys, spleen, gallbladder, and thyroid—as well as obstetrics/gynecology, pediatrics, and breast. The vascular sonographer performs a variety of noninvasive examinations to evaluate the arteries and veins, assess blood flow and valve competency, and to detect the presence of clots. The cardiac sonographer performs echocardiograms evaluating the heart function, valves, and all cardiac vessels for pathology.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate effective interaction in health care;
2. Demonstrate basic didactic knowledge essential to the practice of medical sonography;
3. Develop and demonstrate professional behaviors and attitudes of an entry-level sonogorapher;
4. Utilize oral and written communication in various sonography settings;
5. Demonstrate critical thinking, professional judgement, and discretion within the profession.

## Admissions

In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must meet the following requirements:

- A minimum of 104 degree transferable units
- Minimum G.P.A. of 2.5 (3.0 preferred)
- Attend an ultrasound information session prior to observation

- Eight hours of observation in medical sonography (preferably at LLUMC) is required prior to the interview. Observations are scheduled after October and after application to program has been submitted.
- Interview

## Prerequisites

All the following courses must be completed prior to the start of the program. All prerequisites, including general education courses, must be completed at an accredited college or university.

### Domain 1: Religion and Humanities (20 quarter or 14 semester units)

**Humanities (12-20 quarter or 8-14 semester units)**

Selected from at least three of the following content areas: civilization/history, fine arts, performing/visual arts (not to exceed four quarter credits), literature, modern language, philosophy, general humanities elective.

**Religion (0-8 quarter or 0-6 semester units)**

An applicant who has attended a Seventh-day Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each full year equivalent (48 quarter units/32 semester units) of attendance at an Adventist college or university. If the applicant has not attended an Adventist institution, no religion units are required. In either case, however, the applicant must have completed 20 quarter or 14 semester units in Domain 1: Religion and Humanities.

### Domain 2: Scientific inquiry and analysis (24-32 quarter or 16-22 semester units)

**Natural Sciences (minimum of 12 quarter or 8 semester units)**

Human anatomy and physiology with laboratory, complete sequence.*

College algebra or higher, one semester/quarter.*

Introduction to physics (general physics also accepted), one semester/quarter.*

* Must be completed within the past five years.

**Social sciences (minimum of 12 quarter or 8 semester units)**

Units must be selected from two of the following content areas: anthropology, economics, geography, political sciences, psychology, and sociology.

### Domain 3: Communication (9-13 quarter or 6-9 semester units)

English composition (complete sequence).

Remaining courses may be selected from the following content areas: computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2-6 quarter or 1.5-4 semester units)

Personal health or nutrition (one course).

Physical education (two separate physical activity courses).

Additional course requirement.

Medical terminology (must be completed within the past five years).

### Domain 5: Electives

To meet the minimum requirement of 105 units quarter units required for matriculation, electives may be selected from the previous four domains. For more information regarding GE requirements for graduation, see LLU general education requirements (p. 26).

# Program requirements

## General and vascular concentration

| | | |
|---|---|---|
| **Junior Year** | | |
| **Summer Quarter 1** | | **Units** |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| AHCJ 326 | Fundamentals of Health Care | 2 |
| AHCJ 493 | Senior Portfolio I | 3 |
| RTCH 385 | Radiologic Trends in Health Care | 2 |
| RELT 406 | Adventist Beliefs and Life | 3 |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| **Autumn Quarter** | | |
| RTMS 344 | Introduction to Medical Sonography | 5 |
| RTMS 371[1] | General Vascular Clinical Affiliation | 8 |
| **Winter Quarter** | | |
| RTMS 348 | Abdomen/Neurosonography | 5 |
| RTMS 372[1] | General Vascular Clinical Affiliation | 8 |
| **Spring Quarter** | | |
| REL_ Religion elective | | 2 |
| RTMS 345 | Ob-Gyn Sonography | 5 |
| RTMS 373[1] | General Vascular Clinical Affiliation | 8 |
| **Senior Year** | | |
| **Summer Quarter 1** | | |
| RTCH 489 | Effective Communication for Supervisors | 3 |
| RTMS 346 | Vascular Technology/Doppler/Scan Techniques | 5 |
| RTMS 471[1] | General Vascular Clinical Affiliation | 8 |
| **Autumn Quarter** | | |
| RTMS 379 | Ultrasound Physics and Instrumentation I | 2 |
| RTMS 421 | Board Review OB-GYN Sonography | 1 |
| RTMS 472[1] | General Vascular Clinical Affiliation | 8 |
| RELE 456 | Personal and Professional Ethics | 3 |
| **Winter Quarter** | | |
| RTMS 387 | Ultrasound Physics and Instrumentation II | 2 |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RTMS 422 | Board Review Abdomen | 2 |
| RTMS 473[1] | General Vascular Clinical Affiliation | 8 |
| **Spring Quarter** | | |
| RTCH 464 | Moral Leadership | 3 |
| RTMS 423 | Board Review Vascular | 1 |
| RTMS 474[1] | General Vascular Clinical Affiliation | 8 |
| **Summer Quarter** | | |
| AHCJ 494[2] | Senior Portfolio II | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTMS 424 | Professionalism in Medical Sonography | 1 |
| RTMS 475[1] | General Vascular Clinical Affiliation | 8 |
| | **Total Units:** | **129** |

[1] 27 units of affiliation count toward the 192 units required for the degree. The remaining affiliation units are required for licensure and must be completed prior to the awarding of the B.S. degree.

[2] Fulfills service learning requirement

### Cardiac concentration

| | | |
|---|---|---|
| **Junior Year** | | |
| **Autumn Quarter** | | **Units** |
| AHCJ 326 | Fundamentals of Health Care | 2 |
| AHCJ 493 | Senior Portfolio I | 3 |
| CEPT 245 | Cardiovascular Anatomy and Physiology | 3 |
| CEPT 248 | Cardiovascular Patient Assessment | 2 |
| CEPT 251 | Cardiac Electrophysiology and Rhythm Recognition I | 2 |
| **Winter Quarter** | | |
| CEPT 252 | Cardiac Electrophysiology and Rhythm Recognition II | 2 |
| CEPT 271 | Cardiology Diseases and Therapeutics I | 2 |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTED 475 | Curriculum Development for the Radiation Sciences | 3 |
| **Spring Quarter** | | |
| AHCJ 305 | Infectious Disease and the Health-Care Provider | 1 |
| CEPT 272 | Cardiology Diseases and Therapeutics II | 2 |
| CEPT 285 | Cardiology | 3 |
| REL_ Religion elective | | 3 |
| RTCH 464 | Moral Leadership | 3 |
| **Summer Quarter** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| RELE 456 | Personal and Professional Ethics | 3 |
| RELT 406 | Adventist Beliefs and Life | 3 |
| RTCH 489 | Effective Communication for Supervisors | 3 |
| **Senior Year** | | |
| **Autumn Quarter** | | |
| RTMS 339 | Echocardiography I | 4 |
| RTMS 379 | Ultrasound Physics and Instrumentation I | 2 |
| RTMS 361[1] | Cardiac Sonography Clinical Affiliation | 8 |
| **Winter Quarter** | | |
| RTMS 347 | Echocardiography II | 4 |
| RTMS 387 | Ultrasound Physics and Instrumentation II | 2 |
| RTMS 362[1] | Cardiac Sonography Clinical Affiliation | 8 |
| **Spring Quarter** | | |
| RTMS 363[1] | Cardiac Sonography Clinical Affiliation | 8 |
| RTMS 385 | Board Review Echocardiography | 2 |
| RTMS 386 | Echocardiographic Case Studies Adult and Pediatrics | 2 |
| **Summer Quarter** | | |
| AHCJ 494[2] | Senior Portfolio II | 3 |
| RTMS 364[1] | Cardiac Sonography Clinical Affiliation | 8 |
| RTMS 424 | Professionalism in Medical Sonography | 1 |
| | **Total Units:** | **101** |

[1] 27 units of affiliation count toward the 192 units required for the degree. The remaining affiliation units are required for licensure and must be completed prior to the awarding of the B.S. degree.

[2] Fulfills service learning requirement

### Normal time to complete the program

Four (4) years — (two [2] years prior to LLU plus two [2] years [24 months for cardiac and 27 months for general and vascular] at LLU) — full-time only

# Diagnostic Cardiac Sonography — Certificate

The cardiac RDCS certificate is a 12-month curriculum leading to proficiency in diagnostic imaging of cardiac function and disease processes. Graduates are eligible to take the adult Registered Diagnostic Cardiac Sonography (RDCS) board examination.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

*Fulfill one of the following four requirements*:

- Hold an ARRT-registered radiologic technologist certification
- Have graduated from an accredited allied health program, including nursing (two years minimum training), licensed vocational nurse, or registered nurse
- Hold an associate degree (science preferred not required)
- Hold a baccalaureate degree (science preferred not required)

**and** *must have completed credits in the following:**

- Human anatomy and physiology with laboratory, complete two-semester sequence
- College algebra
- Medical terminology
- Introduction to physics
- Patient-care methods (will be completed at LLU after being accepted into the program) OR complete a Certified Nursing Assistant course, approved by the Program Director

* Specific course requirements must be completed at an accredited college or university.

## Program requirements

| | | |
|---|---|---|
| **Required** | | |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RTMS 339 | Echocardiography I | 4 |
| RTMS 347 | Echocardiography II | 4 |
| RTMS 379 | Ultrasound Physics and Instrumentation I | 2 |
| RTMS 384 | Topics in Medical Sonography | 1 |
| RTMS 385 | Board Review Echocardiography | 2 |
| RTMS 387 | Ultrasound Physics and Instrumentation II | 2 |
| RTMS 965 | Cardiac Ultrasound Clinical Affiliation | 8 |
| RTMS 966 | Cardiac Ultrasound Clinical Affiliation | 8 |
| RTMS 967 | Cardiac Ultrasound Clinical Affiliation | 8 |
| RTMS 968 | Cardiac Ultrasound Clinical Affiliation | 8 |
| **Total Units** | | **49** |

### Normal time to complete the program

47 weeks (four [4] academic quarters) — full-time enrollment required

# Medical Dosimetry — Certificate (B.S. in Physics Track, Radiation Therapist Track)

Program closed to admission for the 2021-2022 academic year.

**Program director**
Carol A. Davis

The Medical Dosimetry Program is designed to educate personnel in the discipline of dosimetry within a radiation oncology environment, and to prepare them to take the Medical Dosimetry Certification Board (MDCB) examination.

Medical dosimetry is a dynamic, exciting field involving a combined knowledge of mathematics, physics, and the biological and medical sciences. Dosimetrists plan optimal isodose distributions and treatment dose calculations for a variety of external beam as well as brachytherapy treatments. Medical dosimetrists must possess excellent analytical skills, the ability to critically evaluate data, and an aptitude for physics and mathematics. They must also be able to work closely as part of a team with physicists, physicians, radiation therapists, and other personnel.

Due to a shortage of training programs in medical dosimetry throughout the United States, there is a great need for medical dosimetrists in many areas of the country. Thus, this program aims to provide a supply of well-trained dosimetrists who will be able to meet the needs of radiation oncology facilities in the local area and beyond.

## Mission statement

The mission of the certificate program in medical dosimetry is to prepare professionals in the field through broad education and training in all aspects of the profession. This will include critical thinking, clinical competence, effective communication, and professionalism as they apply to the field of medical dosimetry. The program encourages intellectual, physical, social, and spiritual development by emphasizing these goals in its curriculum, which is reflected in the motto of Loma Linda University Health, "To Make Man Whole."

## Program learning outcomes (PLOs)

By the end of this program, graduates should be able to:

1. Demonstrate critical thinking by being able to perform hand calculations and construct deliverable treatment plans which achieve maximum target coverage, minimize hot and cold spots, spare critical structures, and consider machine and patient limitations. Student will be mindful of planning in accordance with the physician's prescription and will utilize the plan QA checklist as a guide;
2. Demonstrate clinical competence by being able to calculate MUs for clinical set-ups, being able to understand and use the main features of treatment planning systems, and being able to follow hospital operations, policies, and procedures for all hands-on dosimetry activities;
3. Demonstrate effective verbal and written communication skills;
4. Demonstrate professionalism by treating all persons with respect and understanding, as well as abiding by HIPPA rules, and demonstrating responsibility and accountability for actions.

## Program design

- The program for both tracks is six quarters in length.
- Instruction includes a mixture of lecture, laboratory, and clinical work. Students will be exposed to a variety of methodologies within dosimetry, including work with proton therapy treatment planning.
- The majority of instruction will be conducted in the Radiation Medicine Department of Loma Linda University Medical Center. There are also short clinical rotations at Long Beach Memorial and City of Hope medical centers.
- The program faculty consists of physicists, dosimetrists, and radiation therapists who are extremely experienced in their field—many in both photon and proton therapy treatment planning.

## Accreditation

The American Association of Medical Dosimetrists (AAMD) supports the concept of formal dosimetry training, which leads to board eligibility for the certification in medical dosimetry. This qualification is considered the gold standard in dosimetry education.

The program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Upper Wacker Drive #2850, Chicago, IL 60606.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

### Track 1—radiation therapist track

- ARRT registration in radiation therapy technology.
- Must hold bachelor's degree in any major in addition to radiation therapy certification
- College algebra
- Trigonometry

### Track 2—B.S. physics track

- A baccalaureate degree in physics, mathematics, or equivalent from an accredited university
- Anatomy and physiology (no laboratory required)
- Medical terminology
- Eight hours in a radiation oncology department observing the work of the medical dosimetrist.

## Program requirements

- Certificate in Medical Dosimetry — Radiation Therapist Track (p. 128) (any B.S. degree), B.S. in Physics/Mathematics Track, (p. 128) Comparison (p. 128)

# Certificate in Medical Dosimetry (B.S. in Physics/Mathematics Track)

| First Year | | Units |
|---|---|---|
| RTMD 301 | Treatment Planning I | 2 |
| RTMD 307 | Principles of Brachytherapy | 2 |
| RTMD 355[1] | Physical Principles of Radiation Therapy I | 3 |
| RTMD 356[1] | Physical Principles of Radiation Therapy II | 3 |
| RTMD 960 | Practicum | 11 |
| RTMD 961 | Practicum | 8 |
| RTMD 962 | Practicum | 10 |
| RTMD 963 | Practicum | 9 |
| RTMR 285 | Principles of Radiography I | 3 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| RTTH 332 | Radiation Biology | 2 |
| RTTH 344 | Radiation Therapy Procedures | 2 |
| RTTH 364 | Radiation Oncology I | 2 |
| RTTH 365 | Radiation Oncology II | 2 |
| RTTH 366 | Radiation Oncology III | 2 |
| **Second Year** | | |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RTMD 302 | Treatment Planning II | 2 |
| RTMD 305 | Special Topics | 2 |
| RTMD 314 | Quality Assurance, with Laboratory | 2 |
| RTMD 964 | Practicum | 11 |
| RTMD 965 | Practicum | 11 |
| | **Total Units:** | **95** |

[1] RTTH 355 Physical Principles of Radiation Therapy I and RTTH 356 Physical Principles of Radiation Therapy II will not substitute for these courses, respectively.

## Normal time to complete the program

Sixty-five (65) weeks (six [6] academic quarters), based on full-time enrollment

# Certificate in Medical Dosimetry (Radiation Therapist Track)

| First Year | | Units |
|---|---|---|
| RTMD 301 | Treatment Planning I | 2 |
| RTMD 307 | Principles of Brachytherapy | 2 |
| RTMD 309 | Radiation Therapy Core—Concept Review | 1 |
| RTMD 310 | Applied Mathematics for Medical Dosimetry | 1 |
| RTMD 355[1] | Physical Principles of Radiation Therapy I | 3 |
| RTMD 356[1] | Physical Principles of Radiation Therapy II | 3 |
| RTMD 970 | Practicum | 11 |
| RTMD 971 | Practicum | 10 |
| RTMD 972 | Practicum | 9 |
| RTMD 973 | Practicum | 10 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| **Second Year** | | |
| RELE 457 | Christian Ethics and Health Care | 2 |
| RTMD 302 | Treatment Planning II | 2 |
| RTMD 305 | Special Topics | 2 |
| RTMD 314 | Quality Assurance, with Laboratory | 2 |
| RTMD 974 | Practicum | 11 |
| RTMD 975 | Practicum | 11 |
| | **Total Units:** | **86** |

[1] RTTH 355 Physical Principles of Radiation Therapy I and RTTH 356 Physical Principles of Radiation Therapy II will not substitute for these courses, respectively.

## Normal time to complete the program

Sixty-five (65) weeks (six [6] academic quarters), based on full-time enrollment

# Medical Dosimetry — Certificate (B.S. in Physics Track, Radiation Therapist Track) Comparison

| | Course Title | BS in Physics Track | Radiation Therapist Track |
|---|---|---|---|
| **First Year** | | | |
| RTMD 301 | Treatment Planning I | 2.0 | 2.0 |
| RTMD 307 | Principles of Brachytherapy | 2.0 | 2.0 |
| RTMD 355 | Physical Principles of Radiation Therapy I | 3.0 | 3.0 |
| RTMD 356 | Physical Principles of Radiation Therapy II | 3.0 | 3.0 |
| RTSI 369 | CT Physics | 2.0 | 2.0 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2.0 | 2.0 |
| RTMD 960 | Practicum | 11.0 | |
| RTMD 961 | Practicum | 8.0 | |
| RTMD 962 | Practicum | 10.0 | |
| RTMD 963 | Practicum | 9.0 | |
| RTMR 285 | Principles of Radiography I | 3.0 | |
| RTTH 332 | Radiation Biology | 2.0 | |
| RTTH 344 | Radiation Therapy Procedures | 2.0 | |
| RTTH 364 | Radiation Oncology I | 2.0 | |
| RTTH 365 | Radiation Oncology II | 2.0 | |
| RTTH 366 | Radiation Oncology III | 2.0 | |
| RTMD 309 | Radiation Therapy Core—Concept Review | | 1.0 |
| RTMD 310 | Applied Mathematics for Medical Dosimetry | | 1.0 |
| RTMD 970 | Practicum | | 11.0 |
| RTMD 971 | Practicum | | 10.0 |
| RTMD 972 | Practicum | | 9.0 |
| RTMD 973 | Practicum | | 10.0 |
| **Totals** | | **65.0** | **56.0** |

| | Course Title | BS in Physics Track | Radiation Therapist Track |
|---|---|---|---|
| **Second Year** | | | |
| RELE 457 | Christian Ethics and Health Care | 2.0 | 2.0 |
| RTMD 302 | Treatment Planning II | 2.0 | 2.0 |
| RTMD 305 | Special Topics | 2.0 | 2.0 |
| RTMD 314 | Quality Assurance, with Laboratory | 2.0 | 2.0 |
| RTMD 964 | Practicum | 11.0 | |
| RTMD 965 | Practicum | 11.0 | |
| RTMD 974 | Practicum | | 11.0 |
| RTMD 975 | Practicum | | 11.0 |
| **Totals** | | **30.0** | **30.0** |
| **Overall Totals** | | **95.0** | **86.0** |

# Medical Radiography — A.S.

**Program director**
William J. Edmunds

**Medical advisor**
Alvin L. Hensel

The medical radiographer, or radiologic technologist, is responsible for the accurate imaging of body structures on an image receptor. The technologist provides for patient protection and comfort, determines proper exposure factors, manipulates medical imaging equipment, evaluates the radiograph image for quality, and utilizes digital technologies to archive and transmit the patient's examination images for physician evaluation.

The technologist may also assist the radiologist in specialized radiographic procedures. This may require the use of sterile procedures and universal precautions in the administration of radiographic contrast agents to the patient for the enhanced viewing of body systems and their functions.

## The program

The Medical Radiography Program begins with the Autumn Quarter and is based on the completion of one year of prerequisite coursework at any regionally accredited college or university. The first quarter at Loma Linda University primarily emphasizes the theoretical aspects of radiography, with two days per week at a clinical affiliation beginning the third week of the program. The remaining six quarters combine clinical training on a two-to-five-days-per-week basis, with more advanced classroom topics. The schedule may involve limited evening assignments. Clinical and classroom involvement in the program is full time (40 hours/week). Students are free on all national holidays and during quarter breaks.

### Program mission statement

The Medical Radiography Program at Loma Linda University provides a quality educational experience focused on the whole person. The program prepares students to be registry-eligible, entry-level radiographers equipped with the knowledge, skills, values, attitudes, and behaviors appropriate for providing excellent patient care and safely managing radiation exposure.

### Program goals

Upon completion of this program, the graduate should be qualified to:

1. Be clinically competent.
2. Provide excellent patient care for a variety of radiologic examinations with respect to the dignity and diversity of all people.
3. Follow radiation protection standards to minimize occupational and public dose.
4. Safely operate all varieties of diagnostic radiography equipment.
5. Become a board-eligible entry-level professional in the field of radiography.
6. Defend the profession's code of ethics and work within the profession's scope of practice.

### Program learning outcomes

By the end of this program, the graduate should be able to:

1. Utilize knowledge needed to complete radiographic examinations of diagnostic quality, while applying proper patient care and radiation protection standards;
2. Integrate effective communication skills into their health-care practice with both patients and colleagues;
3. Employ critical-thinking and problem-solving skills to both prepare for and apply image critique in order to successfully complete radiography exams;
4. Demonstrate professional values, behaviors, and attitudes as an entry-level radiographer.

## Affiliations

For the clinical portion of the program, students are assigned to an affiliated medical center: Loma Linda University Health in Loma Linda, East Campus, Faculty Medical Offices, Murrieta, SACH clinic, and the Surgical Hospital; Hemet Valley Medical Center, Menfee Global, Eisenhower Medical Center, Desert Hospital, Redlands Community Hospital, Parkview Community Hospital, Pioneers Memorial Hospital, El Centro Regional Medical Center, St. Bernardine Medical Center, Community Hospital of San Bernardino, Riverside Community Hospital, Highland Springs, San Gorgonio, White Memorial Medical Center, and St. Mary Regional Medical Center.

## CPR & IV certification

Students are required to have current health-care provider adult, child, and infant cardiopulmonary resuscitation (CPR-BLS) certification for all scheduled clinical experiences. CPR certification must be completed at the American Heart Association health-care provider level. This may be earned prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102. Intravenous (IV) certification will be required with an online course and on-campus lab. Either of these items is the responsibility of the student to finance as part of the program cost.

## Professional registration and certification

Upon completion of the requirements for the Associate in Science degree, the graduate is eligible to write the qualifying examination of The American Registry of Radiologic Technologists (ARRT). Program graduates who pass the ARRT examination in radiography are eligible to pay for and receive the state license (CRT) in California without further testing within five years of passing the ARRT examination. Graduates are encouraged to become members of the California Society of Radiologic Technologists and the American Society of Radiologic Technologists

for professional growth and continuing education in their professional discipline.

# Accreditation

The Medical Radiography Program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Wacker Drive, Suite 2850, Chicago, IL 60606-3182; telephone: 312/704-5300. The program is also approved by the Radiologic Health Branch (RHB) of the state of California, Department of Public Health MS 7610, P.O. Box 997414, Sacramento, CA 95899-7414; telephone: 916/327-5106.

# Admissions

Admission is based on a competitive, selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- High school completion from an accredited institution, or passed the GED.
- A minimum of 42 quarter units (or 28 semester units) at an accredited college or university.
- Observation experience—A minimum of eight hours of career observation in a radiology department is required. Contact the department to obtain the appropriate form.
- Online application, three references, an essay, and transcripts from all schools attended including high school. The essay should include: why you are choosing LLU, your process for selecting this profession, what makes you a good candidate, and anything else that helps us get to know you. Contact the department for more information.
- A prerequisite GPA of 2.5 minimum; however, a competitive GPA of 3.0 or higher is preferred.

## Prerequisites

- Human anatomy and physiology, complete sequence of two courses minimum, with a lab for each course
- College algebra
- Medical terminology
- Introductory or general physics at the college level (one quarter/semester)
- General psychology or general sociology
- English composition, complete sequence
- Interpersonal communication, oral communication, or public speaking
- Religion is a requirement only if a student attended a Seventh-day Adventist college or university (one unit of religion for every 12 units earned at an SDA college)
- Electives to meet the minimum total requirement of 42 units (such as: cultural anthropology, nutrition, health, life span development, Spanish, or computer science)

# Program Requirements

| | | |
|---|---|---|
| **Sophomore** | | |
| **Autumn Quarter** | | |
| AHCJ 326 | Fundamentals of Health Care | 2 |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| RTMR 202 | Clinical Orientaton | 3 |
| RTMR 224 | Legal Issues in Medical Radiography | 1 |
| RTMR 246 | Professional Communication & Presentation | 2 |
| RTMR 253 | Medical Radiography Procedures I | 3 |
| RTMR 253L | Medical Radiography Procedures Laboratory I | 1 |
| RTMR 285 | Principles of Radiography I | 3 |
| **Winter Quarter** | | |
| AHCJ 328 | Wholeness Portfolio I | 0 |
| RTMR 221 | Radiologic Patient Care | 2 |
| RTMR 254 | Medical Radiography Procedures II | 3 |
| RTMR 254L | Medical Radiography Procedures Laboratory II | 1 |
| RTMR 284 | Radiation Protection and Biology | 2 |
| RTMR 286 | Principles of Radiography II | 3 |
| RTMR 371 | Medical Radiography Affiliation I | 5 |
| **Spring Quarter** | | |
| AHCJ 328 | Wholeness Portfolio I | 1 |
| RELT 423 | Loma Linda Perspectives | 2 |
| RTMR 247 | Languages for Radiographers | 1 |
| RTMR 255 | Medical Radiography Procedures III | 2 |
| RTMR 255L | Medical Radiography Procedures Laboratory III | 1 |
| RTMR 283 | Radiologic Physics | 3 |
| RTMR 372 | Medical Radiography Affiliation II | 7 |
| **Clinical Year** | | |
| **Summer Quarter** | | |
| RTMR 373 | Medical Radiography Affiliation III | 12 |
| **Autumn Quarter** | | |
| RELR 275 | Whole Person Care | 2 |
| RTMR 305 | Introduction to Computed Tomography I | 2 |
| RTMR 325 | Radiologic Pathology | 1 |
| RTMR 374 | Medical Radiography Affiliation IV | 10 |
| **Winter Quarter** | | |
| RTMR 306 | Introduction to Computed Tomography II | 2 |
| RTMR 363 | Comprehensive Review I | 2 |
| RTMR 375 | Medical Radiography Affiliation V | 10 |
| **Spring Quarter** | | |
| RTMR 344 | Professional Development and Service Learning | 3 |
| RTMR 365 | Comprehensive Review II | 2 |
| RTMR 386 | Medical Radiography Affiliation VI | 10 |
| | **Total Units:** | **104** |

Certain aspects of the curriculum require individual scheduling. Time arrangements may be subject to change. Entrance to the clinical year is contingent upon completion of all prior requirements.

A minimum G.P.A. of 2.5 is required for each quarter in the program.

## Normal time to complete the program

Three (3) years — two (2) years (seven [7] academic quarters) at LLU — full-time enrollment required

# Nuclear Medicine Technology — B.S.

**Program director**
Raynold Ho

## The Program

Nuclear medicine uses radioactivity to diagnose and treat disease. This medical specialty provides information about both the structure and the function of virtually every major organ system within the body. Nuclear medicine procedures are safe, involve little or no patient discomfort, and do not require the use of anesthesia.

The nuclear medicine technologist is responsible for preparing and administering radio-pharmaceuticals; performing patient-imaging procedures; accomplishing computer processing and image enhancement; analyzing biologic specimens; and providing images, data analysis, and patient information for diagnostic interpretation by the physician health-care team member.

The Bachelor of Science degree with a major in nuclear medicine is a face-to-face program and is completed in 24 to 27 months. In addition to radiation sciences core courses, this program will include CT didactic courses. With the addition of the B.S. degree core, there are now 27 units taught online (less than 25 percent of the program). These courses are given by faculty members experienced in online teaching. Students will interact with the faculty, their classmates, and the content material.

Content for nuclear medicine courses is guided by the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the Nuclear Medicine Technology Certification Board (NMTCB), and the American Registry of Radiation Technologists (ARRT) content specifications. The content for the CT courses is guided by the American Society of Radiation Technologists (ASRT), as well as the American Registry of Radiation Technologists (ARRT) specifications. Efforts are also made to assist students in experiencing the core values of Loma Linda University. The state of California requires approximately 1,000 clinical hours in nuclear medicine; this program provides more than 1,550 clinical hours in nuclear medicine and more than 250 clinical hours in CT procedures and patient care.

## Objectives

During the B.S. degree in nuclear medicine technology program, students take formal coursework along with instruction in the clinical aspects of nuclear medicine. This includes participation, under close supervision, in the actual procedures within the nuclear medicine department.

Students are required to follow the guidelines given by the NMTCB and the ARRT as well as meet required competencies each quarter. Students should accomplish the required competencies in the following areas: skeletal, CNS, cardiovascular, endocrine/exocrine, gastrointestinal, genitourinary, respiratory, radiopharmacy, venipuncture, vital signs, and EKG placement and monitoring. Students will receive more than 1,550 hours of nuclear medicine and 250 hours of CT clinical experience.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate the knowledge, skills, and responsibilities necessary for the practice of nuclear medicine;
2. Practice safe, compassionate patient care, including appreciation and respect for cultural diversity;
3. Demonstrate appropriate critical-thinking, problem-solving, and decision-making skills in nuclear medicine;
4. Maintain and apply competent skills and knowledge by interacting with fellow professionals, attending educational conferences, and staying current with changing technology;
5. Apply knowledge of departmental organization and function;
6. Apply quantitative reasoning to the practice of nuclear medicine;
7. Achieve required clinical competencies for nuclear medicine.

## Professional registration and certification

Upon completion of the certificate requirements, the student is eligible to write the ARRT qualifying examination in nuclear medicine as well as the NMTCB and California (CTNM) certifying examination.

## Accreditation

The Nuclear Medicine Technology Program is accredited by the Joint Review Committee on Nuclear Medicine Technology (JRCNMT), 840 West Danforth Road, B1, Edmond, OK 73003; telephone: 405/285-0546; website: <**www.jrcnmt.org**>. The program is approved by the California Department of Public Health, Radiologic Health Branch, P.O. Box 942732, Sacramento, CA 94234-7320. Loma Linda University is also accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <https://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

## Admissions

To be eligible for admission to the BSNM program, the applicant must fulfill the following requirements: Complete the prerequisite requirements, or be a graduate of an accredited radiologic technology program who has completed the prerequisite requirements in conjunction with that program.

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Minimum of 96 quarter units that are applicable to the B.S. degree program.
- G.P.A. of 3.0 or better
- A minimum of eight hours of career observation (volunteer/employee) in a nuclear medicine department is required prior to the interview. The observation form is located online <www.llu.edu (http://www.llu.edu/)> under School of Allied Health Professions, under "forms." Print it out and take it with you to the facility you will be observing.
- Interview

### Certifications

Applicants must have all of the following certifications completed prior to the beginning of the school year.

- Current adult and child CPR card from the American Heart Association. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102. It is highly suggested that the student obtain the CPR certification prior to the start of the Nuclear Medicine Program.

## Prerequisite courses

Applicants must complete the following subjects at an accredited college or university prior to entering the program. Please note: C- grades are not transferable for credit.

**Humanities**—20 quarter (14 semester) units minimum (choose minimum of three areas from: history, literature, philosophy, foreign language, art/music appreciation or art/music history

Included in this minimum, four units of religion per year of attendance at a Seventh-day Adventist college or university

**Natural sciences**—Introductory or general chemistry with laboratory

Introductory or general physics with laboratory

Human anatomy and physiology with laboratory, complete sequence, two courses

College algebra (statistics does not qualify)

**Social Sciences**—Minimum of 12 quarter units to include:

General psychology (four quarter/three semester units) required

Choose remaining units from the following areas: sociology, anthropology, economics, and geography.

**Communication**—12 units English composition, complete sequence (required)

Oral communication, speech preferred, interpersonal communication is accepted

**Health and Wellness**—Physical education (two activities) health or nutrition

**Other**—Medical terminology

**Electives**—Meet minimum total of 96 quarter units

The diversity requirement (anthropology) is fulfilled in the portfolio core courses: AHCJ 493 Senior Portfolio I and AHCJ 494 Senior Portfolio II (approved by the University GE Committee).

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

# Program requirements

## ARRT certified students

| | | |
|---|---|---|
| **First Year** | | |
| **Autumn Quarter** | | |
| AHCJ 493 | Senior Portfolio I | 3 |
| RELE 456 | Personal and Professional Ethics | 3 |
| RTCH 318 | Imaging Modalities | 2 |
| RTCH 464 | Moral Leadership | 3 |
| RTNM 351 | Principles of Nuclear Medicine I | 4 |
| RTNM 351L | Principles of Nuclear Medicine I Laboratory | 1 |
| **Winter Quarter** | | |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTNM 352 | Principles of Nuclear Medicine II | 4 |
| RTNM 352L | Principles of Nuclear Medicine II Laboratory | 1 |
| RTNM 353 | Nuclear Medicine Procedures I | 2 |
| RTNM 353L | Nuclear Medicine Procedures Laboratory | 1 |
| RTNM 364 | Nuclear Medicine Statistics | 3 |
| RTNM 430 | Clinical Affiliation Introduction | 1 |
| **Spring Quarter** | | |
| RTNM 354 | Nuclear Medicine Procedures II | 2 |
| RTNM 354L | Nuclear Medicine Procedures II Laboratory | 1 |
| RTNM 357 | Instrumentation I | 4 |
| RTNM 357L | Instrumentation I Laboratory | 1 |
| RTNM 361 | Radiopharmacy I | 3 |
| RTNM 431 | Clinical Affiliation I | 2 |
| **Second Year** | | |
| **Summer Quarter** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| RTCH 305 | CT Fundamentals | 2 |
| RTNM 358 | Instrumentation II | 4 |
| RTNM 358L | Instrumentation II Laboratory | 1 |
| RTNM 362 | Radiopharmacy II | 3 |
| RTNM 432 | Clinical Affiliation II | 3 |
| **Autumn Quarter** | | |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RTCH 385 | Radiologic Trends in Health Care | 2 |
| RTNM 363 | Nuclear Cardiology | 3 |
| RTNM 433 | Clinical Affiliation III | 4 |
| RTSI 367[1] | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369[1] | CT Physics | 2 |
| **Winter Quarter** | | |
| RELT 436 | Adventist Heritage and Health | 2 |
| RTCH 489 | Effective Communication for Supervisors | 3 |
| RTNM 355 | PET/CT | 2 |
| RTNM 366 | Medical Informatics | 1 |
| RTNM 434 | Clinical Affiliation IV | 4 |
| RTSI 364[1] | CT Patient Care and Procedures | 2 |
| **Spring Quarter** | | |
| RTCH 415 | Radiation Emergency Procedures | 3 |
| RTCH 485 | Digital Management in Radiology | 3 |
| RTNM 421 | Comprehensive Review of Nuclear Medicine I | 3 |
| RTNM 435 | Clinical Affiliation V | 4 |
| **Third Year** | | |
| **Summer Quarter** | | |
| AHCJ 494[2] | Senior Portfolio II | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTNM 422 | Comprehensive Review of Nuclear Medicine II | 3 |
| RTNM 436 | Clinical Affiliation VI | 4 |
| | **Total Units:** | **116** |

[1] The CT sequence (RTSI 364, RTSI 367, RTSI 369) may be substituted with the CT sequence (RTMR 305 Introduction to Computed Tomography I, RTMR 306 Introduction to Computed Tomography II, and RTSI 307 Introduction to Computed Tomography) completed by LLU's ASMR students.

[2] Fulfills service learning requirement

## Non-ARRT certified students

| | | |
|---|---|---|
| **First Year** | | |
| **Summer Quarter** | | **Units** |
| AHCJ 326 | Fundamentals of Health Care | 2 |
| RTCH 283 | Basic Imaging | 2 |
| RTCH 283L | Radiation Clinical Basics Laboratory | 1 |
| RTCH 285 | The Principles and Physics of Radiation | 4 |
| RTMR 224 | Legal Issues in Medical Radiography | 1 |
| RTMR 284 | Radiation Protection and Biology | 2 |
| **Autumn Quarter** | | |
| AHCJ 493 | Senior Portfolio I | 3 |
| RELE 456 | Personal and Professional Ethics | 3 |
| RTCH 318 | Imaging Modalities | 2 |
| RTCH 464 | Moral Leadership | 3 |
| RTNM 351 | Principles of Nuclear Medicine I | 4 |
| RTNM 351L | Principles of Nuclear Medicine I Laboratory | 1 |
| **Winter Quarter** | | |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTNM 352 | Principles of Nuclear Medicine II | 4 |
| RTNM 352L | Principles of Nuclear Medicine II Laboratory | 1 |
| RTNM 353 | Nuclear Medicine Procedures I | 2 |
| RTNM 353L | Nuclear Medicine Procedures Laboratory | 1 |
| RTNM 364 | Nuclear Medicine Statistics | 3 |
| RTNM 430 | Clinical Affiliation Introduction | 1 |
| **Spring Quarter** | | |
| RTNM 354 | Nuclear Medicine Procedures II | 2 |
| RTNM 354L | Nuclear Medicine Procedures II Laboratory | 1 |
| RTNM 357 | Instrumentation I | 4 |
| RTNM 357L | Instrumentation I Laboratory | 1 |
| RTNM 361 | Radiopharmacy I | 3 |
| RTNM 431 | Clinical Affiliation I | 2 |
| **Second Year** | | |
| **Summer Quarter** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| RTCH 305 | CT Fundamentals | 2 |
| RTNM 358 | Instrumentation II | 4 |
| RTNM 358L | Instrumentation II Laboratory | 1 |
| RTNM 362 | Radiopharmacy II | 3 |
| RTNM 432 | Clinical Affiliation II | 3 |
| **Autumn Quarter** | | |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RTCH 385 | Radiologic Trends in Health Care | 2 |
| RTNM 363 | Nuclear Cardiology | 3 |
| RTNM 433 | Clinical Affiliation III | 4 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| **Winter Quarter** | | |
| RELT 436 | Adventist Heritage and Health | 2 |
| RTCH 489 | Effective Communication for Supervisors | 3 |
| RTNM 355 | PET/CT | 2 |
| RTNM 366 | Medical Informatics | 1 |
| RTNM 434 | Clinical Affiliation IV | 4 |
| RTSI 364 | CT Patient Care and Procedures | 2 |
| **Spring Quarter** | | |
| RTCH 485 | Digital Management in Radiology | 3 |
| RTCH 415 | Radiation Emergency Procedures | 3 |
| RTNM 421 | Comprehensive Review of Nuclear Medicine I | 3 |
| RTNM 435 | Clinical Affiliation V | 4 |
| **Third Year** | | |
| **Summer Quarter** | | |
| AHCJ 494[1] | Senior Portfolio II | 3 |
| RTNM 422 | Comprehensive Review of Nuclear Medicine II | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTNM 436 | Clinical Affiliation VI | 4 |
| | **Total Units:** | **128** |

[1] Fulfills service learning requirement

A minimum grade of C (2.0) is required for all courses in this program.

## Normal time to complete the program

Four (4) years — Based on full-time enrollment, a student who is a radiologic technologist (ARRT) completes the LLU portion of the program in eight (8) quarters (24 months). A student who is not a radiologic technologist (Non-ARRT) starts one quarter earlier and will complete in nine (9) quarters (27 months).

## Comparison

See the comparison (p. 134) of the ARRT certified students and Non-ARRT certified students tracks of this program.

* For the CT sequence, students must take one of the two sets of CT courses : RTSI 367 Cross-sectional Radiographic Anatomy, RTSI 369 CT Physics and RTSI 364 CT Patient Care and Procedures or RTMR 305 Introduction to Computed Tomography I, RTMR 306 Introduction to Computed Tomography II and RTSI 307 Introduction to Computed Tomography (LLU ASMR Students only).

# Nuclear Medicine Technology B.S.— ARRT and Non-ARRT Certified Students Comparison

| | Course Title | ARRT Certified | Non-ARRT Certified |
|---|---|---|---|
| **First Year: Summer Quarter** | | | |
| AHCJ 326 | Fundamentals of Health Care | | 2.0 |
| RTCH 283 | Basic Imaging | | 2.0 |
| RTCH 283L | Radiation Clinical Basics Laboratory | | 1.0 |
| RTCH 285 | The Principles and Physics of Radiation | | 4.0 |
| RTMR 224 | Legal Issues in Medical Radiography | | 1.0 |
| RTMR 284 | Radiation Protection and Biology | | 2.0 |
| **Totals** | | | **12.0** |
| | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| **First Year: Autumn Quarter** | | | |
| AHCJ 493 | Senior Portfolio I | 3.0 | 3.0 |
| RELE 456 | Personal and Professional Ethics | 3.0 | 3.0 |
| RTCH 318 | Imaging Modalities | 2.0 | 2.0 |
| RTCH 464 | Moral Leadership | 3.0 | 3.0 |
| RTNM 351 | Principles of Nuclear Medicine I | 4.0 | 4.0 |
| RTNM 351L | Principles of Nuclear Medicine I Laboratory | 1.0 | 1.0 |
| **Totals** | | **16.0** | **16.0** |
| | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| **First Year: Winter Quarter** | | | |
| RTCH 387 | Writing for Health-Care Professionals | 3.0 | 3.0 |
| RTNM 352 | Principles of Nuclear Medicine II | 4.0 | 4.0 |
| RTNM 352L | Principles of Nuclear Medicine II Laboratory | 1.0 | 1.0 |
| RTNM 353 | Nuclear Medicine Procedures I | 2.0 | 2.0 |
| RTNM 353L | Nuclear Medicine Procedures Laboratory | 1.0 | 1.0 |
| RTNM 364 | Nuclear Medicine Statistics | 3.0 | 3.0 |
| RTNM 430 | Clinical Affiliation Introduction | 1.0 | 1.0 |
| **Totals** | | **15.0** | **15.0** |
| | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| **First Year: Spring Quarter** | | | |
| RTNM 354 | Nuclear Medicine Procedures II | 2.0 | 2.0 |
| RTNM 354L | Nuclear Medicine Procedures II Laboratory | 1.0 | 1.0 |
| RTNM 357 | Instrumentation I | 4.0 | 4.0 |
| RTNM 357L | Instrumentation I Laboratory | 1.0 | 1.0 |
| RTNM 361 | Radiopharmacy I | 3.0 | 3.0 |
| RTNM 431 | Clinical Affiliation I | 2.0 | 2.0 |
| **Totals** | | **13.0** | **13.0** |
| | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| **Second Year: Summer Quarter** | | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3.0 | 3.0 |
| RTCH 305 | CT Fundamentals | 2.0 | 2.0 |
| RTNM 358 | Instrumentation II | 4.0 | 4.0 |
| RTNM 358L | Instrumentation II Laboratory | 1.0 | 1.0 |
| RTNM 362 | Radiopharmacy II | 3.0 | 3.0 |
| RTNM 432 | Clinical Affiliation II | 3.0 | 3.0 |
| **Totals** | | **16.0** | **16.0** |
| | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| **Second Year: Autumn Quarter** | | | |
| RELR 409 | Christian Perspectives on Death and Dying | 3.0 | 3.0 |

| | | | |
|---|---|---|---|
| RTCH 385 | Radiologic Trends in Health Care | 2.0 | 2.0 |
| RTNM 363 | Nuclear Cardiology | 3.0 | 3.0 |
| RTNM 433 | Clinical Affiliation III | 4.0 | 4.0 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2.0 | 2.0 |
| RTSI 369 | CT Physics | 2.0 | 2.0 |
| **Totals** | | **16.0** | **16.0** |
| **Second Year: Winter Quarter** | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| RELT 436 | Adventist Heritage and Health | 2.0 | 2.0 |
| RTCH 489 | Effective Communication for Supervisors | 3.0 | 3.0 |
| RTNM 355 | PET/CT | 2.0 | 2.0 |
| RTNM 366 | Medical Informatics | 1.0 | 1.0 |
| RTNM 434 | Clinical Affiliation IV | 4.0 | 4.0 |
| RTSI 364 | CT Patient Care and Procedures | 2.0 | 2.0 |
| **Totals** | | **14.0** | **14.0** |
| **Second Year: Spring Quarter** | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| RTCH 415 | Radiation Emergency Procedures | 3.0 | 3.0 |
| RTCH 485 | Digital Management in Radiology | 3.0 | 3.0 |
| RTNM 421 | Comprehensive Review of Nuclear Medicine I | 3.0 | 3.0 |
| RTNM 435 | Clinical Affiliation V | 4.0 | 4.0 |
| **Totals** | | **13.0** | **13.0** |
| **Third Year: Summer Quarter** | **Course Title** | **ARRT Certified** | **Non-ARRT Certified** |
| AHCJ 494 | Senior Portfolio II | 3.0 | 3.0 |
| RTCH 467 | Management of a Radiologic Service | 3.0 | 3.0 |
| RTNM 422 | Comprehensive Review of Nuclear Medicine II | 3.0 | 3.0 |
| RTNM 436 | Clinical Affiliation VI | 4.0 | 4.0 |
| **Totals** | | **13.0** | **13.0** |
| **Overall Totals** | | **116.0** | **128.0** |

# Radiation Sciences — B.S.

**Program director**
Timothy Seavey

**Assistant program director**
Kathryn Cockrill

## The program

The Bachelor of Science degree in radiation sciences provides imaging professionals with the foundational education necessary for advancement into career possibilities that include advanced imaging modalities; graduate degrees; professional advancement into entry management, education in imaging, and imaging informatics positions.

The baccalaureate degree comprises a minimum of 192 quarter units in the following:

- Loma Linda University general education requirements.
- Professional certification in an imaging modality (entry-level imaging degree).
- Radiation science core requirements.*
- An area of emphasis: administration*, education*, advanced imaging modalities, science, or imaging informatics.*
- E-portfolio that comprises academic and professional work, a signature project, and service learning.

*online

Electives to meet the needs of individual students are selected from existing courses after consultation with the program director.

Students have the ability to customize their programs by choosing an area of emphasis for their studies. Emphases include: administration, education, imaging informatics (PACS administration), science, or advanced imaging modalities (diagnostic sonography, cardiac sonography, computed tomography, magnetic resonance imaging, cardiac imaging, vascular imaging, radiation therapy, nuclear medicine, or dosimetry). Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

### Program objectives

1. Graduate managers and educators who contribute to the imaging disciplines through service and leadership.
2. Graduate leaders who advocate for excellence in patient care.

### Program learning outcomes

Upon completion of the curriculum, the graduate should be able to:

1. Develop meaningful interactions in health care;
2. Demonstrate moral leadership;
3. Discuss health-care advancement and sustainability;
4. Apply emotional intelligence and leadership skills;
5. Integrate concepts from chosen area of emphasis .

## CPR certification

Students taking a clinically based emphasis are required to have current health-care provider adult, child, and infant cardiopulmonary resuscitation (CPR) certification for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. This may be completed prior to beginning the program of study or be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102; telephone, 909/558-4977.

## Accreditation

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

## Admissions

Applications are accepted year-round and applicants may enter the B.S. degree program at the start of any quarter. Contact the program director for advisement. Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must meet the following requirements:

- an associate degree or a minimum of 72-96 degree transferable units per program director approval;
- be a graduate of an approved program in radiologic technology, computed tomography, magnetic resonance imaging, radiation therapy, nuclear medicine, cardiac and/ or vascular imaging, or sonography (ultrasound); and
- have a certification from the American Registry of Radiologic Technologists (ARRT), American Registry for Diagnostic Medical Sonography (AB, BR, FE, OB/GYN, PS, AE, PT, and /or VT), or an equivalent specialty credential.

Applicants who are eligible to take the ARRT (R) or ARDMS specialty examination for certification/credential but who have not had the opportunity to do so are given provisional status for one quarter. Eligibility to continue is subject to the student obtaining certification. The University will not sign or validate registry documents of students who obtained their training in another program.

### Prerequisites/corequisites

A maximum of 70 semester or 105 quarter didactic units from an accredited community college will be accepted as transfer credit. Students who have completed a program with the same programmatic accreditation as LLU's program, are allowed up to 50 junior college-level quarter units of academic credit on the basis of their registry license. Students should be within 12 quarter units of completion of general education (GE) requirements in order to be considered for the Bachelor of Science core program OR have developed an academic plan with the program director. For a complete listing of general education requirements, see LLU General Education Requirements (p. 27). Following is a list of specific requirements and the general education domain to which they apply:

#### Domain 1: Religion and Humanities (20 quarter or 14 semester units)

**Humanities (12-20 quarter or 8-14 semester units)**
Selected from at least three of the following content areas: Civilization/history, fine arts, performing/visual arts (not to exceed four quarter credits), literature, modern language, philosophy, general humanities elective.

**Religion (0-8 quarter or 0-6 semester units)**
An applicant who has attended a Seventh-day Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each full year equivalent (48 quarter units/32 semester units) of attendance at an Adventist college or university. If the applicant has not attended an Adventist institution, no religion units are required. In either case, however, the applicant must have completed 20 quarter or 14 semester units in Domain 1: Religion and Humanities.

#### Domain 2: Scientific inquiry and analysis (24-32 quarter or 16-22 semester units)

**Natural Sciences (minimum of 12 quarter or 8 semester units)**
Intermediate algebra or high school algebra II (not counted toward domain total)

Must be selected from two content areas.

Human anatomy and physiology with laboratory, one semester/quarter minimum; or general biology with laboratory, one semester/quarter minimum.

Remaining units may be selected from the following content areas: chemistry, geology, mathematics, physics, and statistics.

**Social sciences (minimum of 12 quarter or 8 semester units)**
Units must be selected from two content areas: anthropology, economics, geography, political sciences, psychology, and sociology.

Note: The B.S. degree program is approved to meet the cultural diversity requirement of the University in lieu of cultural anthropology.

#### Domain 3: Communication (9-13 quarter or 6-9 semester units)

English composition (complete sequence).

Remaining courses may be selected from the following content areas: computer information systems, critical thinking, and public speaking.

#### Domain 4: Health and Wellness (2-6 quarter or 1.5-4 semester units)

Personal health or nutrition (one course).

Physical education (two separate physical activity courses).

#### Domain 5: Electives

To meet the minimum requirement of 72-96 quarter units required for matriculation, electives may be selected from the previous four domains. For more information regarding GE requirements for graduation, see LLU general education requirements (p. 26).

# Program requirements

| | | |
|---|---|---|
| **Core (30 units)** [1] | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| AHCJ 493 | Senior Portfolio I | 3 |
| AHCJ 494 | Senior Portfolio II [5] | 3 |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| RTCH 385 | Radiologic Trends in Health Care | 2 |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTCH 464 | Moral Leadership | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTCH 485 | Digital Management in Radiology | 3 |
| RTCH 489 | Effective Communication for Supervisors | 3 |
| **Religion (4 - 16 units)** [2] | | |
| RELT 423 | Loma Linda Perspectives (Choose one course) | 2 or 3 |
| or RELT 436 | Adventist Heritage and Health | |
| or RELT 437 | Current Issues in Adventism | |
| or RELT 406 | Adventist Beliefs and Life | |
| REL_4__ Religion Elective | | 2-6 |
| **Area of emphasis** [3] | | **12-24** |
| **Electives** [4] | | **0-34** |
| **Total Units** | | **96** |

1 Core courses are online.

2 Students are required to take one of the required RELT courses listed above. Total units required are based on the percentage of course work from an SDA college/university. The maximum requirement is 16 units, including transfer units.

3 Select from options listed below.

4 Remaining units required to fulfill the 192 units required for the baccalaureate degree may be obtained from remaining emphases and other available courses offered at Loma Linda University.

5 Fulfills service learning requirement

## Area of emphasis: administration

| | | |
|---|---|---|
| HCAD 374 | Health-Care Human Resources | 3 |
| HCAD 401 | Health-Care Operations Management | 3 |
| HCBL 346 | Legal and Ethical Environment in Health Care | 3 |
| HCBL 434 | Financial Management for Health Care | 3 |
| RTCH 414 | Practicum in Radiation Sciences | 3 |
| RTCH 418 | Health Information Management and Radiology Coding for Radiology Managers | 3 |
| RTED 474 | Instructional Techniques for the Radiation Sciences | 3 |
| RTII 358 | PACS Planning and Implementation | 3 |
| **Total Units** | | **24** |

## Area of emphasis: education

| | | |
|---|---|---|
| HCAD 401 | Health-Care Operations Management | 3 |
| HCBL 346 | Legal and Ethical Environment in Health Care | 3 |
| RTCH 414 | Practicum in Radiation Sciences | 3 |
| RTED 474 | Instructional Techniques for the Radiation Sciences | 3 |
| RTED 475 | Curriculum Development for the Radiation Sciences | 3 |
| RTED 476 | Adult Learning Theory for the Radiation Science Student | 3 |
| RTED 477 | Learning Activities and Assessment for the Radiation Sciences | 3 |
| RTED 485 | Digital Design for the Radiation Sciences | 3 |
| **Total Units** | | **24** |

## Area of emphasis: imaging informatics

| | | |
|---|---|---|
| HCAD 401 | Health-Care Operations Management | 3 |
| RTCH 418 | Health Information Management and Radiology Coding for Radiology Managers | 3 |
| RTED 474 | Instructional Techniques for the Radiation Sciences | 3 |
| RTII 354 | Introduction to Informatics | 3 |
| RTII 356 | Information Technology in Radiology | 3 |
| RTII 358 | PACS Planning and Implementation | 3 |
| RTII 378 | Systems Management in Informatics | 3 |
| RTII 384 | Advanced Imaging Informatics | 1 |
| RTII 386 | Certification Exam Review | 2 |
| **Total Units** | | **24** |

## Area of emphasis: cardiovascular imaging (CVI)

Students may select CI, VI, or both.

| | | |
|---|---|---|
| AHCJ 402 | Pathology I [1, 2] | 4 |
| CEPT 245 | Cardiovascular Anatomy and Physiology [1] | 3 |
| CEPT 251 | Cardiac Electrophysiology and Rhythm Recognition I [1] | 2 |
| CEPT 252 | Cardiac Electrophysiology and Rhythm Recognition II [1] | 2 |
| RTSI 344 | Interventional Pharmacology [1, 2] | 4 |
| RTSI 345 | Cardiac/Interventional Procedures [1] | 3 |
| RTSI 351 | Angio/Interventional Procedures I [2] | 3 |
| RTSI 352 | Angio/Interventional Procedures II [2] | 3 |
| RTSI 356 | Vascular Anatomy and Physiology [2] | 3 |
| RTSI 359 | Vascular Imaging Review [2] | 1 |
| RTSI 360 | Cardiac Imaging Review [1] | 1 |
| Clinical Affiliation [4] | | 12 |
| RTCH 456 | Cardiac Interventional Clinical Affiliation [1, 3] | |
| RTCH 457 | Vascular Interventional Clinical Affiliation [2, 3] | |
| **Total Units** | | **41** |

1 Required for cardiac interventional (CI). Total units 28

2 Required for vascular interventional (VI ). Total units 27

3 Multiple registrations required to meet unit requirement.

4 Students pursuing both CI & VI are required to complete 12 units (6 units of RTCH 456 Cardiac Interventional Clinical Affiliation and 6 units of RTCH 457 Vascular Interventional Clinical Affiliation). Students pursuing only one emphasis (i.e., CI or VI) will complete 9 affiliation units in the designated emphasis.

### Area of emphasis: Special Imaging CT/MRI

Students may select CT, MRI, or both.

| | | |
|---|---|---|
| RTSI 361 | MRI Physics I [2] | 2 |
| RTSI 362 | MRI Physics II [2] | 2 |
| RTSI 364 | CT Patient Care and Procedures [1] | 2 |
| RTSI 365 | MRI Patient Care and Procedures [2] | 2 |
| RTSI 367 | Cross-sectional Radiographic Anatomy [1, 2] | 2 |
| RTSI 369 | CT Physics [1] | 2 |
| Clinical affiliation [4] | | 12 |
| RTCH 454 | Computed Tomography Clinical Affiliation [1, 3] | |
| RTCH 455 | Magnetic Resonance Imaging Clinical Affiliation [2, 3] | |
| **Total Units** | | **24** |

[1] Required for Computed Tomography (CT). Total 12 units

[2] Required for Magnetic Resonance Imaging (MRI). Total 14 units

[3] Multiple registrations required to meet unit requirement.

[4] Students pursuing both CT & MRI are required to complete 12 units (6 units of RTCH 454 Computed Tomography Clinical Affiliation and 6 units of RTCH 455 Magnetic Resonance Imaging Clinical Affiliation). Students pursuing only one emphasis (i.e., CT or MRI) will complete 6 affiliation units in the designated affiliation.

### Area of emphasis: Science (15-20 units)

15-20 quarter units selected from the natural sciences in the areas of biology, microbiology, chemistry, math, statistics, or physics. Courses must be taken from two different content areas with the approval of the program director. Introductory sequences are not accepted. These courses are taken at your local college/university. A minimum grade of C +(2.3) is required for all courses.

### Area of emphasis: Clinical Practice (12-31 units)

The didactic (not including clinical units) coursework from a clinically-based imaging specialty (from the list below) may be transferred into a clinical practice emphasis. Any clinical practice emphasis requires licensure from the ARRT, NMTCB, or ARDMS:

- Diagnostic Sonography (ARDMS)
- Cardiac Sonography (ARDMS)
- Nuclear Medicine (NMTCB and/or ARRT)
- Special Imaging (Computed Tomography and/or Magnetic Resonance Imaging)(ARRT). Students with special imaging coursework totaling less than 12 units (not including clinical units) must take additional science or didactic emphasis courses to complete the emphasis. Courses must be approved by the program director.
- Radiation Therapy Technology (ARRT)
- Cardiac Interventional and/or Vascular Interventional (ARRT)

* Didactic coursework should come from an accredited institution. Coursework from a nonaccredited institution will be considered on a case basis by the program director.

## Normal time to complete the program

Four (4) years - Two (2) years ([8] academic quarters) at LLU — based on full-time enrollment; part time permitted

# Radiation Sciences — M.S.R.S.

**Program director**
Mike Iorio

## The program

The faculty of the Master of Science in Radiation Sciences (M.S.R.S.) degree program are committed to educating and expanding the knowledge and expertise of radiology health professionals by providing opportunities online for students to advance their skills in leadership, management, administration, and education.

## Mission statement

The mission of the M.S.R.S. degree program is to provide students with an enhanced understanding of leadership, management, administration, and education, preparing them to serve humanity as professionals and leaders in radiation technology environments.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate leadership and reflective thinking in the areas of management, administration, and education;
2. Behave in a professional manner in all interactions—including use of written and oral communications with patients, colleagues, and others;
3. Participate in educational research and professional activities, share knowledge with colleagues, and investigate new and innovative aspects of professional practice;
4. Apply advanced practice in managerial, administrative, or educational realms.

## Program design

The online M.S.R.S. program is a two-year, 45-unit, part-time program. This seven-quarter (79 academic weeks) program begins in Autumn Quarter and concludes at the end of the second Spring Quarter. Students are expected to complete six to seven units each quarter for seven quarters. An accelerated one-year option beginning in the Summer Quarter is available for qualified applicants. Students enroll in the same courses and there are no areas of emphasis. Students are expected to participate in the graduation ceremony on campus. The program faculty utilizes a learning management system to host courses, and email is the primary communication mechanism among faculty members and students.

# Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Bachelor's degree from an accredited institution (international degrees must be evaluated for U.S. equivalency)
- Minimum G.P.A. of 3.0.
- Certification by the American Registry of Radiologic Technologists (or equivalent) in a radiation sciences discipline.
- Two- to three-page essay describing personal and professional skills and accomplishments, interests, and how earning the M.S.R.S. degree will help achieve career goals. This essay is included in the online application process.

- Phone interview (to be scheduled after application has been submitted).
- Recommended courses: statistics and research methods.

## Program requirements

| Required | | |
|---|---|---|
| AHCJ 550 | Organizational Theory | 3 |
| AHCJ 566 | Theoretical Foundations of Leadership | 3 |
| AHCJ 567 | Personal Leadership | 3 |
| AHCJ 576 | Basics of Marketing | 1 |
| AHCJ 579 | Instructional Effectiveness | 3 |
| AHCJ 586 | Curricula Planning in Health Sciences | 3 |
| AHCJ 588 | Fundamentals of Human Resource Management | 3 |
| AHCJ 589 | Strategic Planning in Health-Care Organizations | 3 |
| AHRM 514 | Biostatistics | 3 |
| IDMT 521 | Instructional Design I | 3 |
| RELE 524 | Bioethics and Society | 3 |
| RTRA 519 | Medical-Legal Issues in Radiology | 1 |
| RTRA 614 | Professional Portfolio [1] | 1 |
| RTRS 578 | Health-Care Financial Management | 3 |
| RTRS 584 | Management of Imaging Informatics | 3 |
| RTRS 621 | Capstone Project I | 3 |
| RTRS 622 | Capstone Project II | 3 |
| **Total Units** | | **45** |

[1] Fulfills service learning requirement

### Professional portfolio

Students will complete a professional portfolio while pursuing the degree. The portfolio will contain evidence of growth and learning achieved throughout the program.

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) based on three-quarter-time enrollment

# Radiation Therapy Technology — BS

**Program director**
Carol A. L. Davis

**Clinical coordinator**
Noriece Kisinger

Radiation therapy, or radiation oncology, is the medical use of ionizing radiation to treat cancer and control malignant cell growth. Radiation therapy is commonly combined with other modes of treatment for cancer, such as surgery, chemotherapy, and hormone therapy. Radiation therapists should be able to think critically, be proficient with computers, and able to work with a treatment team. Patient care and empathy are also important assets. The program is intended for radiographers or other allied health, patient-centered professionals who seek additional specialization, or for students with an A.S. degree in a science-based subject who meet the prerequisites.

## Mission

The mission of the Bachelor of Science degree in radiation therapy program is to prepare professionals in the field of radiation therapy who have received broad education and training in all aspects of the profession. This will include critical thinking, clinical competence, effective communication, and professionalism as they apply to the field of radiation therapy. The program encourages intellectual, physical, social, and spiritual development by emphasizing these in its curriculum —all of which reflect the motto of Loma Linda University Health, "To Make Man Whole."

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Monitor changes in patient condition;
2. Interpret the isocenter shift from CT simulation data to treatment-planning data;
3. Apply critical thinking skills to analyze complex issues;
4. Perform daily QA;
5. Check that dosimetry data are accurately transferred to the electronic chart;
6. Recognize treatment changes;
7. Demonstrate effective verbal communications skills;
8. Demonstrate effective written communication skills;
9. Treat all persons with respect;
10. Demonstrate knowledge of HIPAA;
11. Accept responsibility and accountability for actions;
12. Demonstrates quantitative reasoning.

## CPR certification

Students are required to have current health-care provider adult, child, and infant cardiopulmonary resuscitation (CPR) certification for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level and must be completed prior to beginning the program of study. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Accreditation

The program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Wacker Drive, Suite 900, Chicago, IL 60606-2901; telephone: 312/704-5300; website: <www.jrcert.org (http://www.jrcert.org)>.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Prerequisite courses as listed below.
- Must be either an ARRT registered radiographer (two-year minimum degree), a graduate of an accredited Allied Health Program with patient care experience (two-year minimum degree), or an associate degree (science area preferred), or the equivalent, and complete the following subjects at an accredited college or university prior to entering the program.
- 24 hours of career observation in a radiation oncology department.
- GPA of 3.0 or better, higher is more competitive.

- Admissions essay.
- Interview.

## Prerequisite courses

Applicants must complete the following subjects at an accredited college or university prior to entering the program. C- grades are not transferable for credit.

**Humanities** – 20 units minimum are needed prior to program entry. Choose a minimum of three areas from the following subjects: history, literature, philosophy, foreign language, art/music appreciation/history. Included in this minimum are four units of religion per year of attendance at a Seventh-day Adventist college or university. Eight units of religion are included in the B.S. degree core as a co-requisite. A total of 28 quarter units are required.

**Natural Sciences** – The study of natural sciences must include a minimum of 12 units.

- Human anatomy and physiology with laboratory, complete sequence (required).
- College algebra (within three years with a minimum grade of B) (required).
- Introduction to physics (required).
- Select from the following content areas: biology, chemistry, geology, mathematics, physics, and statistics.

**Social Science** – must have a total of 12 quarter units of social science.

- General psychology (required)
- Select additional units from: economics, geography, political science, psychology, sociology, or anthropology.

**Communication –** A minimum of nine units are needed to complete this area.

- English composition, complete sequence.
- Speech

**Health and Wellness** – Personal health or nutrition and two physical activity courses are required to meet the minimum of three quarter units.

**Other required courses:**

- Medical terminology
- Radiation physics, radiation protection, principles of radiography, and patient care methods - available, as part of the program, for non-ARRT students the first Summer Quarter (ARRT students start Autumn Quarter).

**Electives** – may be needed to meet the minimum requirements of 192 quarter units. A minimum of 68 quarter units must be taken from general education areas listed above (i.e., humanities, natural sciences, social sciences, communication, and health and wellness). A maximum of 105 quarter units may be transferred from a community/junior college.

- ARRT-certified students will earn 89 units in the program. (prerequisite units required: 102 quarter/68 semester)
- non-ARRT-certified students will earn 103 units in the program. (prerequisite units required: 90 quarter/60 semester)

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

# Program requirements

## ARRT certified students

| | | |
|---|---|---|
| **First Year** | | |
| **Autumn Quarter** | | |
| AHCJ 493 | Senior Portfolio I | 3 |
| RTTH 344 | Radiation Therapy Procedures | 2 |
| RTTH 355 | Physical Principles of Radiation Therapy I | 3 |
| RTTH 364 | Radiation Oncology I | 2 |
| RTTH 371 | Radiation Therapy Affiliation I | 2 |
| **Winter Quarter** | | |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTTH 342 | Patient-Care Practices in Radiation Therapy | 2 |
| RTTH 356 | Physical Principles of Radiation Therapy II | 3 |
| RTTH 365 | Radiation Oncology II | 2 |
| RTTH 372 | Radiation Therapy Affiliation II | 3 |
| **Spring Quarter** | | |
| AHCJ 403 | Pathology II | 3 |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| RTTH 332 | Radiation Biology | 2 |
| RTTH 357 | Applied Dosimetry | 2 |
| RTTH 366 | Radiation Oncology III | 2 |
| RTTH 373 | Radiation Therapy Affiliation III | 3 |
| **Second Year** | | |
| **Summer Quarter** | | |
| RELT 406 | Adventist Beliefs and Life | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTTH 354 | Quality Assurance in Radiation Therapy | 2 |
| RTTH 474 | Radiation Therapy Affiliation IV | 5 |
| **Autumn Quarter** | | |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RTSI 367[1] | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369[1] | CT Physics | 2 |
| RTTH 475 | Radiation Therapy Affiliation V | 5 |
| **Winter Quarter** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| RELT 415 | Christian Theology and Popular Culture | 2 |
| RTCH 464 | Moral Leadership | 3 |
| RTSI 364[1] | CT Patient Care and Procedures | 2 |
| RTTH 476 | Radiation Therapy Affiliation VI | 4 |
| **Spring Quarter** | | |
| AHCJ 494[2] | Senior Portfolio II | 3 |
| RTTH 348 | Radiation Therapy Review | 2 |
| RTTH 477 | Radiation Therapy Affiliation VII | 4 |
| | **Total Units:** | **89** |

1 The CT sequence (RTSI 364, RTSI 367, RTSI 369) may be substituted with the CT sequence (RTMR 305 Introduction to Computed Tomography I, RTMR 306 Introduction to Computed Tomography II, and RTSI 307 Introduction to Computed Tomography Completion Course) completed by LLU's ASMR students.

2 Fulfills service learning requirement

### Non-ARRT certified students

| | | |
|---|---|---|
| **First Year** | | |
| **Summer Quarter** | | **Units** |
| AHCJ 326 | Fundamentals of Health Care | 2 |
| RTCH 283 | Basic Imaging | 2 |
| RTCH 283L | Radiation Clinical Basics Laboratory | 1 |
| RTCH 285 | The Principles and Physics of Radiation | 4 |
| RTMR 224 | Legal Issues in Medical Radiography | 1 |
| RTMR 284 | Radiation Protection and Biology | 2 |
| RTCH 305 | CT Fundamentals | 2 |
| **Autumn Quarter** | | |
| AHCJ 493 | Senior Portfolio I | 3 |
| RTTH 344 | Radiation Therapy Procedures | 2 |
| RTTH 355 | Physical Principles of Radiation Therapy I | 3 |
| RTTH 364 | Radiation Oncology I | 2 |
| RTTH 371 | Radiation Therapy Affiliation I | 2 |
| **Winter Quarter** | | |
| RTCH 387 | Writing for Health-Care Professionals | 3 |
| RTTH 342 | Patient-Care Practices in Radiation Therapy | 2 |
| RTTH 356 | Physical Principles of Radiation Therapy II | 3 |
| RTTH 365 | Radiation Oncology II | 2 |
| RTTH 372 | Radiation Therapy Affiliation II | 3 |
| **Spring Quarter** | | |
| AHCJ 403 | Pathology II | 3 |
| AHRM 475 | Health-Care Research and Statistics | 4 |
| RTTH 332 | Radiation Biology | 2 |
| RTTH 357 | Applied Dosimetry | 2 |
| RTTH 366 | Radiation Oncology III | 2 |
| RTTH 373 | Radiation Therapy Affiliation III | 3 |
| **Second Year** | | |
| **Summer Quarter** | | |
| AHCJ 318 | Emotional Intelligence and Leadership Skills for Health-Care Professionals | 3 |
| RELT 406 | Adventist Beliefs and Life | 3 |
| RTTH 474 | Radiation Therapy Affiliation IV | 5 |
| RTTH 354 | Quality Assurance in Radiation Therapy | 2 |
| **Autumn Quarter** | | |
| RELR 409 | Christian Perspectives on Death and Dying | 3 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| RTTH 475 | Radiation Therapy Affiliation V | 5 |
| **Winter Quarter** | | |
| RELT 415 | Christian Theology and Popular Culture | 2 |
| RTCH 464 | Moral Leadership | 3 |
| RTCH 467 | Management of a Radiologic Service | 3 |
| RTSI 364 | CT Patient Care and Procedures | 2 |
| RTTH 476 | Radiation Therapy Affiliation VI | 4 |
| **Spring Quarter** | | |
| AHCJ 494 | Senior Portfolio II | 3 |
| RTTH 348 | Radiation Therapy Review | 2 |
| RTTH 477 | Radiation Therapy Affiliation VII | 4 |
| | **Total Units:** | **103** |

[1] May be substituted with another RELR course

A minimum grade of C (2.0) is required for all courses in this program.

### Normal time to complete the program

Four (4) years — Based on full-time enrollment, a student who is a radiologic technologist (ARRT) completes the LLU portion of the program in seven (7) quarters. A student who is not a radiologic technologist (Non-ARRT) starts one quarter earlier and will complete in eight (8) quarters.

# Radiologist Assistant — M.S.R.S.

**Program director**
Brigit Mendoza

## The program

The student will receive didactic and clinical mentoring on neonatal, pediatric, adult, and geriatric populations. Courses will combine discussion, projects, case studies, and web-based learning. Students are responsible for finding their own clinical site and a radiologist mentor. This is an online program; however, students must be on campus during orientation, the first Autumn, Winter, and Spring Quarters, and during the final Spring Quarter.

### Mission

The mission of the Radiologist Assistant Program is to provide students with a sound clinical, didactic, and moral foundation so that they can impact patient care in a positive and meaningful manner.

### Vision

The Radiologist Assistant Program at Loma Linda University will be one of the premier radiologist assistant programs in the nation—home to a program that students will want to attend. Its diverse and safe learning environment will contribute to promoting Loma Linda University as one of the state's economic and cultural centers.

### Purpose

The purpose of the Radiologist Assistant Program is to educate students to competently function as radiologist assistants in a variety of imaging environments.

### Program learning outcomes

By the end of this program, the graduate should be able to:

1. Perform procedures and clinical activities of the profession;
2. Engage in activities that advance the profession;
3. Impact health-care delivery;
4. Maintain recognized educational standards of the profession;
5. Employ proper ethics within the profession.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Bachelor's degree from an accredited college or university. The degree can be in administration or science.
- Current certification in medical radiography from the American Registry of Radiologic Technologists.
- A minimum of two years of full-time, consecutive radiography work experience.
- Current CPR certification. Must complete ACLS certification prior to applying for boards.
- A course in statistics completed within the past five years. It does not have to be completed at the time of application, but must be completed prior to starting the program.
- A course in research methods completed within the past five years. It does not have to be completed at the time of application, but must be completed prior to starting the program.

## Program requirements

| | | |
|---|---|---|
| **First Year** | | |
| **Autumn Quarter** | | |
| RELT 423 | Loma Linda Perspectives | 2 |
| RTRA 521 | Radiology Procedures and Image Evaluation I | 3 |
| RTRA 525 | Fluoroscopy and Radiation Protection | 1 |
| RTRA 526 | Radiology Reporting | 1 |
| RTRA 531 | Pharmacology for RAs I | 2 |
| RTRA 534 | Pathophysiology | 2 |
| RTRA 771 | Clinical Internship I | 2 |
| **Winter Quarter** | | |
| AHCJ 402 | Pathology I | 4 |
| RTRA 510 | Cross-Sectional Anatomy I | 1 |
| RTRA 522 | Radiology Procedures and Image Evaluation II | 3 |
| RTRA 532 | Pharmacology for RAs II | 2 |
| RTRA 541 | Patient Assessment I | 2 |
| RTRA 772 | Clinical Internship II | 5 |
| **Spring Quarter** | | |
| AHCJ 403 | Pathology II | 3 |
| RTRA 511 | Cross-sectional Anatomy II | 1 |
| RTRA 523 | Radiology Procedures and Image Evaluation III | 3 |
| RTRA 542 | Patient Assessment II | 2 |
| RTRA 546 | Topics for the Radiologist Assistant | 2 |
| RTRA 773 | Clinical Internship III | 6 |
| **Second Year** | | |
| **Summer Quarter** | | |
| RTRA 524 | Radiology Procedures and Image Evaluation IV | 3 |
| RTRA 543 | Clinical Management and Education | 2 |
| RTRA 774 | Clinical Internship IV | 6 |
| **Autumn Quarter** | | |
| AHCJ 566 | Theoretical Foundations of Leadership | 3 |
| RTRA 519 | Medical-Legal Issues in Radiology | 1 |
| RTRA 775 | Clinical Internship V | 6 |
| REL_ 5__ Graduate-level Religion | | 3 |
| **Winter Quarter** | | |
| RTRA 518 | Radiobiology and Health Physics | 2 |
| RTRA 588 | Comprehensive Review I | 1 |
| RTRA 776 | Clinical Internship VI | 6 |
| RTRS 621 | Capstone Project I | 3 |
| **Spring Quarter** | | |
| RTRA 589 | Comprehensive Review II | 1 |
| RTRA 614[1] | Professional Portfolio | 1 |
| RTRA 777 | Clinical Internship VII | 6 |
| RTRS 622 | Capstone Project II | 3 |
| | **Total Units:** | **94** |

[1] Fulfills service learning requirement

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) — based on full-time enrollment

# Special Imaging CT and MRI — Certificates

**Program director**
Kate Cockrill

**Clinical coordinator**
Kate Cockrill

## Overview of program

Computed tomography (CT) and magnetic resonance imaging (MRI) technologists work in a highly specialized field operating sophisticated computerized tomography equipment. This technology provides detailed cross-sectional images of the human body—assisting physicians with quality patient diagnosis and treatment. These full-time programs are scheduled as follow:

CT—six-month certificate program completed in two quarters (Autumn and Winter). An additional quarter of clinic may be available to students who have not met program requirements, at the discretion of the program director in collaboration with the student.

MRI—six-month certificate program that requires two quarters beginning Spring Quarter or Autumn Quarter. An additional quarter of clinic may be available to students who have not met program requirements, at the discretion of the program director in collaboration with the student. A nine-month, part-time option is available for qualified students. This three-quarter option begins in the Autumn Quarter.

CT/MRI—twelve-month certificate program completed in four academic quarters (Autumn through Summer). An additional quarter of clinic may be available to students who have not met program requirements, at the discretion of the program director in collaboration with the student.

During the program, students take formal coursework along with clinical instruction. There are no arrangements for part-time or evening status. Clinical sites are available in a variety of regions in Southern California. However, the University cannot guarantee that the student will be placed close to their residence.

The program's load requires 40 hours per week, which includes didactic education and clinical experience. Clinical experience includes four, eight-hour days per week. Classes are scheduled for one day per week and may require the student to be on campus.

Students will be required to submit current immunization records and undergo a background check during the registration process. For

information regarding immunizations, contact student health services at <http://www.llu.edu/central/ssweb/index.page (http://www.llu.edu/central/ssweb/)>. Students will be responsible for paying any fees associated with immunizations and background checks.

Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

### Program learning outcomes

Upon completion of the program, the graduate should be able to:

- Model the role of a special imaging professional;
- Demonstrate leadership and critical thinking in all areas of CT and/or MRI scanning;
- Behave according to ethical standards as a professional CT and/or MRI technologist;
- Positively interact and communicate with patients, department personnel, and professional staff;
- Maintain skills and knowledge by interacting with fellow professionals, attending educational conferences, and staying current with changing technology.

## The CT/MRI student profile

- Enthusiastic and interested in maintaining high standards of academics, clinical performance, and patient care.
- Possesses a broad knowledge of human anatomy and computer skills.
- Demonstrates strong academic performance in science and related courses.
- Detail-oriented and able to work under pressure, while demonstrating critical-thinking and problem-solving skills.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 23) and School of Allied Health Professions admissions requirements (p. 47), the applicant must also complete the following requirements:

- Current ARRT registry in Radiography (R)*
- Current California (CRT) license*
- Current CPR card with the American Heart Association
- A minimum G.P.A. of 2.5 maintained in all didactic and clinical course work
- Three recommendations from prior teachers, work supervisors, or health professionals who are knowledgeable about your qualifications
- Observation experience—A minimum of twelve hours of career observation in each modality (CT and MRI) is required. The career observation form is available as a download from the website.
- Venipuncture is highly recommended

* An applicant who is completing a program in radiologic technology prior to the start of the program may apply as long as they have completed ARRT, CRT, and CPR requirements by the program start date.

Applicants who are eligible to take the ARRT examination for certification but who have not had opportunity to do so are given provisional status for one quarter. Eligibility to continue is subject to student's obtaining certification. It should be understood that the University will not sign or validate registry documents of students who obtained their training in another program.

Students interested in using CT and/MRI as part of their Bachelor of Science degree should review the Radiation Sciences , BS program.

### Application dates

1. Applications are accepted starting January 1st of each year.
2. Deadlines for applications are
   a. May 1 for CT-only applicants, MRI-only fall-start applicants, and CT/MRI combined applicants
   b. December 1 for MRI-only spring-start applicants
3. Applicants should submit applications early since interview slots are limited.

### Interviews

CT and MRI interviews are conducted in July for fall-start applicants and January for MRI-only spring-start applicants. Qualified applicants will be interviewed by the program director and representatives of the School of Allied Health Professions. Applicants residing in Southern California should plan for personal interviews on campus at Loma Linda. Applicants will be notified by telephone and/or email of their interview schedules. Due to the limited number of interview dates/times, you will be assigned an interview slot, and you should plan around your interview as alternate dates/times are not available. Applicants are rated in the following four areas:

- Work experience or training background
- Recommendations
- Academic record
- Communication skills, knowledge, and motivation.

### Selection

After applicants have been interviewed, the selection committee for the CT and MRI Special Imaging Program meets to make final selections. Selections are usually decided by the middle of July for fall-start applicants and early February for spring-start applicants, and confirmation of each decision is mailed to the respective applicant from the Office of Admissions for the School of Allied Health Professions.

## Programs

# Special Imaging CT — Certificate

| **Autumn Quarter** | | **Units** |
|---|---|---|
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| RTSI 970[2] | Special Imaging (CT/MRI) Affiliation | 3 |
| **Winter Quarter** | | |
| REL_ 4__ Upper-division religion[1] | | 2 |
| RTSI 364 | CT Patient Care and Procedures | 2 |
| RTSI 970[2] | Special Imaging (CT/MRI) Affiliation | 3 |
| | **Total Units:** | **14** |

[1] Students take one religion course selected from offerings by the School of Religion. Selection varies by quarter including, but not limited to, the following courses: RELT 423 Loma Linda Perspectives, RELE 457 Christian Ethics and Health Care, RELT 415 Christian Theology and Popular Culture.

[2] May register for two (2) units, three (3) times to spread the affiliation over three quarters versus the two quarters listed in the curriculum.

### Normal time to complete the program

Twenty-three (23) weeks (two [2] academic quarters) — based on full-time enrollment

## Special Imaging CT/MRI — Certificate

| Autumn Quarter | | Units |
|---|---|---|
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 369 | CT Physics | 2 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3 |
| **Winter Quarter** | | |
| REL_ 4__ Upper-division religion[1] | | 2 |
| RTSI 364 | CT Patient Care and Procedures | 2 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3 |
| **Spring Quarter** | | |
| RTSI 361 | MRI Physics I | 2 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3 |
| **Summer Quarter** | | |
| RTSI 362 | MRI Physics II | 2 |
| RTSI 365 | MRI Patient Care and Procedures | 2 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3 |
| | **Total Units:** | **26** |

[1] Students take one religion course selected from offerings by the School of Religion. Selection varies by quarter including, but not limited to, the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELT 415 Christian Theology and Popular Culture.

### Normal time to complete the program

Forty-five (45) weeks (four [4] academic quarters) — based on full-time enrollment

## Special Imaging MRI — Certificate

| Autumn Quarter | | Units |
|---|---|---|
| RTSI 361 | MRI Physics I | 2 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2 |
| RTSI 970[2] | Special Imaging (CT/MRI) Affiliation | 3 |
| **Winter Quarter** | | |
| REL_ 4__ Religion elective[1] | | 2 |
| RTSI 362 | MRI Physics II | 2 |
| RTSI 365 | MRI Patient Care and Procedures | 2 |
| RTSI 970[2] | Special Imaging (CT/MRI) Affiliation | 3 |
| | **Total Units:** | **16** |

[1] Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter including, but not limited to, the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELT 415 Christian Theology and Popular Culture.

[2] May register for two (2) units, three (3) times to spread the affiliation over three quarters versus the two quarters listed in the curriculum.

#### Autumn and Spring starts

### Normal time to complete the program

Twenty-two (22) weeks (two [2] academic quarters) — based on full-time enrollment, part-time permitted

## Special Imaging — CT, MRI, CT and MRI Comparison

| | Course Title | CT | MRI | CT and MRI |
|---|---|---|---|---|
| **First Year: Autumn Quarter** | | | | |
| RTSI 367 | Cross-sectional Radiographic Anatomy | 2.0 | | 2.0 |
| RTSI 369 | CT Physics | 2.0 | | 2.0 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3.0 | | 3.0 |
| **Totals** | | **7.0** | | **7.0** |
| | **Course Title** | **CT** | **MRI** | **CT and MRI** |
| **First Year: Winter Quarter** | | | | |
| REL_ 4__ Upper-division Religion[1] | | 2.0 | | |
| RTSI 364 | CT Patient Care and Procedures | 2.0 | | 2.0 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | 3.0 | | 3.0 |
| REL_ 4__ Upper-division Religion[1] | | | | 2.0 |
| **Totals** | | **7.0** | | **7.0** |
| | **Course Title** | **CT** | **MRI** | **CT and MRI** |
| **First Year: Spring Quarter** | | | | |
| RTSI 361 | MRI Physics I | | 2.0 | 2.0 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | | 3.0 | 3.0 |
| RTSI 367 | Cross-sectional Radiographic Anatomy | | 2.0 | |
| **Totals** | | | **7.0** | **5.0** |

| | Course Title | CT | MRI | CT and MRI |
|---|---|---|---|---|
| **Second Year: Summer Quarter** | | | | |
| RTSI 362 | MRI Physics II | | 2.0 | 2.0 |
| RTSI 365 | MRI Patient Care and Procedures | | 2.0 | 2.0 |
| RTSI 970 | Special Imaging (CT/MRI) Affiliation | | 3.0 | 3.0 |
| REL_ 4__ Upper-division Religion[1] | | | 2.0 | |
| **Totals** | | | **9.0** | **7.0** |
| **Overall Totals** | | **14.0** | **16.0** | **26.0** |

[1] Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter including, but not limited to, the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELT 415 Christian Theology and Popular Culture.

Comparison chart based on MRI spring start date. MRI may also begin in autumn.

# SCHOOL OF BEHAVIORAL HEALTH

## Dean's welcome

We're glad you have chosen to consider Loma Linda University's School of Behavioral Health as you make plans to continue toward your educational goals. This CATALOG describes who we are and what we have to offer. It will familiarize you with the philosophy and structure of our programs, and will provide you with a listing of participating faculty members.

Loma Linda University is a religious, nonprofit institution that welcomes students and staff from a broad spectrum of religious persuasions, while reserving the right to give preference to qualified members of its sponsoring denomination. As stated in its nondiscrimination policy, the institution "affirms that all persons are of equal worth in the sight of God and they should so be regarded by all people." Because several of the professions—for which programs within the School of Behavioral Health prepare students—have a tradition of advocacy for oppressed peoples, it is important that the institution, faculty, and staff demonstrate their acceptance of and willingness to assist those in our society who are less privileged. The University actively sponsors several programs that move the institutional health-care personnel resources and expertise into the local, national, and international communities to work with otherwise underserved populations. This component of service is an integral part of the statement of mission and a message intended to be captured in the Good Samaritan sculpture that occupies a central position on the campus.

The School of Behavioral Health, as part of the University, has expectations of students, faculty, and staff in the areas of conduct and behavior while they are on campus or involved in school or University activities. As such, the School of Behavioral Health adheres to the policies of the University and affirms that Christian principles are incompatible with the various forms of discrimination that have divided societies; and that all persons are of equal worth in the sight of God and should be so regarded by all His people. Therefore, the School of Behavioral Health is committed to equal education and employment opportunities for individuals of all races; and does not unlawfully discriminate on the basis of veteran status, handicap, gender identity, sexual orientation, race, color, or national origin in its educational or admissions policies, financial affairs, employment, student life and services, or in any of its programs. In support of this position, we expect our students, faculty, and staff to demonstrate unwavering respect for the diversity of others and to interact with integrity—never forgetting the ethics and standards that guide professional actions. Further, we expect our programs through their faculty to develop competent, compassionate, ethical professionals who possess the knowledge, skills, and values to equip graduates for a life dedicated of service to humanity.

You will find vigorous academic programs that will stretch your mind as you take time to make new discoveries, get to understand our world, and apply Christ-centered values to your life and profession.

Our administrators, faculty, and staff are here to work with you and help you prepare for your future as a caring, Christian professional in the world of service to mankind. If you would like to know more about us, you can call us at 909/558-1900.

Beverly J. Buckles, D.S.W.
Dean, School of Behavioral Health

# School foundations

The School of Behavioral Health includes the Departments of Counseling and Family Sciences, Psychology, and Social Work and Social Ecology; and the Division of Interdisciplinary Studies. The school offers master's and doctoral degree programs, as well as postbaccalaureate and post-degree certificates. These programs equip graduates with leading-edge knowledge and practice experiences necessary for careers in behavioral health practice, research, and administration.

## Philosophy

The School of Behavioral Health is grounded in a deep commitment to the University's mission to further the teaching and healing ministries of Jesus Christ, which produces wholeness within transformed lives. Transformation is viewed as a lifelong journey of faith and learning underpinned by a bio-psycho-social-spiritual perspective, which assumes that wholeness is achieved when all subsystems affecting human needs are understood and in balance. This pursuit seeks to understand and promote healthy minds, communities, social systems, and human relationships that enable individuals to experience resiliency and live meaningful lives. Such wholeness manifests itself in a life of service to humanity and to God.

In the School of Behavioral Health, these purposes are achieved through academic programs—including research, clinical practice, and global learning experiences—that engage faculty and students in the highest levels of scholarship, professionalism, and the quest for wholeness. Because these pursuits are served by knowledge, graduate students are obliged to achieve both broad and detailed mastery of their fields of study and participate with the faculty in the process by which knowledge is created and applied. The end result is firm adherence to the global traditions of Loma Linda University through scholarly and practice pursuits that aim to strengthen the effectiveness of behavioral health practice and research to improve the quality of life for individuals and communities around the world.

## Goals

The School of Behavioral Health seeks to create an environment favorable to the pursuit of knowledge and meaning by:

1. Making available to graduate students who wish to study in a Seventh-day Adventist Christian setting the education necessary for scholarly and professional careers in the behavioral health professions.
2. Encouraging development of independent judgment, mastery of research techniques, and contribution to scholarly communication.
3. Fostering the integration of science and practice in the service of humankind.

## Learning outcomes and assessment

Supporting these goals, the School of Behavioral Health has adopted Loma Linda University's institutional learning outcomes (p. 19) (ILOs).

The School of Behavioral Health supports the realization of the University's learning outcomes through the curricula of its degree programs by providing students with content and active learning experiences that reflect the current practice and professional knowledge, skills, behaviors, and attitudes needed for competent practice in behavioral health, including, but not limited to:

- Professional and personal self care
- Ethical and professional standards of conduct and behavior
- Legal and statutory mandates affecting practice
- Clinical knowledge shared and specific to disciplines
- Therapeutic and reflective use of self
- Analytical methods supporting scholarship and the integration of science and practice in the development of new knowledge and improved services
- Professional communication and presentation skills
- Strengths perspectives supporting wellness, recovery, and anti-stigma
- Integration of spirituality and cultural competency
- Integration of behavioral health into primary health care
- A global context of behavioral health practice
- Collegial and collaborative team practice
- A commitment to continuous professional development, service, and lifelong learning

The assessment of the University's student learning outcomes is integrated into the specific program and department criteria and methods used to address professional accreditation assessment requirements. Where possible, these data are used to support the development of school-wide metrics.

## Mission

Operationalizing this philosophy, the mission of the School of Behavioral Health is to provide a spiritually supportive context for teaching, clinical practice, and research innovation that pursues integrative behavioral health aimed at reducing health disparities and promoting social justice in a global context locally and abroad.

# General regulations

Application and acceptance

### Application procedure

1. Application instructions, available on the Web at <llu.edu/central/apply (http://www.llu.edu/central/apply/)>, allow students to apply online and begin an application. Applications and all supporting information, transcripts, test results, and references should be submitted by the deadline posted on the application, per degree.
2. Complete official transcripts of all academic records from all colleges, universities, and professional or technical schools must be provided for official acceptance into a program. It is the applicant's responsibility to arrange to have the transcripts—including official English translations, if applicable—sent directly to Admissions Processing by the issuing institution. Transcripts that come via an intermediary are unacceptable.
3. A personal interview is often desirable and is required by some programs. The interview should be arranged with the coordinator of the program in which the student wishes to study.

### Acceptance procedure

1. When the program that the student wishes to enter has evaluated the applications and made its recommendation, the dean of the School of Behavioral Health takes official action and notifies accepted applicants by email and through first class U.S. mail. Accepted applicants must respond affirmatively using the online admissions confirmation system before becoming eligible to register in the School of Behavioral Health. Applicants who have been denied acceptance are currently notified using first class U.S. mail only.

2. As part of registration, accepted students will be asked to file with Student Health Service a medical history with evidence of certain immunizations.
3. Transcripts of records and all other application documents are retained by the University and may not be withdrawn and used for any purpose. Records of students who do not enroll or who withdraw prior to completion are retained for two years from the date of original acceptance to a School of Behavioral Health program.
4. New students are required to pass a background check before they can register for courses.

### Admission requirements

A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to School of Behavioral Health's graduate programs. Transcripts of the applicant's scholastic record need to demonstrate appropriate preparation, in grades and content, for the curriculum chosen. Since there is some variation in the pattern of undergraduate courses prescribed by different programs, the applicant should note the specific requirements of the chosen program. Deficiencies may be fulfilled while enrolled; prerequisites must be completed prior to matriculation.

### Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Depending on program-specific criteria, admissions consideration may be given if grades from the junior and senior years of the undergraduate degree are superior or there is other evidence of capability.

### Graduate Record Examination

Scores on the general test of the Graduate Record Examination (GRE) are required with application for admission to many degree programs. New test scores are needed if it has been more than five years since the last test was taken. Applicants are advised to request information specific to their proposed program of study.

For complete information about the GRE, please visit their website at <http://www.ets.org/gre/>; or write to Educational Testing Service, 1947 Center Street, Berkeley, CA 94701 (for the West); and P.O. Box 6000, Princeton, NJ 08541 (for the East). For GRE publications (including study materials), call 800/537-3160.

Programs that do not require the GRE must submit one additional measure of a candidate's preparation for graduate study. This may be either an evaluation of critical essay-writing skills, the Miller Analogies Test, the results of a structured interview, or other specified program criteria.

### Re-entrance

Students who are currently enrolled in the School of Behavioral Health may request transfer to a different program or a more advanced degree level by contacting the School of Behavioral Health Admissions Office for information on an abbreviated application and instructions for submitting the appropriate supporting documents. Transcripts on file with the University are acceptable.

### English-language competence

Regardless of nationality or citizenship, an applicant whose native language is not English or who's secondary education has been obtained outside the U.S. is required to pass an approved English proficiency test. Additionally, any applicant whose English competency is uncertain in regard to their professional success in course, clinical, or other program requirements will be required to pass an English proficiency test. University policy regarding minimum passing scores and timeline for acceptable test reports all apply.

## Graduate degree requirements

### Minimum required grade point average

Each student must maintain a cumulative grade point average of at least a B (3.0) and receive a grade of B or higher in each graduate-level course to continue in regular standing. In some cases, programs may recommend conditional consideration of course grades below a B (3.0) if clinical competency and consumer protection are not compromised. Academic variances that document the rationale for acceptance of grades below a B (3.0), must be submitted to the dean's office for approval.

All transfer courses must meet the B (3.0) minimum grade requirement and be equivalent to courses appropriate to degree requirements. Grades for transfer courses are not calculated as part of a student's matriculating G.P.A.

### Service learning

All School of Behavioral Health students are required to complete an approved academic service-learning course prior to graduation. Courses currently approved to meet this requirement are specified in each program's curricula.

## From Master's to Ph.D. degree

### Bypassing master's degree

A graduate student at this University may proceed first to a master's degree. If, at the time of application, the student wishes to qualify for the Doctor of Philosophy degree, this intention should be declared even if the first objective is a master's degree.

If after admission to the master's degree program a student wishes to go on to the doctoral degree, an abbreviated application should be completed and submitted, along with appropriate supporting documents, to the School of Behavioral Health Admissions Office. If the award of the master's degree is sought, the student will be expected to complete that degree before embarking on doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field and are of equivalent quality and scope to their doctoral program.

## Second master's degree

A student who wishes to qualify for an additional master's degree in a different discipline may apply. The dean of the School of Behavioral Health and the faculty of the program the student wishes to enter will consider such a request on its individual merits.

## Concurrent admission

Students may not be admitted to a School of Behavioral Health program while admitted to another program at this University or elsewhere. The exceptions to this are combined degrees programs discussed in the next paragraph.

## Combined degrees

Students may not be admitted to a School of Behavioral Health program while admitted to another program at this University or elsewhere. The exceptions to this are the combined degrees programs.

## Certificate programs

The School of Behavioral Health offers post-baccalaureate and post-degree certificate programs. Students accepted into such programs are assigned an advisor who works with them as they fulfill the program requirements. Students are required to maintain a B (3.0) grade point average, with no course grade below B (3.0). All certificate students are required to take at least one, three-unit religion course (numbered between 500 and 600).

## Master of Arts/Master of Science/Master of Social Work

### Advisor and guidance committee

Each student accepted into a degree program is assigned an advisor who advises the student in meeting the program of study and University requirements. The advisor works with the director of the student's program to support the student's successful progress to graduation.

### Subject prerequisites and deficiencies

Gaps in an applicant's academic achievement will be identified by subject and classified either as prerequisites or as subject deficiencies. Applicants lacking certain subject or program prerequisites may not be admitted to the master's degree program until the prerequisites are completed (at Loma Linda University or elsewhere) and acceptable grades are reported. However, subject deficiencies do not exclude an applicant from admission or enrollment; but deficiencies must be completed as specified and within the time-frame determined, usually during the first full quarter of study at this University.

### Study plan

The student's advisor should develop with the student a written outline of the complete graduate experience, with time and activity specified as fully as possible. This will serve as a guide to both the student and the advisor. Changes to the academic plan must be approved by the student's advisor and the program director.

The student is ultimately responsible for ensuring both timely registration and completion of all required courses.

### Time limit

The time allowed from admission to the School of Behavioral Health to conferring of the master's degree may not exceed five years. Program extensions can be considered within the limits of University policy.

Course credit allowed toward the master's degree is nullified five years from the date of course completion. Nullified courses may be revalidated, upon successful petition, through reading, conferences, written reports, or examination to assure currency in the content. Academic documentation of the justification of revalidated courses must be approved by the dean's office.

### Residence

Students must meet the residence requirements indicated for their particular program (never less than one academic quarter). The master's degree candidate must complete one quarter of full-time study at the University or perform the thesis research at the University. Although the number of units students take varies by program, students are expected to work closely with their advisors to assure that their course loads are consistent with program requirements, as well as degree completion options and timelines.

### Comprehensive and final examinations

The student must take written, oral, and final examinations prescribed by the program on or before the published dates. If a candidate fails to pass the oral or written examination for a graduate degree, the program director in association with the program's academic standards committee determines the requirements needed to ameliorate the failed examination. In the case of a failed thesis defense, a written analysis of the candidate's status and program's recommendations are filed with the dean's office. The student receives a copy of the committee's recommendation.

### Research competence

Student skills required in research, language, investigation, and computation are specified in each program description in this CATALOG.

### Candidacy

Admission to the School of Behavioral Health or designation of regular graduate standing does not constitute admission of the student to candidacy for a graduate degree. After achieving regular status, admission to candidacy is initiated by a written petition (School of Behavioral Health Form A) from the student to the dean, on recommendation of the student's advisor and the program coordinator or department chair.

Students petitioning the School of Behavioral Health for candidacy for the master's degree must present a satisfactory grade record, include a statement of the proposed thesis or dissertation topic (where applicable) that has been approved by the student's guidance committee, and note any other qualification prescribed by the program. Students are usually advanced to candidacy during the third quarter of study for full-time students.

### Specific program requirements

In addition to the foregoing, the student is subject to the requirements stated in the section of the CATALOG governing the specific program chosen.

### Religion requirement

All master's degree students are required to take at least one, three-unit religion course (courses numbered between 500 and 600). Students should check with their programs for specific guidelines.

### Combined degrees programs

A number of combined degrees programs are offered, each intended to provide more comprehensive preparation in clinical applications and the biomedical sciences. Concurrent admission to two programs in the School of Behavioral Health or to a program in the School of Behavioral Health and to a professional school in the University is required. These curricula are described in greater detail under the heading "Combined Degrees Programs" in this section of the CATALOG.

### Thesis

Students writing a thesis must register for at least one unit of thesis credit. The research and thesis preparation are under the direction of a thesis chair and research committee. The timeline for determining a thesis topic and research design are program specific, but must be secured before petition is made for candidacy.

The student must register and pay tuition for thesis credit, whether the work is done in residence or in absentia. If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and thesis, continuous registration is to be maintained until the manuscript has been accepted. This involves a quarterly enrollment fee paid at the beginning of each quarter.

### Format guide
Instructions for the preparation and format of the publishable paper, thesis, or dissertation are in the *Thesis and Dissertation Format Guide*, available through the Faculty of Graduate Studies dissertation editor. Consultation with the dissertation editor can help the student avoid formatting errors that would require them to retype large sections of manuscript. The last day for submitting copies to the school office in final approved form is published in the events calendar (available from the academic dean's office).

### Binding
The cost of binding two copies of the thesis, one copy to be deposited in the University Library or appropriate department or school collection and one for the student, will be paid for by the student's department. The student will be responsible for paying the cost of binding additional personal copies.

## Doctor of Philosophy
The Doctor of Philosophy degree is awarded for evidence of mature scholarship; productive promise; and active awareness of the history, resources, and demands of a specialized field.

### Advisor and doctoral research committee
The School of Behavioral Health requires advisors for Doctor of Philosophy degree candidates to have demonstrated scholarship productivity in their chosen disciplines. Each student, upon acceptance into a doctoral degree program, is assigned an advisor to assist with academic planning and guidance through program requirements. Subsequently (no later than when applying for candidacy), the student is assigned a doctoral research committee. Each program maintains a list of qualified doctoral degree mentors. The doctoral research committee, usually chaired by the advisor, is responsible for screening dissertation topics, recommending candidacy, guiding research, administering written and oral examinations, evaluating the dissertation/project and other evidence of the candidate's fitness to receive the degree, and recommending the student for graduation.

### Subject prerequisites and deficiencies
Gaps in an applicant's academic achievement will be identified by subjects and classified as either prerequisites or as subject deficiencies.

Applicants lacking subject or program prerequisites may not be admitted to the Ph.D. degree program until prerequisites are completed (at Loma Linda University or elsewhere) with acceptable grades. However, subject deficiencies do not exclude an applicant from admission or enrollment; but deficiencies must be completed as specified and within the time frame determined, usually during the first full quarter of study at this University.

### Study plan
The student's advisor should develop with the student a written outline of the complete graduate experience, with time and activity specified as fully as possible. This serves as a guide to both the student and the advisor, as well as to members of the guidance committee when it is selected. The study plan is changed only after careful consultation. The student is ultimately responsible for ensuring both timely registration and completion of required courses.

### Time limit
Completion of the graduate experience signals currency and competence in the discipline. Seven years are allowed for completion after admission to the Ph.D. degree program. Program extensions can be considered within the limits of University policy.

Course credit allowed toward the doctorate is nullified eight years from the date of course completion. To assure currency in the content, nullified courses may be revalidated—upon successful petition—through reading, conference, written reports, or examination. Academic documentation of the justification of revalidated courses must be approved by the dean's office with recommendations regarding the student's future relation to the school.

### Residence
The School of Behavioral Health requires two years of residency for the doctoral degrees—D.M.F.T, Psy.D., Ph.D.—spent on the campus of the University after enrollment in a doctoral degree program. During residence, students devote full time to graduate activity in courses, clinical practice, research, or a combination of these. A full load of courses is eight or more units each quarter; 36 or more clock hours per week is full time in research.

Students may be advised to pursue for limited periods at special facilities studies not available at Loma Linda University. Such time may be considered residence if the arrangement is approved in advance by the dean of the School of Behavioral Health.

The spirit and demands of doctoral degree study require full-time devotion to courses, research, reading, and reflection. But neither the passage of time nor preoccupation with study assures success. Evidence of high scholarship and original contribution to the field or professional competence form the basis for determining the awarding of the degree.

### Scholarly competence
Doctoral degree students demonstrate competency in scholarship along with research, clinical competence, and professional development. Expectations and standards of achievement with the tools of investigation, natural and synthetic languages, and computers are specified in this section of the CATALOG for each program.

### Comprehensive examinations
The doctoral degree candidate is required to take comprehensive written and oral examinations over the principal areas of study to ascertain capacity for independent, productive, scientific work; and to determine whether further courses are required before the final year of preparation for the doctorate is undertaken. The program coordinator is responsible for arranging preparation and administration of the examination, as well as its evaluation and subsequent reports of results. Success in the comprehensive examination is a prerequisite to candidacy.

Students cannot be admitted to the examination until they have completed the majority of units required beyond the master's degree or its equivalent.

### The final oral examination
After completion of the dissertation and not later than a month before the date of graduation, the doctoral degree candidate is required to appear before an examining committee for the final oral examination/dissertation defense.

If a candidate fails to pass this final examination/dissertation for a graduate degree, the program director in association with the program's academic standards committee determines the requirements needed to ameliorate the failed examination. A written analysis of the candidate's status and the program's recommendations are filed with the dean's office. The student receives a copy of the committee's recommendation.

### Project

All Doctor of Psychology and Doctor of Marital and Family Therapy degree students are required to complete a project and all professional doctoral degree students must register for and complete all research units as specified by the program requirements.

Each student, upon acceptance into a professional doctoral degree program, is assigned an advisor to assist with academic planning and guidance through program requirements. The School of Behavioral Health requires advisors for professional doctoral degree program to have demonstrated scholarship productivity in specific disciplines. Prior to advancing to candidacy each student is also assigned a doctoral research committee and have an approved topic for research project. Each program maintains a list of qualified doctoral degree mentors. The doctoral research committee, usually chaired by the advisor, is responsible for screening research topics, recommending candidacy, guiding research, administering written and oral examinations, evaluating the research project and other evidence of the candidate's fitness to receive the degree, and recommending the student for graduation.

If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and project, continuous registration is maintained until the project manuscript is accepted and the final oral defense completed. This involves a quarterly fee to be paid during registration each quarter. A continuing registration fee is also assessed for each quarter the student fails to register for new units. As such, the student must have active registration during the quarter that the final oral defense is completed.

### Dissertation

All Doctor of Philosophy students are required to complete a dissertation and must register for and complete all of the research units as specified by the program requirements.

Each student, upon acceptance into a Doctor of Philosophy program is assigned an advisor to assist with academic planning and guidance through program requirements. The School of Behavioral Health requires advisors for these doctoral degree program to have demonstrated scholarship productivity. Prior to advancing to candidacy each student is also assigned a doctoral research committee and have an approved topic for the dissertation. Each program maintains a list of qualified doctoral degree mentors. The doctoral research committee, usually chaired by the advisor, is responsible for screening dissertation topics, recommending candidacy, guiding research, administering written and oral examinations, evaluating the dissertation and other evidence of the candidate's fitness to receive the degree, and recommending the student for graduation.

Doctor of Philosophy students are required to be knowledgeable of the dissertation requirements and policies set by the Faculty of Graduate Studies. Consultation with the Faculty of Graduate Studies dissertation editor can prevent the student from committing formatting errors that would require retyping large sections of the manuscript.

Students register and pay tuition for the dissertation, whether the work is done in residence or in absentia. If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and dissertation, continuous registration is maintained until the manuscript is accepted and the final oral defense completed. This involves a quarterly fee to be paid during registration each quarter. A continuing registration fee is also assessed for each quarter the student fails to register for new units. As such, the student must have active registration during the quarter that the final oral defense is completed.

Doctoral dissertations are reported to University Microfilms International and to the National Opinion Research Center. The Faculty of Graduate Studies provides appropriate information and forms.

### Candidacy

Admission to the School of Behavioral Health does not constitute candidacy for a graduate degree. Admission to candidacy is initiated by a written petition (School of Behavioral Health Form A) from the student to the dean, with support from the student's advisor and the program chair.

The student's petition for candidacy for the Doctor of Philosophy degree will include confirmation that comprehensive written and oral examinations have been passed.

Students expecting the award of the doctorate at a June graduation should have achieved candidacy no later than the previous November 15. One full quarter must be allowed between the achievement of candidacy and the quarter of completion.

### Specific program requirements

Doctoral programs differ. Each unique program's requirements appear in the programs section of this CATALOG (Section III) and in the program guides available from specific departments.

### Religion requirement

All doctoral students should take at least three, three-unit religion courses (numbered between 500 and 600) for a total of nine units of religion courses. Students should check with their programs for specific guidelines.

## Combined degrees programs

A number of combined degrees programs are offered, each intended to provide additional preparation in clinical, professional, or basic areas related to the student's field of interest. All require concurrent admission to the School of Behavioral Health and a professional school in the University. The combined degrees programs provide opportunity for especially well-qualified and motivated students to pursue professional and graduate education; and to prepare for careers in clinical specialization, teaching, or investigation of problems of health and disease in humans.

For admission to a combined degrees program, the student must have a baccalaureate degree, qualify for admission to the School of Behavioral Health, and already be admitted to another program at the University. Application may be made at any point in the student's progress in the professional school, though it is usually made during the second year. Students in this curriculum study toward the M.A., M.S., M.S.W., Psy.D., or Ph.D. degree.

Students may, as needed, be required to interrupt their professional study for two or more years for courses and research for the graduate degree sought. Elective time in the professional school may be spent in meeting School of Behavioral Health requirements.

The student's concurrent status is regarded as continuous until the program is completed or until discontinuance is recommended by the School of Behavioral Health or the professional school. The usual degree requirements apply.

The following combined degrees programs are offered in conjunction with the School of Behavioral Health.

Social Welfare and Social Research *with* Biomedical and Clinical Ethics (Ph.D./M.A. (p. 412)) (closed to admission for the 2019-2020 academic year.)
Social Work *with* Criminal Justice (M.S.W./M.S. (p. 413))
Social Work *with* Gerontology (M.S.W./M.S. (p. 414))

# Student life

The information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

The School of Behavioral Health provides a school-specific *Policies and Procedures Manual* to all School of Behavioral Health students. Regulations, policies, procedures, and other program requirements are contained in this manual.

# Academic information

## Conditions of registration, residence, attendance

### Academic residence

A student must meet the residence requirements indicated for a particular degree, which is never less than one academic quarter. A year of residence is defined as three quarters of academic work. A student is in full-time residence if registered for at least eight units. A maximum of 12 units may be taken without special petition to the dean of the School of Behavioral Health, unless the student is enrolled in an approved block-registration program or the program requirements specify otherwise.

## Transfer credits

Transfer credits will not be used to offset coursework at this University that earns less than a B (3.0) average. This transfer is limited to credits that have not already been applied to a degree and for which a grade of B (3.0) or better has been recorded. A maximum of nine quarter units that have been previously applied to another degree may be accepted as transfer credits upon petition. A candidate who holds a master's degree or presents its equivalent by transcript may receive credit up to 20 percent of the total units for the degree, subject to the consent of the dean and the department chair involved. In such instances, the transfer student is not relieved of residence requirements at this University.

Students should also review the requirements of in their program of study as some professional degree programs require grades higher than a B (3.0) for transfer courses, and may restrict the courses and experiences that may be transferred from other academic institutions.

If permitted for transfer, credit for practicum experiences is allowed only where university credit has been received for equivalent experiences. Credit for life or work experiences cannot be used to meet the requirements in any degree or certificate program in the School of Behavioral Health.

## Advanced standing

Advanced standing is a designation used in specific professional degree programs to address possible content redundancy between levels of degrees available within those professions. Evaluation of eligibility for advanced standing is program specific when specific conditions are met. Students should review the availability of advanced standing in their program. Academic variances are used to document the availability of advanced standing.

## Academic and professional/clinical probation

Continued enrollment in a professional degree program or certificate is contingent upon a student's continued satisfactory academic and professional (clinical) performance. Any student whose performance in either of these areas falls below the requirements of their program, the school, or university will be placed on one or more of these types of probation.

### Academic probation

Degree students whose overall grade point average falls below a 3.0 will be placed on academic probation. Students on academic probation who fail to earn a 3.0 for the next quarter or who fail to have an overall G.P.A. of 3.0 after two quarters may be dismissed from school. The academic requirements for post-baccalaureate and post-degree certificate programs is the same as the G.P.A. requirements for all other School of Behavioral Health programs.

### Professional performance probation

All students enrolled in professional programs are required to adhere to the professional, clinical, and ethical standards set forth by their disciplines, the school, and university. Students obtain copies of the ethical and professional performance and clinical practice standards and requirements set forth by their disciplines through their academic programs. Professional performance requirements for the School of Behavioral Health are included in each program's student handbooks and in the school's student handbook. Program handbooks and the school's student handbook are provided to students as they begin their degree program. The University's conduct and behavior expectations are provided in the Loma Linda University *Student Handbook*. Any student whose performance is evaluated to fall below these requirements will be placed on professional performance, or clinical, probation at the recommendation of the department's academic standards committee and department chair to the dean of the school. Enrollment in course, clinical work, or other program requirements while on professional performance probation is at the recommendation of the department and approval of the dean, and also conditional based upon the severity of the situation and extent of amelioration. Any student whose professional performance falls below these minimum requirements for two consecutive or dispersed quarters will be evaluated for dismissal from the school.

In addition, a student who receives an Unsatisfactory (U) in any segment or quarter of a practicum or clinical requirement is automatically placed on professional performance, or clinical, probation by the dean's office. Continued enrollment for the next quarter, term, or rotation segment for a student on professional performance probation is subject to the recommendation of the department chair and its academic standards committee to the dean of the school. A student who receives a U grade for a second consecutive or dispersed segment or quarter of practicum will be evaluated for dismissal from the school. Program and professional specific requirements also apply in these situations and will affect the evaluation of the student's continuing status in the program of study, the school, and University.

# Financial information

## Schedule of charges (2021-2022)

### Tuition

| | |
|---|---|
| $845 | Per unit, graduate credit |
| $423 | Per unit, audit |
| $4,500 | Flat fee for the Play Therapy Certificate Program |
| $37,394 | Per year: Psychology Psy.D. and Ph.D. |

### Special charges

| | |
|---|---|
| $0 | Application fee* |
| $0 | Application fee for combined degrees* |
| $919 | Enrollment fee per quarter |
| $200 | Nonrefundable tuition deposit** |
| $0 | Application to add program or degree* |

Programs may have additional fees.***

* Application fees are being waived for the 2021-2022 academic year.

** The $200 nonrefundable deposit will be credited to the student's account towards the first quarter of tuition.

*** Clinical training fees apply and vary by program. Fees are at a reduced rate below the current per unit tuition rate. Additional fees for specialized professional and global practice experiences may also apply.

### VIP Priority Application Deadline Dates for 2021-2022

| Program | Autumn Qtr. | Winter Qtr. | Spring Qtr. | Summer Qtr. |
|---|---|---|---|---|
| Child Life Specialist | January 12, 2021 | | | |
| Counseling | December 1, 2020 | October 16, 2020 | January 4, 2021 | March 1, 2021 |
| D.M.F.T. | December 1, 2020 | | | |
| Drug and Alcohol Counseling Certificate | December 1, 2020 | October 16, 2020 | January 4, 2021 | March 1, 2021 |
| Dual Degrees | December 31, 2019 | September 15, 2020 | January 1, 2021 | March 15, 2021 |
| Marriage and Family Therapy | December 1, 2020 | October 15, 2020 | January 4, 2021 | March 1, 2021 |
| Ph.D./ Systems, Families, & Couples | December 1, 2020 | October 16, 2020 | Applications not accepted | March 1, 2021 |
| Psychology | December 1, 2020* | | | |
| School Counseling Certificate | December 1, 2020 | October 16, 2020 | January 4, 2021 | March 1, 2021 |
| Social Work | November 15, 2020 ** | | | November 15, 2020*** |

* Standard deadline may be extended in consideration of program capacity.

** All hybrid students enroll during fall quarter

*** Advance standing students only

# Departments


- Department of Counseling and Family Science (p. 154)
- Department of Psychology (p. 170)
- Department of Social Work and Social Ecology (p. 178)


# Programs


- Child Life Specialist — M.S. (p. 154)
- Clinical Leadership — D.S.W. (p. 178)
- Counseling — M.S. (p. 156)
- Criminal Justice — M.S. (p. 180)
- Drug and Alcohol Counseling — Certificate (p. 158)
- Gerontology — M.S. (p. 181)
- Marital and Family Therapy — M.S. (p. 160), D.M.F.T. (p. 159)
- Play Therapy — Certificate (p. 183)
- Psychology — Psy.D. (p. 172), Ph.D. (p. 170)
- School Counseling — Certificate (p. 165)
- Social Welfare and Social Research — Ph.D. (p. 183)
- Social Work — M.S.W. (p. 185)
- Systems, Families and Couples — Ph.D. (p. 167)

# Department of Counseling and Family Sciences

The Department of Counseling and Family Sciences supports the mission of Loma Linda University, sharing its commitment to bring wholeness to individuals and families in near and far-away places. The department values local and global outreach and seeks to provide opportunities for students to integrate knowledge and skills with diverse peoples in various life contexts. The department is proud of its well-qualified faculty who values teaching, research, and service; and who seek to build up their respective professions in tangible ways. The various academic programs have program accreditations and approvals and have been recognized for their outstanding work, high standards, and superior student outcomes.

As one of the three academic departments in the School of Behavioral Health at Loma Linda University, the Department of Counseling and Family Sciences administers three master's degree programs—child life specialist (M.S.), counseling (M.S.), and marital and family therapy (M.S.); and two doctoral programs—a Ph.D. degree in systems, families, and couples that offers a clinical specialty (couple and family therapy) and a nonclinical specialty (family studies); and a Doctor of Marital and Family Therapy (D.M.F.T.) degree. The D.M.F.T. degree is offered online only.

Certificate programs are offered to augment academic and professional preparation for future careers. They include drug and alcohol counseling (p. 158) (online only) and the school counseling (p. 165) certificate which leads to the pupil personnel services credential in the state of California.

### Academic writing support

Students who need assistance can contact their program directors to arrange individual support through the department's writing center.

### Combined degrees

The department offers a dual-degree plus certificate program. Graduates of this program earn an M.S. in counseling and M.S. in marital and family therapy as well as a drug and alcohol counseling certificate.

A complete list of program instructors can be viewed online at <llu.edu/behavioral-health/cfs (http://www.llu.edu/behavioral-health/cfs/)>.

**Chair**
Winetta A. Oloo

**Primary faculty**
Bryan M. Cafferky

Brian Distelberg

Zephon Lister

Lena Lopez-Bradley

Michelle Minyard-Widmann

Mary Moline

Winetta Oloo

Nichola Ribadu

Alisha Saavedra

Randall Walker

Jackie Williams-Reade

**Secondary faculty**
Siroj Sorajjakool

## Programs


- Child Life Specialist — M.S. (p. 154)
- Counseling — M.S. (p. 156)
- Drug and Alcohol Counseling (online only) — Certificate (p. 158)
- Marital and Family Therapy — M.S. (p. 160), D.M.F.T. (p. 159)
- School Counseling (PPS) — Certificate (p. 165)
- Systems, Families, and Couples — Ph.D. (p. 167)


# Child Life Specialist — M.S.

**Program director**
Michelle Minyard-Widmann

**Director of clinical training**
Alisha Saavedra

The Department of Counseling and Family Sciences offers high-quality academic education and clinical training leading to a Master's degree in the child life specialist program. This degree prepares individuals to provide child life services in health-care settings. In addition, practice experiences within the United States and in other countries will provide students with child life practice in diverse environments.

## The child life profession

Child life specialists are professionals in child development. They promote effective coping through play, preparation, education, and self-expression activities. Child life specialists provide emotional support for families and encourage optimum development of children facing a broad range of challenging experiences, particularly those related to health care and hospitalization. Understanding that a child's well-being depends on the support of the family, child life specialists provide information, support, and guidance to parents, siblings, and other family members. They also play a vital role in educating caregivers, administrators, and the general public about the needs of children under stress (Association of Child Life Professionals <http://www.childlife.org>).

## The program

### Certification for the child life profession

Through the Association of Child Life Professionals, the certified child life specialist (CCLS) credential was developed to increase the proficiency of child life professionals by identifying a body of knowledge, uniform and improved standards of practice, and ethical conduct while enhancing the status and credibility of the profession. Requirements for certification are based on academic and internship experience, and successful completion of an examination process (Association of Child Life Professionals <http://www.childlife.org>).

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Represent and communicate child life practice and psychosocial issues of infants, children, youth, and families;

2. Utilize theories of child development, stress and coping, and family systems in pediatric health environments;
3. Work collaboratively in diverse settings;
4. Identify as a professional child life specialist through membership and participation in professional organizations;
5. Apply the concepts of ethical and legal standards of the profession;
6. Describe the impact of health and health issues on the global setting;
7. Satisfactorily complete a supervised practicum and internship in child life.

## Professional experience

Students will participate in supervised clinical training at Loma Linda University Children's Hospital and various hospitals located in the United States. A 100-hour practicum and 600-hour internship are required to complete the master's degree. These experiences will provide an opportunity for students to build on coursework and put theory into practice. Students will also have the opportunity to participate in various events such as grief camps, health fairs, global health trips, and other activities on campus designed to broaden their clinical experiences.

## Financial assistance

Students accepted into the M.S. degree program may receive financial assistance through merit-based awards, such as teaching fellowships and a variety of research and student service assistantships; or through need-based financial aid, such as a loan or the University's work/study program. Students may apply for financial aid by writing to:

Student Financial Aid Office
Student Services
Loma Linda University
Loma Linda, CA 92350
909/558-4509

## Accreditation

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

## Admissions

Applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Those who meet these requirements, as well as the published deadlines and are accepted into the program, may enroll during Autumn quarter.

Additional admission requirements include:

- Bachelor's degree in the social sciences or equivalent from a regionally accredited college or university
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor's coursework for at least the final 45 units prior to graduation
- Written statement of purpose for applying to the program
- Interview with department faculty, as scheduled (on-campus group interviews are scheduled for January through March; other on-campus and telephone interviews are scheduled individually)
- Volunteer experience under the direction of a Certified Child Life Specialist is highly recommende

Pre-entrance requirements (p. 24):

- A background check
- Health clearance

## Program requirements

| Required | | |
|---|---|---|
| CHLS 501 | Hospitalized Infant and Toddler Development | 3 |
| CHLS 502 | Introduction to the Child-Life Profession | 3 |
| CHLS 503 | Preparation for Clinical Placement | 3 |
| CHLS 504 | Child Life Administration and Program Development | 3 |
| CHLS 505 | Cross-Cultural Perspectives in Health Care [3] | 3 |
| CHLS 506 | Therapeutic Play for Children Affected by Illness and Injury | 3 |
| CHLS 507A | Aspects of Illness and Disease | 3 |
| CHLS 507B | Aspects of Illness and Disease | 3 |
| CHLS 508 | Grief and Loss | 3 |
| CHLS 509 | Child-Life Assessment | 3 |
| CHLS 604 | Child Life Internship Seminar I | 4 |
| CHLS 605 | Child Life Internship Seminar II | 4 |
| CHLS 606 | Parenting Medically Fragile Children | 3 |
| CHLS 607 | Child Life Professional | 3 |
| CHLS 608 | Child Life Practicum | 1 |
| CHLS 609 | Global Practice: Child Life Specialist | 3 |
| COUN 576 | Exceptional and Medically Challenged Children | 3 |
| COUN/MFAM 584 | Advanced Child and Adolescent Development | 3 |
| MFAM 501 | Research Tools and Methodology: Quantitative | 3 |
| MFAM 515 | Crisis Intervention and Client Advocacy | 3 |
| MFAM 516 | Play Therapy | 2 |
| MFAM 553 | Family Systems Theory | 3 |
| MFAM 568 | Groups: Process and Practice | 3 |
| MFAM/COUN 644 | Child Abuse and Family Violence | 3 |
| RELR 568 | Care of the Dying and Bereaved (or equivalent) | 3 |
| **Total Units** | | **74** |

| **Clinical training** [1, 2] | | |
|---|---|---|
| CHLS 700 | Clinical Training | 2 |
| CHLS 701 | Clinical Training | 6 |
| CHLS 702 | Clinical Training | 6 |
| **Total Units** | | **14** |

[1] Clinical training units (700-numbered courses) are in addition to the minimum didactic units required for the degree

[2] A minimum of 700 hours of clinical child life hours (CHLS 604, CHLS 605 and CHLS 608) completed within the degree program. Students must register for 14 clinical training units (CHLS 700, CHLS 701 and CHLS 702).

[3] Fulfills service learning requirement

Other degree requirements

- Residence of at least two academic years.
- Students must meet the knowledge, skills, and professional performance competencies outlined by the program.
- Maintain a minimum grade point average of 3.0 (or a letter grade of B on a 4.0 scale) in order to progress successfully though the program and complete the degree. Any course with a grade below a B (3.0) must be repeated.
- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and final oral and written examinations at the end of the program.
- Background check passed prior to matriculation.

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) — full-time enrollment required

# Counseling — M.S.

**Interim program director**
Randall Walker

The M.S. degree program in counseling is located in the Department of Counseling and Family Sciences within the School of Behavioral Health. Candidates prepare to become licensed professional clinical counselors (LPCC). Students may also elect to prepare to become pupil personnel services (PPS) credentialed school counselors. Those wishing to complete the school counseling certificate program must apply separately before the end of the first quarter of their graduate degree program. See the school counseling (p. 165) certificate program for further details.

The curriculum is designed to give students a broad academic background in mental health counseling and with supervised field experience. Degree requirements include completion of 90 quarter units of academic coursework and field experience, as stipulated in the curriculum. Clinical placements range from working as a trainee in University clinics—such as the Behavioral Medicine Center, to off-campus sites of various types.

Graduates who complete Loma Linda University's M.S. degree in counseling meet all educational requirements to treat individuals, families, and groups.

Students may also complete the certificate in drug and alcohol counseling (p. 158) by adding a minimum number of units to their program of study. Those interested must apply separately to this certificate program.

## Licensed professional clinical counselor (LPCC)

Professional clinical counseling (LPCC) is a broad-based mental health profession throughout the United States that qualifies LPCCs for work in a variety of settings. Loma Linda University graduates of the M.S. degree in counseling program are educationally qualified to treat individuals, families, and groups of all ages. They are also prepared to address education and career counseling issues as well as work with families of children with special needs. When licensed, they may choose to set up private practices or work in mental health clinics, substance-use treatment facilities, inpatient and outpatient medical facilities, religious organizations, family court, employee assistance programs, retirement homes, higher education, and K-12 schools as mental health counselors.

The California Business and Professions Code Section 4999.20 defines professional clinical counseling as "the application of counseling interventions and psychotherapeutic techniques to identify and remediate cognitive, mental, and emotional issues—including personal growth, adjustment to disability, crisis intervention, and psychosocial and environmental problems. Professional clinical counseling includes conducting assessment for the purpose of establishing counseling goals and objectives to empower individuals to deal adequately with life situations, reduce stress, experience growth, change behavior, and make well-informed rational decisions."

The California Board of Behavioral Sciences (BBS) regulates all master's-level licenses in mental health. State standards for LPCC are consistent with national standards, making it easier for graduates to be granted reciprocity throughout the country. Equivalent licensure in other states may be referred to as licensed professional counselor, licensed clinical mental health counselor (LCMHC), or similar titles. Complete information regarding the scope of license for LPCC is located on the Board of Behavioral Sciences website <http://bbs.ca.gov/pdf/forms/lpc/lpc_scope_practice.pdf>.

## LPCC clinical training and field experience

All LPCC candidates must complete field experiences as advised throughout their programs. LPCC completion requires 300 clock hours of clinical training in counseling clients. Additional details related to hours and supervision will be available upon admission.

## Counseling and Family Sciences Clinic

The Loma Linda University Counseling and Family Sciences (CFS) Clinic is operated by the Department of Counseling and Family Sciences. Counseling students may be placed in the CFS Clinic during their time in the program.

## Additional certification options

Candidates may choose to become certified in pupil personnel services (PPS) (http://llucatalog.llu.edu/behavioral-health/school-counseling-certificate/) or drug and alcohol counseling (p. 158). Both certificate programs require additional applications. See specific program for details.

## Program learning outcomes

Graduates of the M.S. degree program in counseling will be able to:

1. Develop an identity as a professional counselor;
2. Demonstrate an awareness and understanding of the ethical standards of professional counseling organizations and credentialing bodies, and the ability to apply ethical and legal considerations in professional counseling;
3. Demonstrate knowledge of strategies for identifying and eliminating barriers, prejudices, and processes of intentional and unintentional oppression and discrimination in clinical work;
4. Demonstrate ethical and culturally relevant strategies for promoting resilience as well as optimum development and wellness across the life span;
5. Identify strategies for facilitating client skill development for career, educational, and life-work planning and management;
6. Demonstrate knowledge of and competency in a variety of evidence-based prevention and intervention counseling strategies and techniques;
7. Develop knowledge of group therapy, an understanding of group dynamics, and competency in designing, forming, and facilitating groups;
8. Demonstrate ethical and culturally relevant strategies for selecting, administering, and interpreting assessment and test results.

## Financial assistance

For information regarding funding opportunities, see Student Aid (p. 42) in the financial polices section of this CATALOG.

## Accreditation

The Counseling M.S. is accredited through the University by the Accrediting Commission for Schools Western Association of Schools and Colleges (ACS WASC). The Counseling M.S. program has been evaluated and approved by the California Board of Behavioral Sciences (BBS) to meet Licensed Professional Clinical Counselor (LPCC) licensure requirements, pursuant to California Business and Professions Code (BPC) §4999.33. The Pupil Personnel Services Credential Program (PPS) in School Counseling is approved by the California Commission on Teacher Credentialing (CTC) which regulates and issues credentials.

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

## Admissions

Applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Applicants, who meet these requirements, as well as the published deadlines for the following terms, may be admitted during Fall, Winter, Spring, or Summer Quarters. Additional admission requirements include:

- Bachelor's degree from a regionally accredited college or university.
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor's coursework for at least the final 45 units prior to graduation.
    - Special consideration may be given to applicants with grade point averages as low as 2.75 if the last part of their college work shows significant improvement.
    - Applicants whose cumulative grade point averages do not meet minimum requirements may receive further consideration for admission by demonstrating background experience(s) that provides evidence that the applicant has the potential to successfully complete the program. The applicant must verify work or volunteer experience that demonstrates commitment to working as a professional counselor.
- Ability to clearly communicate career objectives, personal interest in the counseling profession, rationale for choosing to attend Loma Linda University, how life experiences have influenced applicant's choice to enter the field, and additional thoughts the applicant deems important.
- Interview with department faculty; as scheduled either on-campus; other interviews (by phone or online using Zoom) are scheduled individually for applicants who are unable to attend in-person interviews.

The applicant should view instructions for completing the application for registration as a Licensed Professional Clinical Counselor (LPCC) associate on the California Board of Behavioral Sciences (https://www.bbs.ca.gov/) website to understand the California requirements for licensure. Applicants with significant legal histories should contact the program director before applying to the program.

Pre-entrance requirements (p. 24):

- A background check
- Health clearance

## Program requirements

The curriculum for the M.S. degree in counseling is divided into two domains: Core courses and Practicum-Internship courses. Requirements for completing the 90-unit masters degree are met by registering for eight (8) units of electives. The Counseling and Family Sciences department offers two certificates - School Counseling (http://llucatalog.llu.edu/behavioral-health/school-counseling-certificate/) and Drug and Alcohol Counseling (http://llucatalog.llu.edu/behavioral-health/drug-alcohol-counseling-certificate/). Students may utilize elective units to easily integrate either of these certificates into their MS Counseling program. All electives must be advisor approved.

Students must maintain a grade point average of 3.0 on a 4.0 scale (or a letter grade of B) in order to progress successfully through the program and complete the degree. In addition, students must meet the knowledge, skills, and professional performance competencies outlined by the program.

All course grades should meet the minimum B (3.0) standard, which by university policy indicates satisfactory performance. Courses in which a student earns a grade below a B (3.0) may need to be repeated (or may not apply to the degree) if competency in the subject area is related to practice performance with clients, and a grade less than a 3.0 represents marginal or unsatisfactory practice performance.

| **Core Courses** | | |
|---|---|---|
| COUN 501 | Research Tools and Methodology: Quantitative | 3 |
| COUN 502 | Research Tools and Methodology: Qualitative | 3 |
| COUN 515 | Crisis Intervention and Client Advocacy | 3 |
| COUN 524 | Psychopharmacology and Medical Issues | 3 |
| COUN 528 | Culture, Socioeconomic Status in Therapy | 3 |
| COUN 540 | Professional Counseling Orientation | 3 |

| | | |
|---|---|---|
| COUN 547 | Social Ecology of Individual and Family Development | 3 |
| COUN 556 | Psychopathology and Diagnostic Procedures | 3 |
| COUN 568 | Groups: Process and Practice | 3 |
| COUN 575 | Counseling Theory and Applications | 3 |
| COUN 576 | Exceptional and Medically Challenged Children | 3 |
| COUN 577 | Assessment in Counseling | 3 |
| COUN 579 | Career Theories and Applications | 4 |
| COUN 580 | Advanced Counseling Theory and Techniques | 4 |
| COUN 584 | Advanced Child and Adolescent Development | 3 |
| COUN 604 | Social Context in Clinical Practice: Gender, Class, and Race | 3 |
| COUN 614 | Law and Ethics | 3 |
| COUN 624 | Individual and Systems Assessment | 3 |
| COUN 638 | Substance Use Disorders, Relationships, and Recovery | 3 |
| COUN 644 | Child Abuse and Family Violence | 3 |
| COUN 674 | Human Sexual Behavior | 3 |
| COUN 675 | Dynamics of Aging | 1 |
| COUN 678 | Consultation and Program Evaluation | 3 |
| **Practicum-Internship Courses** | | |
| COUN 541 | Clinical Practicum Seminar – Early Counselor Development | 2 |
| COUN 542 | Clinical Internship Seminar – Spirituality | 2 |
| COUN 543 | Clinical Internship Seminar – Multicultural and Cross-Cultural Interactions | 2 |
| COUN 544 | Clinical Internship Seminar – Recovery-Oriented Care | 2 |
| COUN 546 | Clinical Internship Seminar – Substance Use Disorder Treatment | 2 |
| **Religion Requirement** | | |
| RELR 540 | Wholeness and Health [2] | 3 |
| **Electives** [1] | | **8** |
| **Total Units** | | **90** |

[1] Advisor-approved electives may be chosen from relevant graduate courses in other programs, provided that the course is not restricted to students in that specific degree. A list of possible electives will be provided.

[2] Fulfills service learning requirement

### Degree requirements

- A minimum of 90 quarter academic credits of graduate work, which includes credit received for core courses, elective courses, and a three-unit religion course.

### Noncourse requirements

- Residence of at least two academic years.
- A minimum grade point average of 3.0 with no course grade lower than B.
- University-required background check, TB test, annual flu vaccination and health clearance.
- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and a final oral comprehensive examination (or equivalent) at the end of the program.

### Normal time to complete the program

Two [2] years (seven [7] academic quarters) — based on full-time enrollment; part time enrollments are permitted.

# Drug and Alcohol Counseling — Certificate

**Program director**
Randall Walker

The Drug and Alcohol Counseling Program is offered online by the School of Behavioral Health through the Department of Counseling and Family Sciences. Students enrolled in the M.S. in marital and family therapy, M.S. in counseling, or the combination of these two programs within the Department of Counseling and Family Sciences are able to graduate with this certificate by taking one advanced course and adding four units of practicum to their program of study.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Effectively counsel individuals with substance-use disorders and their families;
2. Once licensed, apply for national certification through selected professional organizations;
3. Integrate the experience of counseling substance-using and substance-addicted populations with primary professional identity.

## Certificate examinations

Coursework is developed to assist students in meeting the requirements for certifications offered through NAADAC: the Association for Addiction Professionals (formerly, the National Association of Alcoholism and Drug Abuse Counselors) and the American Academy of Health Care Providers in the Addictive Disorders (AAHCPAD), as well as others. Students become eligible for these master's level or higher certifications after completing professional licensure and accruing additional experience. Students should refer to credentialing requirements for specific organizations.

## Fieldwork

Students complete four quarters of fieldwork at an approved site dealing with substance use, alcoholics/addicts, and their families. Successful completion of fieldwork requires accruing 200 hours of face-to-face supervised, clinical experience. Fieldwork provides excellent opportunities for gaining experience in working with a substance use disorder population. Students will be evaluated quarterly by field placement supervisors and program faculty members. Students may complete fieldwork in placement sites with which the Department of Counseling and Family Sciences has established relationships; or, with program director approval, students may work in other settings which do not directly serve individuals with substance use disorders but where it is determined addiction may be a significant focus of clinical attention.

Students participate in online practicum classes, which meet bi-weekly with program faculty. Practicum classes are synchronous and scheduled at a time convenient to most individuals within the continental United States.

## Admissions

The certificate program is open to persons enrolled in a behavioral science master's degree program or those who hold a master's degree or higher in a behavioral science discipline. Qualified individuals who have interests in substance use disorder treatment are encouraged to apply.

Applicants must meet Loma Linda University (p. 23) and the School of Behavioral Health (p. 147) admission requirements outlined in this CATALOG and give evidence of academic ability, professional comportment, and mature judgment. Applicants are screened for appropriateness to complete the certificate program and for their ability to work with substance using individuals and their families.

### Additional admission requirements include:

- A University application/reapplication to this program (including students currently enrolled in another program at Loma Linda University) and meeting all requirements for application prior to admission into the certificate program.
- As part of the application essay, describe how the applicant will integrate the drug and alcohol counseling certificate into their work as a behavioral health professional, and the contributions the applicant anticipates making to the substance use disorder treatment field as well as their profession.
- An interview, conducted either face-to-face or online via Zoom, with the program director.

Pre-entrance requirements (p. 24):

- A background check
- Health clearance

## Program requirements

| Required | | |
|---|---|---|
| COUN/MFAM 638 | Substance Use Disorders, Relationships, and Recovery [1] | 3 |
| MFAM 645 | Advanced Treatment Strategies – Substance Use Disorders | 3 |
| MFAM 654 | Practicum in Drug and Alcohol Counseling [2] | 4 |
| RELR 540 | Wholeness and Health | 3 |
| **Total Units** | | **13** |

[1] Online, asynchronous course

[2] Multiple registrations required to fulfill minimum four unit requirement. Practicums are synchronous online courses.

### Minimum required grade point average

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the certificate.

### Normal time to complete the program

Four (4) academic quarters — based on part-time enrollment

# Marital and Family Therapy — M.S., D.M.F.T.

## The marriage and family therapy profession

Marriage and Family Therapy is a distinct international mental health profession based on the premise that relationships are fundamental to the health and well-being of individuals, families, and communities. Marriage and family therapists (MFTs) evaluate and treat mental and emotional disorders and other health and behavioral problems; and address a wide array of relationship issues within the context of families and larger systems. The federal government has designated marital and family therapy a core mental health profession—along with counseling, social work, psychiatry, psychiatric nursing, and psychology. All 50 states also support and regulate the profession by licensing or certifying marriage and family therapists.

## Ongoing program review

The M.S. and D.M.F.T. degrees engage in ongoing review of student outcomes and use this information to improve program effectiveness. Data on student outcomes are collected through aggregate scores on the following: quarterly evaluations of clinical competency, results of qualifying examinations and clinical demonstrations, client session and outcome data, and exit surveys and interviews of students at graduation. Alumni surveys are also conducted every two years to track graduates' attainment of marital and family therapy licensure, data on employment, and feedback regarding how well the program prepares graduates for their job responsibilities. The program faculty also maintains regular contact with community agencies and educational institutions in the region to obtain input into curriculum planning and improvements in clinical training.

## Financial assistance

Students who are accepted into the M.S. or D.M.F.T. degree curriculums may apply for work-study and department-funded research, teaching, and administrative assistantships awarded by the Department of Counseling and Family Sciences. Departmental awards are contingent upon the availability of funds. Students may also apply for need-based financial aid, such as a loan or other work-study programs on campus. There are also small school-based scholarships for which students may apply. Students accepted into the D.M.F.T. degree curriculum in marital and family therapy are eligible for and encouraged to apply for the AAMFT minority fellowships. See <http://www.aamft.org/> for information.

Students may apply for financial aid by writing to:

Student Financial Aid Office
Student Services
Loma Linda University
Loma Linda, CA 92350
909/558-4509

## Accreditation

The Doctor of Marital and Family Therapy degree program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), 112 South Alfred Street, Alexandria, Virginia 22314; telephone: 703/838-9808; email: <coa@aamft.org> (coa@aamft.org).

## Program Requirements

- Marital and Family Therapy—M.S. (p. 160), D.M.F.T. (p. 163),

# Marital and Family Therapy — M.S

**Program director**
Mary E. Moline

The Master of Science degree curriculum in marital and family therapy (MFT) is designed to give students an excellent COAMFTE clinical and academic background; as well as professional practice for working with individuals, couples, groups, and families in a variety of settings. The program emphasis is systemic and relational practice, and couples and family therapy. These include but are not limited to medical, legal, educational, mental health, managed care, public and private agencies, church settings, and private practice.

Students may also complete the certificate in drug and alcohol counseling (please consult with advisor). A separate application for the certificate program is required.

## Mission, vision, and values

The program's mission: Educating MFT students to provide effective and competent care to diverse families in local, national, and international communities.

The program's vision: MFT students will learn how to "make diverse families whole." The definition, configuration, and experience of family vary widely; students are trained to regard, respect, and value human difference and family types so as to work successfully with all who seek the services of a marital and family therapist.

The program has adopted four Loma Linda University values as central to the values of this program:

*Compassion*—Reflects the love of God with respect, mercy, and empathy.

*Integrity*—Carries out actions with honesty and trustworthiness.

*Excellence*—Provides service that exceeds expectations with effectiveness, reliability, and efficiency.

*Justice*—Commits to diversity, equity, and inclusion.

## Licensure and program accreditation

Marriage and family therapy is established by law in California as a profession requiring state licensure. Persons who desire to enter the profession must have the academic and clinical preparation, and must pass required licensing examinations. Clinical license requirements vary by state and include additional hours of supervised clinical practice beyond those hours that are completed while studying for the graduate degree. The Board of Behavioral Sciences determined that Loma Linda University's master's degree in marital and family therapy meets the Senate Bill statutory requirements for marriage and family therapy under Business and Professions Code section 4980.36 and 4980.37 (<www.bbbs.ca.gov (https://www.bbs.ca.gov)>).

The program offered by Loma Linda University is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education, the accrediting body for the American Association for Marriage and Family Therapy. The national commission ensures that academic and clinical training programs adhere to the highest standards of the profession.

The program is 90 quarter units. Students who want to sit for both the California Professional Counselor License (LPCC) and the Marriage and Family Therapy license (LMFT) in the State of California have the option to enroll in 4 units of coursework above the 90 required units for the MFT program. These units may not be covered by financial aid. Students interested in this option should consult with the M.S. MFT program director and the LLU Office of Financial Aid for more information.

## Conduct or disciplinary actions

The applicant should view "instruction for completing application for registration as a marriage and family intern" at the Board of Behavioral Science Examiner's website for possible issues that may prevent someone from obtaining a marital and family therapy license in the state of California, or any state in which a license is sought. A person who completes a graduate degree in MFT may be denied licensure due to prior convictions. This should to be clearly considered before pursuing studies or licensure.

## Clinical training

In addition to successful completion of 90 quarter units of academic coursework, students in the Marital and Family Therapy Program must complete field experience at clinical placement sites. Upon completion of 18 quarter units, the student will be evaluated by the teaching faculty to determine if they will continue the program and be permitted to enter the clinical phase of the program. Students have numerous choices of placement sites in which to gain required clinical experience. These sites include community mental health centers, private and public agencies, school and hospital settings, and the department's counseling and family sciences clinic. Some stipends are available for trainees. Clinical training includes a seven-quarter practicum sequence and supervision of trainees at a clinical site.

Students will have to complete the minimum requirements for clinical hours as established by the program's national accrediting body—the Commission of Accreditation for Marriage and Family Therapy Education (COAMFTE). To meet this requirement, students must complete clinical hours that are relational, e.g. with couples and/or families, prior to graduation. Students must also receive live supervision of their clinical hours prior to graduation. All clinical hours must occur over a minimum of twelve months of clinical practice.

- For every week in which clients are seen, the student must have at least one hour of individual supervision.
- The ratio of supervision hours to treatment hours must not be less than one hour of supervision to five hours of clinical contact.
- Students enrolled in the program should consult the MFT Clinical Training Manual regarding clinical training requirements.

## Degree completion

The M.S. degree in marital and family therapy may be completed in either two years of full-time study or at least three years of part-time study. Students have up to five years to complete the degree. In order to maintain full-time status, students must take a minimum of eight units during Fall, Winter, Spring, and Summer Quarters. First-year students most often attend classes on Tuesday and Thursday; and second-year students attend classes on Monday and Wednesday. Full-time employment is discouraged when a student is enrolled for full-time study. Clinical training experiences are usually on days students are not in class.

In order to participate in the June commencement exercises, students must complete all program requirements including coursework and clinical training.

## Financial assistance

Students accepted into the Marital and Family Therapy Program may receive financial assistance through merit-based awards, such as teaching fellowships and a variety of research and student service assistantships; or through need-based financial aid, such as a loan or the University's work-study program. On a limited basis, students receive financial assistance during their clinical traineeships. For further information regarding application for financial aid and financial aid options, please contact:

Student Financial Aid Office
Student Services
Loma Linda University
Loma Linda, CA 92350
909/558-4509

## Educational outcomes

The program's educational outcomes include program outcomes and student learning outcomes. These are congruent with the University's and program's missions, and are appropriate to the profession of marriage and family therapy.

### Program goals

Program goals integrate this University's commitment to diversity and quality training of health-care professionals, with the need for diverse master's degree-level practitioners in the field of MFT.
These outcomes are as follow:

1. Prepare students to engage in the MFT profession by being eligible for MFT licensure in California, with a 65-to-80 percent pass rate for students who sit for the examination; and by being eligible for membership in AAMFT.
2. Maintain a 75 percent or higher graduation rate.
3. Provide a learning environment and resources that allow students to collaborate with other health-care providers and multiple community services or contexts.
4. Graduate a diverse student population prepared to practice in the field of marriage and family therapy.

### Program learning outcomes

The University emphasizes whole-person care. Each of the six program learning outcomes for the M.S. degree in MFT supports this mission with a specific emphasis on advancing systems/relational theory and practice in diverse societal contexts. The student will learn to promote the emotional health and well-being of individuals, couples, families, organizations, and communities. By the end of this program, the graduate should be able to:

1. Identify as a systemic MFT therapist and apply systemic perspective in clinical practice;
2. Apply clinical language and practices in a variety of MFT therapies that enable them to work with diverse populations within a multidisciplinary context;
3. Analyze and present a clinical case using one of the major MFT models;
4. Demonstrate awareness of contextual issues in therapy such as gender, religion/spirituality, sexual orientation, age, and socioeconomic status;
5. Apply legal and ethical standards relevant to the field of marital and family therapy to their clinical practice;
6. Apply for internship status and subsequent licensure as an MFT professional aligned with practice standards.

The M.S. degree in marital and family therapy engages in ongoing review of program outcomes and uses this information to improve program effectiveness. Data on program outcomes are collected through aggregate scores on quarterly evaluations of clinical competency as well as results of final oral and comprehensive examinations; client session and outcome data; and exit surveys and interviews of students at graduation. Alumni surveys are also conducted every two years to track graduates' attainment of marital and family therapy licensure, data on employment, and feedback regarding how well the program prepared graduates for their job responsibilities. Program faculty also maintain regular contact with community agencies and educational institutions in the region to obtain input into curriculum planning and improvements in clinical training.

## Accreditation

The program is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COMAFTE), the accrediting body for the American Association for Marriage and Family Therapy (AAMFT). The next renewal is 2025. The national commission functions to ensure academic and clinical training programs adhere to the highest standards of the profession. They may be contacted at 112 South Alfred Street, Alexandria, VA 22314-3061; telephone: 703/838-9808; email: <coamfte@aamft.org>.

## Admissions

In addition to Loma Linda University (p. 23) admissions requirements, admission to the MS in Marital and Family Therapy Program is governed by the policies and procedures established by the School of Behavioral Health (p. 147).

Additional admission requirements include:

- A bachelor's degree from an accredited university or college. The department assesses the liberal arts preparation of each of its applicants in the balance of coursework, in three liberal arts (see Liberal Arts Preparation).
- At least three letters of recommendation from an academic or employment source.
- Meet the minimum academic and professional compatibility criteria established by the program.
- A cumulative grade point average of 3.0 or above (on a 4.0 scale) in bachelor's coursework.
  - Applicants with grade point averages as low as 2.75 may be considered if the last 45 quarter credits (30 semester units) of coursework are 3.0 or higher or if they have additional attributes that demonstrate preparedness and an appropriate fit for marital and family therapy education. They may submit verified work and volunteer experiences that provide evidence for the potential to successfully complete the program. Employer/supervisor verification statements must be submitted on official agency stationery.

- Further consideration will also be given to individuals who provide evidence of additional certifications and/or training that illustrate commitment to careers in marriage and family therapy.
- Those admitted to the M.S. in Marital and Family Therapy with a cumulative G.P.A. below 3.0 will be required to participate in an individualized academic assessment and a targeted learning assistance program.

- Interviews are scheduled with department faculty members. On-campus group interviews are scheduled during Fall, Winter, Spring and Summer quarters, while on-campus and telephone interviews are scheduled individually.
- Show evidence of professional compatibility, personal qualifications, and motivation to complete a graduate program by obtaining a passing score on the admissions interview with the department's admissions committee. Evaluation criteria for the interview include:
  - verbal communication skills
  - congruent with the values and mission of Loma Linda University
  - critical thinking ability
  - comfort/willingness to work with people from diverse backgrounds, language, culture and abilities
  - intuitive judgment & skill, talent, and self-awareness
  - understanding of the field
  - commitment to the field

No academic credit is given for life experiences or previous work experience for any part for the Marriage and Family Therapy degree program.

Pre-entrance clearance (p. 24):

- A background check
- Health clearance

# Program requirements

A grade of B or better indicates that a student has mastered the knowledge, skill, and professional practice performance competencies outlined by the program. In order to progress successfully and complete the degree, students must meet both course and cumulative G.P.A. standards. The University allows students to repeat two courses per degree. Course repeat expectations set by the School of Behavioral Health may be found in the general regulations (p. 147) section of this CATALOG.

| | | |
|---|---|---|
| **Foundations of relational/systemic practice, theories & models** | | |
| MFAM 551 | Family Therapy: Foundational Theories and Practice | 3 |
| MFAM 553 | Family Systems Theory | 3 |
| MFAM 564 | Family Therapy: Advanced Foundational Theories and Practice | 3 |
| **Clinical treatment with individuals, couples and families** | | |
| MFAM 515 | Crisis Intervention and Client Advocacy | 3 |
| MFAM 552 | Couples Therapy: Theory and Practice | 3 |
| MFAM 638 | Substance Use Disorders, Relationships, and Recovery | 3 |
| MFAM 644 | Child Abuse and Family Violence | 3 |
| MFAM 674 | Human Sexual Behavior | 3 |
| **Diverse multicultural and/or underserved communities** | | |
| MFAM 528 | Culture, Socioeconomic Status in Therapy | 3 |
| MFAM 567 | Treating the Severely and Persistently Mentally Ill and the Recovery Process | 3 |
| MFAM 604 | Social Context in Clinical Practice: Gender, Class, and Race | 3 |
| **Research and evaluation** | | |
| MFAM 501 | Research Tools and Methodology: Quantitative | 3 |
| MFAM 502 | Research Tools and Methodology: Qualitative | 3 |
| **Professional identity, law, ethics & social responsibilities** | | |
| MFAM 614 | Law and Ethics | 3 |
| MFAM 635 | Case Presentation and Legal Issues | 3 |
| **Biopsychosocial health and development across the life span** | | |
| COUN 675 | Dynamics of Aging | 1 |
| MFAM 547 | Social Ecology of Individual and Family Development | 3 |
| MFAM 584 | Advanced Child and Adolescent Development | 3 |
| **Systemic/relational assessment and mental health diagnosis and treatment** | | |
| MFAM 524 | Psychopharmacology and Medical Issues | 3 |
| MFAM 556 | Psychopathology and Diagnostic Procedures | 3 |
| MFAM 624 | Individual and Systems Assessment | 3 |
| **Contemporary issues** | | **8** |
| Select from the following: | | |
| CFSD 540 | Introduction to Medical Family Therapy | |
| CFSD 544 | Health and Illness in Families | |
| COUN 579 | Career Theories and Applications | |
| COUN 574 | Educational Psychology | |
| COUN 575 | Counseling Theory and Applications | |
| COUN 576 | Exceptional and Medically Challenged Children | |
| COUN 577 | Assessment in Counseling | |
| COUN 678 | Consultation and Program Evaluation | |
| COUN 680 | Field Experience in Counseling | |
| MFAM 516 | Play Therapy | |
| MFAM 539 | Solution-Focused Family Therapy | |
| MFAM 549 | Christian Counseling and Family Therapy | |
| MFAM 555 | Narrative Family Therapy | |
| MFAM 559 | Cognitive-Behavioral Couples Therapy | |
| MFAM 605 | Gestalt Family Therapy | |
| MFAM 606 | Emotionally Focused Couples Therapy | |
| MFAM 645 | Advanced Treatment Strategies – Substance Use Disorders | |
| MFAM 654 | Practicum in Drug and Alcohol Counseling | |
| MFAM 665 | Structural and Multidimensional Family Therapy | |
| MFAM 694 | Directed Study: Marriage and Family | |
| **Community intersections and collaboration** | | |
| MFAM 535 | Case Presentation and Professional Studies | 3 |
| MFAM 536 | Case Presentation and Documentation | 3 |
| MFAM 537 | Case Presentation | 3 |
| MFAM 636 | Case Presentation and Client-Centered Advocacy | 3 |
| MFAM 637 | Case Presentation and Global Practices | 3 |
| MFAM 731 | Clinical Training [1] | |
| MFAM 732 | Clinical Training [1] | |
| **Religion** | | |
| RELR 540 | Wholeness and Health [2] | 3 |

| | | |
|---|---|---|
| **Group** | | |
| MFAM 568 | Groups: Process and Practice | 3 |
| **Total Units** | | **90** |

[1] 700-numbered courses do not count toward total didactic units required for the degree

[2] Fulfills service learning requirement

### Degree requirements

Requirements for the M.S. degree in marital and family therapy from Loma Linda University include the following:

- A minimum of 90 quarter units of graduate work, which includes credit received for core courses, electives, and a three-unit religion course.
- Clinical training in marriage and family therapy - students are required to complete the minimum clinical training requirements established by COAMFTE including relational client contact hours and live supervision.
- For every week in which clients are seen, the student must have at least one hour of individual supervision. The ratio of supervision hours to treatment hours must not be less than one hour of supervision to five hours of clinical contact. Students enrolled in the program should consult the MFT Clinical Training Manual regarding clinical training requirements.
- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and an oral examination (taken at the end of the program).

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) — based on full-time enrollment

# Marital and Family Therapy — D.M.F.T.

**Program director**
Nichola Seaton Ribadu

The Doctor of Marital and Family Therapy (D.M.F.T.) program is the only online D.M.F.T. program in the United States that is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE). The program is fully online, and online delivery utilizes synchronous and asynchronous formats.

The curriculum adopts the practitioner-administrator-evaluator approach and focuses on applied skill development for use in clinical practice and administrative positions. The goal of the curriculum is to prepare students to apply evidence-based standards to the systemic/relational principles of marriage and family therapy as they design, evaluate, and administer programs that impact a clinical population. Graduates of the D.M.F.T. program use a multicultural lens and are well-prepared to serve as ethically-competent leaders who advance the marital and family therapy profession. Alumni most often work as program directors, grant proposal writers, program evaluators, advanced clinicians, and clinical supervisors. Some alumni also serve in university settings as faculty members and adjunct professors.

The 78-unit D.M.F.T. degree curriculum requires a minimum of three years of full-time study for completion. This includes coursework, direct client contact consistent with COAMFTE guidelines, a doctoral project, and supervised professional development experience.

## Knowledge and skills promoted

### Theory and practice

Students study the work of the original thinkers in marital and family therapy, as well as the most recent developments in the field—such as social constructionism, evidence-based practice, and global perspectives. D.M.F.T. students will develop skills in applying marriage and family therapy principles and frameworks to public and private clinical practice settings. They will develop a critical understanding of the theoretical and philosophical foundations of marriage and family therapy, be conversant with the current issues in the field, and use this knowledge to develop programs and services.

### Personal development

The program encourages students to develop a clear understanding of themselves, and invites reflection and consideration of the impact of their personal values, social positions, and contexts on their clinical, administrative, and program development practices. Students are supported in the development of their strengths as they create an epistemological framework and ethical consciousness that guide their approach to professional practice in their lives. They are also encouraged to engage beyond their local communities to include experiences in wider cultural and global contexts.

### Practice and supervisory skills

Students will apply an in-depth understanding of theory as it relates to the practice of marital and family therapy interventions and program activities at family, community, and societal levels—drawing on the core marriage and family therapy frameworks. They will develop sophistication in clinical, administrative, and supervisory skills necessary for multisystemic engagement. Since it is COAMFTE-accredited, the D.M.F.T. program offers students the opportunity to complete the requirements for becoming AAMFT-approved supervisors prior to graduation.

### Evaluation skills

Students will develop skills and understanding of the process of applied research related to marital and family therapy programs and services. This includes the ability to apply research findings to clinical practice and to utilize research findings in creative ways for the benefit of the general population. D.M.F.T. students will focus on evaluation of program performance and outcomes in practice-based settings. Students are responsible for ensuring they are following the AAMFT Approved Supervisor application processes and submitting their application directly to AAMFT. The application is not a requirement of the D.M.F.T. program.

## Program goal and outcomes

The goal of the D.M.F.T. program is to prepare doctoral-level marital and family therapists to serve as program developers, as well as evaluators/administrators, who will promote the health and well-being of individuals, families, and communities. This goal works in combination with the larger University mission of advancing health services that attend to the whole person by developing practiced-based knowledge in marriage and family therapy.

There are two overall program outcomes. These outcomes integrate our University's commitment to diversity and quality training of health-care professionals with the need for diverse doctoral-level practitioners skilled

in program development/evaluation and administration. The program outcomes are:

1. Graduating a diverse student body prepared to advance the field of marriage and family therapy through practice-based leadership, founded on the consumption of current and reliable research.
2. Preparing doctoral-level family therapy professionals to apply the systemic/relational principles of the field to develop, evaluate, and administer ethically competent programs that contribute to MFT practice.

## Student learning outcomes

By the end of this program, the graduate should be able to:

1. Develop a professional identity as a doctoral-level marital and family therapist aligned with national practice standards;
2. Become adept in systems/relational practice, demonstrating sophistication as a therapist, program developer, evaluator, and administrator of marital and family therapy services;
3. Use marital and family therapy, human development, and family science literatures to design and evaluate programs, clinical protocols, organizational structures, and service-delivery processes;
4. Further benefit families and communities by demonstrating the ability to use research and evaluation methodologies to improve human service program performance and outcomes;
5. Be responsive to the societal, cultural, and spiritual contexts in which health and well-being are embedded;
6. Develop an ethical consciousness that guides their practice in all aspects of professional work.

## Advanced standing policy

National accreditation and certification processes ensure that degrees are comparable across institutional boundaries. This advanced standing policy recognizes the value of these professional review processes on the part of the Department of Counseling and Family Sciences, and facilitates cooperation in professional training within the marital and family therapy discipline. The policy ensures that 60 percent of doctoral academic credit will be earned at Loma Linda University, while enabling cooperative relationships with other accredited programs.

### Guidelines

Advanced standing may be granted for previous coursework equivalent in content and scope to required counseling and family sciences (CFS) courses. This reduces the number of units to be taken at this University. Determination of advanced standing is based on the following guidelines:

1. Residency requirements
   a. Doctoral degree. Advanced standing may not reduce total units below 47 units for the Doctor of Marital and Family Therapy (D.M.F.T.) degree.
2. Determination of equivalency
   a. Credits applied to advanced standing must be graduate-level courses earned at an accredited institution. No credit may be applied for grades lower than a "B."
   b. Courses completed in programs accredited by the Commission on Accreditation for Martial and Family Therapy Education (COAMFTE) will be reviewed as a whole in relation to CFS program requirements. It is anticipated that comparable course content from these schools may be divided into different course configurations than that of this University. Students seeking advanced standing based upon units earned at other institutions will be evaluated on a case-by-case basis in accordance with COAMFTE standards.
   c. Advanced standing is not granted for religion courses.
   d. Doctoral courses taken more than seven years prior to enrollment as a student in the Department of Counseling and Family Sciences may be considered for advanced standing only if the content has been used professionally on a regular basis and the student can demonstrate current knowledge in the field.
   e. Approved prior client contact hours may also be applied. See CFS doctoral handbook for approval process.
3. Approval process

   Students seeking advanced standing should meet with their program director prior to admission or within the first two quarters of study, supplying copies of each syllabus of prior coursework. Following the course review, the student will initiate an academic variance specifying the coursework and/or work experience, with documentation of coursework and experience for every course submitted for advance standing.

## Financial assistance

Students who are accepted into the D.M.F.T. degree curriculum in marital and family therapy may apply for work-study and department-funded research, teaching, and administrative assistantships awarded by the Department of Counseling and Family Sciences. Departmental awards are contingent upon the availability of funds. Students may also apply for need-based financial aid, such as a loan or other work-study programs on campus. Students may also apply for the School of Behavioral Health-based scholarships offered each year. Students accepted into the D.M.F.T. degree curriculum in marital and family therapy are eligible for and encouraged to apply for the AAMFT minority fellowships. See <http://www.aamft.org> (http://www.aamft.org) for information.

Students may apply for financial aid by writing to:

Student Financial Aid Office
Student Services
Loma Linda University
Loma Linda, CA 92350
909/558-4509

finaid@llu.edu

## Accreditation

The Doctor of Marital and Family Therapy degree program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), 112 South Alfred Street, Alexandria, Virginia 22314; telephone: 703/838-9808; email: <coa@aamft.org> (coa@aamft.org).

## Admissions

Applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements; and provide evidence of academic ability, professional comportment, and mature judgment. The Doctor of Marital and Family Therapy degree curriculum represents advanced study over and above a standard master's degree curriculum in the field. Admission is based on an integrated evaluation of the following criteria:

- Clinical master's degree in Marital and Family Therapy, or clinical counseling. The master's degree must be a qualifying degree for licensure in the applicant's state of residence.
- Grade point average (3.3 minimum).
- Structured oral interview with department faculty (one day).
- Three letters of reference (two academic and one professional preferred).
- Curriculum vitae.

Pre-entrance clearance (p. 24):

- A background check.
- Health clearance.

Anti-discrimination policy (http://behavioralhealth.llu.edu/programs/counseling-and-family-sciences/dmft-marital-and-family-therapy/)

In the department of Counseling and Family Sciences, we adhere to University policy (p. 12) and do not discriminate against anyone on the basis of socioeconomic or relationship status.

# Program requirements

| | | |
|---|---|---|
| **Theory and practice** | | |
| CFSD 504 | Advanced Theory in Marital and Family Therapy | 4 |
| CFSD 506 | Foundations of Systems Thinking: Theory and Application | 3 |
| CFSD 519 | Teaching in Higher Education | 3 |
| CFSD 546 | Multicultural and Global Mental Health | 3 |
| CFSD 634A | Practicum in Couple and Family Therapy | 3 |
| CFSD 634B | Practicum in Couple and Family Therapy | 3 |
| CFSD 634C | Practicum in Couple and Family Therapy | 3 |
| **Supervision** | | |
| CFSD 501 | Fundamentals of Supervision in Marital and Family Therapy | 3 |
| CFSD 502 | Advanced Supervision in Marital and Family Therapy | 1 |
| **Program development and administration** | | |
| CFSD 524 | Marital and Family Therapy Administration: Organizational Structure, Process and Behavior | 3 |
| CFSD 526 | Advanced Marital and Family Therapy Assessment | 3 |
| CFSD 555 | Organizational Development and Change | 3 |
| CFSD 624 | Program Development for Families and Communities | 3 |
| CFSD 625 | Grant Writing | 3 |
| CFSD 626 | Program Design, Evaluation and Monitoring | 3 |
| **Spirituality** | | |
| RELE 5__ | Graduate-level ethical studies elective | 3 |
| RELT 5__ | Graduate-level theological studies elective | 3 |
| RELR 540 | Wholeness and Health | 3 |
| **Research** | | |
| CFSD 545 | Research and Practice with Couples and Families | 3 |
| CFSD 605 | Advanced Quantitative Methods | 3 |
| CFSD 611 | Qualitative Research Methods I | 4 |
| CFSD 627 | Statistical Analysis for Program Evaluation | 3 |
| **Doctoral project** | | |
| CFSD 695 | Project Research | 12 |
| **Total Units** | | **78** |

| | | |
|---|---|---|
| **Professional development and practice** [2] | | |
| CFSD 785A | Begin Clinical Training in Couple, Marital, and Family Therapy | 0 |
| CFSD 785B | Clinical Training in Couple, Marital, and Family Therapy [1, 3] | 0-20 |
| CFSD 786 | Professional Development Proposal | 0 |
| MFTH 786A and 786B total combined units [1] | | 36 |
| CFSD 786A | Professional Development Doctoral Portfolio | |
| CFSD 786B | Professional Internship in Couple and Family Therapy | |
| **Total Units** | | **36-56** |

1 Course repeated to fulfill total unit requirement

2 700-numbered courses do not count in total didactic units required for the degree

3 Clinical hours earned prior to entering the D.M.F.T. program may be applied to meet this requirement upon approval of the Director of Clinical Training. This will reduce the number of units reqiured for CFSD 785B.

## Noncourse requirements

Doctoral degrees in Marital and Family Therapy will be awarded when students have completed all required coursework and the following non-course requirements:

- Clinical training in marriage and family therapy. Students are required to complete the minimum clinical training requirements established by COAMFTE including relational client-contact hours and live supervision.
- A written qualifying examination.
- An oral defense of the doctoral project.

## Normal time to complete the program

Three (3) years (eleven [11] academic quarters) — based on full-time enrollment

# School Counseling — Certificate

### Program director

Randall Walker

Admissions are limited to students enrolled in a degree program in the Department of Counseling and Family Sciences.

The School Counseling Program certificate qualifies a graduate for the California Pupil Personnel Services (PPS) credential in school counseling. Students pursuing the M.S. degree in counseling or the M.S. in marital and family therapy may integrate the school counseling certificate into their degree program.

The School Counseling certificate program is designed in accordance with the department's vision of transforming relationships. Faculty members are committed to the mission of facilitating wholeness by promoting health, healing, and hope to individuals, families, and communities through education, research, professional training, community service, and global outreach.

## Professional school counseling

Professional school counselors are leaders of counseling programs within the educational system. As articulated by the American School Counselor Association (ASCA), school counseling programs are preventive in design, developmental in nature, and integral to the total educational program. Counselors address academic, career, and personal/social needs through their work as advocates for PreK-12 students, collaborators with parents and school personnel, and liaisons to the community. Employment as a school counselor in public schools requires the Pupil Personnel Services credential in school counseling. Combining the school counselor certification with licensure in clinical mental health is an excellent professional path that enhances competence and professional opportunities. Additional information is located on the California Commission on Teacher Credentialing website at <http://www.ctc.ca.gov>.

## Practicum and field experience

Field experience requirements for the certificate program include 100 hours of pre-field practicum followed by 600 hours of field experience.[1] For students in a clinical master's degree program, pre-field hours are met earlier through clinical placements. In addition, 200 of the required 600 hours of school counseling field experience can be elective hours from clinical training. The remaining 400 hours must be completed as a school counselor trainee in public schools, evenly divided between two different grade blocks (e.g., elementary school, middle school, or high school).

## Financial assistance

This program is not independently eligible for federal financial aid. However, a student can complete the requirements for this certificate while concurrently enrolled in a School of Behavioral Health graduate degree program as noted above (see degree and certificate requirements). The student's choice of elective courses will dictate any out-of-pocket cost required for the certificate. Students who are pursuing the School Counseling certificate will be provided with academic advising regarding electives in an effort to reduce out-of-pocket costs to the student.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Integrate counseling concepts and skills with a personal epistemology;
2. Demonstrate counseling interventions based upon a broad range of theoretical and legal/ethical frameworks through comprehensive written examination;
3. Develop identity as a professional school counselor through membership and participation in professional organizations;
4. Satisfactorily complete 600 clock hours of supervised practicum in counseling, 200 of which may be supervised clinical hours;
5. Meet all University qualifications for the California Pupil Personnel Services credential in school counseling issued by the California Commission on Teacher Credentialing (CTC).

[1] Effective July 1, 2022 the requirement for the PPS credential changes to 800 supervised hours of experience. No new candidates for PPS may be admitted to the old standards after June 30, 2022. All candidates admitted to the certificate program on or after July 1, 2022 will be required to meet the new standards.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wascsenior.org/contact (http://www.wascsenior.org/contact/)>. The pupil personnel services (PPS) credential curriculum in school counseling is accredited by the Committee on Accreditation, on behalf of the California Commission on Teacher Credentialing (CTC). The next Commission visit occurs during the 2023-24 academic year. Additional PPS information can be obtained by going to the CTC website at <http://www.ctc.ca.gov/>.

## Admissions

Applicants wishing to pursue the school counseling certificate program apply online through the LLU Admissions Portal. Students pursuing the M.S. degree in Counseling or the M.S. degree in Marital and Family Therapy must complete the standard online application to enroll in the School Counseling certificate program and are advised to consult with the program director prior to initiating application.

As with all programs in the School of Behavioral Health, applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Applicants, who meet these requirements as well as the published application deadlines for the following terms, may be admitted during summer, autumn, winter, or spring quarters. Additional admission requirements include:

- Candidate pursuing a qualifying M.S. degree.
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor's coursework for at least the final 45 units prior to graduation, or minimum of 3.0 grade point average in master's degree program.
- Three letters of recommendation (two letters for students already admitted to the department master's degree program).
- A written personal statement that addresses career objectives, personal interest in the school counseling profession, the rationale for choosing to attend Loma Linda University, how life experiences have influenced the applicant's choice to enter professional school counseling, and additional thoughts the applicant deems appropriate.
- Interview with the program director and department faculty as scheduled.

## California Test of Basic Skills (CBEST)

Applicants to the school counseling certificate must take and pass all sections of the California Basic Educational Skills Test (CBEST) prior to admission to the program.

Pre-entrance clearance (p. 24):

- A background check
- Health clearance

## Program requirements

The curriculum for the School Counseling Program may be taken with the M.S. degree in counseling (p. 156), qualifying the student for the PPS credential; or combined with the requirements for the M.S. degree in marital and family therapy (p. 160). Enrollment in the PPS program is currently restricted to candidates in one of these two master's degree programs within the Counseling and Family Sciences department—counseling, or marital and family therapy.

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the certificate.

## Degree and certificate requirements

The School Counseling Program certificate may be included with the M.S. Counseling degree or the M.S. MFT degree at Loma Linda University. A separate application is required for consideration and admission into the school counseling certificate program. An approved master's degree is required for state credentialing. Therefore, it is not possible to complete the certificate and receive a University recommendation for the school counseling credential until all M.S. degree and certificate requirements are completed. This applies to students pursuing the M.S. degree in counseling or the M.S. degree in marital and family therapy. Required courses for the certificate/credential program are listed below.

## Certificate of clearance prior to field placement

School Counseling Program students must obtain a certificate of clearance (COC) from the state of California before they are allowed to begin field experience. The COC requires verification of a current TB test and a LiveScan, in accordance with state guidelines. The process can take six to eight weeks.

| **Course requirements** | | |
|---|---|---|
| COUN 574 | Educational Psychology | 3 |
| COUN 575 | Counseling Theory and Applications | 3 |
| COUN 576 | Exceptional and Medically Challenged Children | 3 |
| COUN 577 | Assessment in Counseling | 3 |
| COUN 579 | Career Theories and Applications | 4 |
| COUN 678 | Consultation and Program Evaluation | 3 |
| COUN 679 | Professional School Counseling | 3 |
| COUN 681 | School Counseling Practicum and Seminar [1] | 2 |
| RELR 540 | Wholeness and Health | 3 |
| **Field experience** [2] | | |
| COUN 781 | School Counseling Field Experience (PPS) | 4 |
| COUN 782 | School Counseling Field Experience (PPS) | 4 |
| **Total Units** | | **27** |

[1] Course to be taken a minimum of two times

[2] When combining the PPS school counseling certificate/credential program with a clinical master's, only COUN 781 and COUN 782 are required. 700-numbered courses do not count toward minimum didactic units required for the certificate.

### Normal time to complete the program

1 year (four [4] academic quarters) — based on full-time enrollment; part-time permitted

# Systems, Families, and Couples—Ph.D.

**Program director**
Zephon Lister

The Ph.D. degree in systems, families, and couples follows the scientist-practitioner model in which students are expected to develop expertise in research, teaching and professional practice. The three-to-four year, 103-unit curriculum includes two years of coursework, professional development and clinical practice leading to licensure or certification, and one year of supervised dissertation experience. The purpose of the curriculum is to develop family science scholars and practitioners who will advance theory, research, practice, and teaching in the fields of couple and family therapy and family social science. Students will be prepared for academic, professional, and clinical positions in universities, community mental health, and medical settings. Ph.D. students develop expertise in conducting original research using quantitative, qualitative, and mixed-method approaches; teaching in academic and community settings; and advanced clinical practice.

## Ph.D. degree program specialty

The core academic curriculum is composed of 80 units of coursework in the areas of theory, research, and religion. Students then choose one of two specialties: (1) couples and family therapy; or (2) family studies. Each specialty includes 23 units of coursework.

The family studies specialty focuses on skill development in the areas of family studies research, program development and evaluation, academic teaching, and family life education. This specialty meets the course requirements of the National Council on Family Relations for Certified Family Life Educator. More information on this certification can be found on the organization's official website at <http://www.ncfr.org> (http://www.ncfr.org/).

The couples and family therapy specialty focuses on skill development in the areas of clinical research, academic teaching, medical family therapy/integrated behavioral health, and advanced clinical practice and supervision. This specialty is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), the accrediting body for the American Association for Marriage and Family Therapy (AAMFT). The couples and family therapy specialty fulfills the requirements to become an AAMFT-approved supervisor; and clinical training and practice qualifications to be a medical family therapist.

## Knowledge and skills promoted

### Theory

Students study the work of original thinkers in systems, families, and couples; as well as the most recent developments within the fields of family studies and family therapy. They develop a critical understanding of the theoretical and philosophical foundations of the field, critically examine the interplay between the biopsychosocial-spiritual dimensions of relationships, become conversant in the current issues in the field of family science, and contribute to the discourse regarding them. Students will use this knowledge to advance the fields of family therapy and family studies.

### Research skills

Students develop skills and a critical understanding of the process of research and evaluation related to families and interventional work. A

scientist-practitioner model is used to equip them with the ability to develop, consume, and apply research in professional practice. Students will develop expertise in social science statistical analysis; quantitative, qualitative, and mixed-method research methodologies; and grant writing.

### Teaching skills

The program provides experiential and didactic training for teaching in higher education and community settings. Through didactic training, students will be exposed to current trends and best practices in teaching. Students will examine various teaching and learning paradigms with the intention of helping them develop their own epistemology and philosophy of teaching. They will test and grow this epistemology through experiential training as they assist with courses (e.g., develop syllabi, lecture, and assignments) under the supervision of a faculty member. Students will be given opportunities to assist, facilitate, or co-facilitate courses on their own.

### Practice and supervisory skills

Students will apply a critical understanding of theory and research to work with couples and families, larger communities, and organizations. They will develop an in-depth understanding of clinical theory and its application to clinical practice. Advanced supervised clinical training and family life education opportunities will be provided throughout the course of the program. Additionally, students in the couples and family therapy specialty will develop skills as an AAMFT-approved clinical supervisor.

### Personal development

The program encourages students to develop a clear understanding of themselves, and it invites reflection and consideration of the impact of their personal values, social positions, and contexts on their clinical and scholarly practices. Students are supported in the development of their strengths as they create epistemological frameworks and ethical consciousness to guide their research and practice. They are encouraged to engage beyond their local community to include experiences in wider cultural, social and global contexts.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Analyze, synthesize, apply, and critique theories of human development and family therapy/family science to advance and integrate theory into research and practice in the field;
2. Demonstrate knowledge and skills as a researcher in the field of marital and family therapy/family science through research, professional publication, and presentation;
3. Demonstrate competency in teaching and supervision within academic and community settings;
4. Become adept in systems/relational practice, demonstrating sophistication as a scientist/practitioner (only applies to CFT specialty);
5. Develop a professional identity as doctoral-level family therapists/educators aligned with national practice standards, demonstrating service and professionalism through professional and community involvement;
6. Be responsive to the societal, cultural, and spiritual contexts in which health and well-being are embedded;
7. Be proficient in the legal guidelines of the marital and family therapy/family life education field, and develop an ethical consciousness that guides their practice in all aspects of professional work.

## Financial assistance

For information regarding funding opportunities, see Student Aid (p. 42) in the financial polices section of this CATALOG.

Students who are accepted into the Ph.D. degree in systems, families, and couples may apply for work-study and department-funded research, teaching, and administrative assistantships awarded by the Department of Counseling and Family Sciences. Departmental awards are contingent upon the availability of funds.

## Admissons

Applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. The Ph.D. degree curriculum represents advanced study over and above a standard master's degree curriculum in the field. Admission is based on an integrated evaluation of the following criteria:

- Master's degree (for clinical track, master's degree must be in marital and family therapy or other clinical mental health discipline)
- Grade point average (3.3 minimum)
- Structured oral interview with department
- Three letters of reference (two academic and one professional)
- GRE scores (taken within the past five years). Due to issues associated with the COVID-19 pandemic, the GRE General Test is waived for all 2021-2022 applicants to doctoral programs in the School of Behavioral Health. Please do not submit GRE scores through ETS or report your scores in any application materials as they will not be taken into consideration.
- Curriculum vitae (preferred, but not required)

The admissions committee uses the above criteria to evaluate applicants on each of the following equally weighted criteria:

1. Academic preparedness
2. Professional preparedness for doctoral study
3. Research potential
4. Ability to work with diversity
5. Clinical and/or Family Life Education skills

Pre-entrance clearance (p. 24):

- A background check
- Health clearance

## Program requirements

### Corequisites

Student transcripts will be evaluated on a course-by-course basis for the following areas of corequisite study. A plan of study incorporating these standard master's degree-level courses is available for students who have not completed these corequisites. See required master level courses.

| | |
|---|---|
| Theoretical knowledge in family systems/relational therapy or family science | 8 |
| Clinical knowledge in marital and family therapy or family life education | 16 |
| Individual development and family relations | 8 |
| Additional study in the three areas above | 4 |

| | |
|---|---|
| Professional issues and ethics in marital and family therapy or family studies | 4 |
| Research | 4 |
| Additional related study | 4 |
| **Total Units** | **48** |

A grade of B or better indicates that a student has mastered the knowledge, skill, and professional practice performance competencies outlined by the program. In order to progress successfully and complete the degree, students must meet both course and cumulative G.P.A. standards. The University allows students to repeat two courses per degree. Course repeat expectations set by the School of Behavioral Health may be found in the general regulations section of this CATALOG.

## Curriculum

| | | |
|---|---|---|
| **Theory and practice** | | |
| CFSD 505 | Advanced Family Studies: Theory Construction | 3 |
| CFSD 506 | Foundations of Systems Thinking: Theory and Application | 3 |
| CFSD 519 | Teaching in Higher Education | 3 |
| CFSD 544 | Health and Illness in Families | 3 |
| CFSD 546 | Multicultural and Global Mental Health | 3 |
| CFSD 565 | Neurobiology of Relationships, Stress and Trauma: Family Science Applications | 3 |
| **Research** | | |
| CFSD 545 | Research and Practice with Couples and Families | 3 |
| CFSD 601 | Statistics I | 4 |
| CFSD 602 | Statistics II | 4 |
| CFSD 603 | Statistics III | 4 |
| CFSD 605 | Advanced Quantitative Methods | 3 |
| CFSD 606 | Issues in Family Research | 3 |
| CFSD 611 | Qualitative Research Methods I | 4 |
| CFSD 612 | Qualitative Research Methods II | 3 |
| CFSD 625 | Grant Writing | 3 |
| **Specialty** | | **23** |
| Choose one of the following specialty areas | | |
| **Couples and family therapy** | | |
| CFSD 501 | Fundamentals of Supervision in Marital and Family Therapy | |
| CFSD 502 | Advanced Supervision in Marital and Family Therapy | |
| CFSD 504 | Advanced Theory in Marital and Family Therapy | |
| CFSD 540 | Introduction to Medical Family Therapy | |
| CFSD 548 | Family Therapy and Medicine | |
| CFSD 634A | Practicum in Couple and Family Therapy | |
| CFSD 634B | Practicum in Couple and Family Therapy | |
| CFSD 634C | Practicum in Couple and Family Therapy | |
| **Family studies** | | |
| CFSD 528 | Marriage and the Family | |
| CFSD 534 | Family Life Education I | |
| CFSD 535 | Family Life Education II | |
| CFSD 536 | Family Life Education III | |
| CFSD 555 | Organizational Development and Change | |
| CFSD 624 | Program Development for Families and Communities | |
| CFSD 626 | Program Design, Evaluation and Monitoring | |
| **Spirituality** | | |
| RELE 5__ or above | | 3 |
| RELR 540 | Wholeness and Health [3] | 3 |
| RELT 5__ or above | | 3 |
| **Dissertation** | | |
| CFSD 698 | Dissertation Research [1] | 22 |
| **Total Units** | | **103** |

| | | |
|---|---|---|
| **Professional development for specialty in couples and family therapy [2]** | | |
| CFSD 785A | Begin Clinical Training in Couple, Marital, and Family Therapy | 0 |
| CFSD 785B | Clinical Training in Couple, Marital, and Family Therapy [1] | 20 |
| CFSD 786 | Professional Development Proposal | 0 |
| MFTH 786A and 786B total combined units | | 36 |
| CFSD 786A | Professional Development Doctoral Portfolio [1] | |
| CFSD 786B | Professional Internship in Couple and Family Therapy [1] | |
| **Total Units** | | **56** |

| | | |
|---|---|---|
| **Professional development for speciality in family studies [2]** | | |
| CFSD 786 | Professional Development Proposal | 0 |
| CFSD 786A | Professional Development Doctoral Portfolio [1] | 36 |

1 Course repeated to fulfill total unit requirement

2 700-numbered courses do not count in total didactic units required for the degree

3 Fulfills service learning requirement

## Noncourse requirements

Doctoral degrees in systems, families and couples will be awarded when students have completed all the required coursework and the following non-course requirements:

- 1000 approved client contact hours (applies only to Couples and Family Therapy specialty).
- 200 approved hours of clinical supervision (applies only to Couple and Family Therapy specialty).
- Professional developmental portfolio criteria A (see program handbook for details) or written qualifying examination.
- An oral defense of the doctoral dissertation.

## Normal time to complete the program

Three (3) to four (4) years (13 academic quarters) — based on full-time enrollment

## Additional required courses for MFT licensure in California

Students entering the Ph.D. program without a COAMFTE accredited master's degree, who wish to obtain licensure in California, will be required to meet the course requirements of the M.S. in Marital & Family Therapy (p. ) program. A course-by-course evaluation will be done to determine which courses in the student's previous master's degree program fulfill specific course requirements for California licensure.

# Department of Psychology

The Department of Psychology offers a combination of innovative training opportunities in clinical psychology. Both the Doctor of Psychology (Psy.D.) and the Doctor of Philosophy (Ph.D.) degrees in clinical psychology are APA-accredited.

## Mission statement

The mission and motto of Loma Linda University and Loma Linda University Medical Center are "to continue the teaching and healing ministry of Jesus Christ to make man whole." This mission and motto, combined with the University's values of compassion, integrity, excellence, freedom, justice, purity, and humility are central to the Department of Psychology and its programs. The Department of Psychology seeks to advance the institutional mission, both nationally and internationally, through academic, research, and practice activities related to behavioral health.

Loma Linda University Health is part of a worldwide network of health-care systems, and is uniquely connected and poised to participate globally through its numerous clinics, hospitals, health-care facilities, and educational institutions throughout the world. This globalized health-care orientation provides expanded training opportunities for students who have a passion for a broader life experience in assisting with the health-care needs of diverse peoples both nationally and internationally.

## Academic writing support

Students who need assistance can contact their program director to arrange for individual support.

## Psychology M.A. degree eligibility

As part of the overall doctoral program, a master's degree in psychology —based on the successful completion of coursework for the degree— is available for students enrolled in the Ph.D. or Psy.D. degree program. Eligibility for the M.A. degree requires student to complete 52 units of coursework and to formally apply, by submitting the required forms, for the degree. The Department of Psychology does not admit students to an M.A.-only degree program; and the M.A. degree is not formally awarded at commencement. Students do not participate in the graduation exercise.

A complete list of part-time and voluntary faculty can be viewed on the department website: <http://www.llu.edu/behavioral-health/psychology/>.

### Chair
David A. Vermeersch

### Primary faculty
Hector M. Betancourt

Maya M. Boustani

Kendal C. Boyd

Colleen A. Brenner

Patricia Flynn

Richard E. Hartman

Grace J. Lee

Holly E.R. Morrell

Aarti R. Nair

Cameron L. Neece

Bridgette Peteet

Tori R. Van Dyk

David A. Vermeersch

### Secondary and adjunct faculty
Adam L. Arechiga

Helen Hopp Marshak

Kelly R. Morton

Jason E. Owen

Janet Sonne

### Emeritus faculty
Louis E. Jenkins

Alvin J. Straatmeyer

### Emeritus associated faculty
Jerry W. Lee

## Programs

- Psychology — Psy.D. (p. 172), Ph.D. (p. 170), Comparison (p. 175)

# Psychology — Ph.D.

**Director of clinical training**
Holly Morrell

The APA-accredited Ph.D. degree program in clinical psychology has been informed by the traditional scientist-practitioner model, which emphasizes training in research and clinical practice. The Ph.D. degree program is designed to be completed in six years (approximately 24 quarters of full-time enrollment).

## Program learning outcomes:

By the end of the program, the graduate should be able to:

1. Show an advanced understanding of the science of psychology;
2. Demonstrate skills for conducting independent and original research;
3. Function as a highly competent clinician for whom research and practice constantly inform each other;
4. Integrate whole-person care into clinical work;
5. Consistently engage in activities that promote lifelong learning.

## Curriculum

The Ph.D. clinical degree program requires completion of coursework in the following areas: psychological science foundations, quantitative/research foundations, wholeness, general and elective courses, psychological assessment and treatment, clinical practice, and research. The specific course requirements are predicated on the training model

(i.e., scientist-practitioner). The specific curriculum requirements associated with the Ph.D. degree program are indicated below.

All students are required to complete a specified number of elective units for the completion of their degree. The department offers elective coursework in specialty areas such as clinical health psychology, neuroscience and neuropsychology, clinical child psychology, social/cultural health psychology, and psychology of religion among other areas.

Students have the option (but are not required) to utilize 12 units of their total elective unit requirement to fulfill a professional concentration. A list of pre-determined concentrations can be found on the departmental website (https://behavioralhealth.llu.edu/academics/psychology/). If a student wishes to create a unique concentration, they must submit a formal proposal to the Department of Psychology Academic Affairs Committee indicating the proposed 12 elective units to use toward the completion of their professional concentration, as well as the proposed title of the professional concentration. The Department of Psychology Academic Affairs Committee will consider each proposal individually in making a recommendation to support/not support the proposed concentration.

Under certain circumstances and upon recommendation of the Department of Psychology Academic Affairs Committee, a student may adjust courses or numbers of units taken during the current and subsequent academic year(s) to best fit their program requirements. Also, upon such recommendation, students will be permitted to move forward as members of the cohort with which they enrolled.

# Accreditation

The Doctor of Philosophy degree in clinical psychology is accredited by the Commission on Accreditation of the American Psychological Association. Questions related to the program's accreditation status should be directed to the Commission on Accreditation:

Office of Program Consultation and Accreditation
American Psychological Association
750 First Street, NE, Washington, DC 20002
telephone: 202/336-5979; email: <apaaccred@apa.org> (apaaccred@apa.org); website: <https://www.accreditation.apa.org/>. (http://www.apa.org/ed/accreditation/)

# Admissions

In addition to Loma Linda University (p. 23) and School of Behavioral Health (p. 147) and the Faculty of Graduate Studies admissions requirements, the following minimum criteria are preferable to be considered for a pre-admission interview:

- A bachelor's degree in psychology or a related discipline.
- An undergraduate G.P.A. of 3.0 or higher on a 4.0 scale **or** a master's degree G.P.A. **of 3.3** or higher from an accredited college or university.
- *Verbal and quantitative scores, Graduate Record Examination (GRE) general test*: The sum of the GRE verbal and quantitative percentile rankings must equal or exceed 100, and neither percentile ranks can be below the 35th percentile. Only the most current GRE scores are admissible (exam must have been taken within the last five years and the most recent dated exam will be considered). The GRE psychology subject examination is not required. Due to issues associated with the COVID-19 pandemic, the GRE General Test is waived for all 2021-2022 applicants to doctoral programs in the School of Behavioral Health. Please do not submit GRE scores through ETS or report your scores in any application materials as they will not be taken into consideration.
- *Writing assessment, GRE general test*: The GRE analytical writing section score must equal 4.0 or higher.
- *Structured pre-admission interview by invitation:* The psychology department requires a structured pre-admissions interview.
- *Recommendation letters:* Three letters of recommendation from professionals unrelated to the applicant and qualified to assess the applicant's potential for graduate education. A minimum of two letters are preferred from current or previous professors.

Any exceptions to the established G.P.A. and GRE minimum criteria, or any other admissions criteria, are made at faculty discretion and grounded on faculty's overall assessment of the applicant and their credentials (e.g., demonstrated record of scholarship and/or specialized research training, strength of the applicant's prior academic training / institution, strength of applicant's letters of recommendation, and previous clinical experience).

# Program requirements

| | | |
|---|---|---|
| **Core Curriculum I: Foundations of psychological science** | | |
| PSYC 524 | History, Systems, and Philosophy of Psychology [1] | 2 |
| PSYC 545 | Cognitive Foundations [1] | 4 |
| PSYC 551 | Psychobiological Foundations [1] | 4 |
| PSYC 564 | Foundations of Social and Cultural Psychology [1] | 4 |
| PSYC 575 | Foundations of Human Development [1] | 4 |
| PSYC 591 | Colloquia (One unit each year for three years; one unti for M.A.) [1] | 3 |
| **Core Curriculum II: Quantitative psychology research methodology** | | |
| PSYC 501 | Advanced Statistics I [1] | 4 |
| PSYC 502 | Advanced Statistics II [1] | 4 |
| PSYC 503 | Advanced Multivariate Statistics (required only for M.A. of students pursuing the Ph.D.) [1] | 4 |
| PSYC 505 | Research Methods in Psychological Science [1] | 4 |
| PSYC 511 | Psychometric Foundations [1] | 3 |
| **Core Curriculum III: Wholeness** | | |
| PSYC 526 | Ethics and Legal Issues in Clinical Psychology [1] | 3 |
| PSYC 554 | Health Psychology [1] | 4 |
| PSYC 567 | Human Diversity | 3 |
| RELE 5__ | Graduate-level ethics | 3 |
| RELR 540 | Wholeness and Health [1, 5] | 3 |
| RELT 530 | Spirituality and Clinical Psychology | 3 |
| **Clinical psychology: General** | | |
| PSYC 555 | Psychopharmacology | 2 |
| PSYC 571 | Adult Psychopathology [1] | 4 |
| PSYC 681 | Clinical Supervision and Consultation | 2 |
| **Psychological assessment** | | |
| PSYC 512 | Cognitive/Intellectual Assessment | 2 |
| PSYC 512L | Cognitive/Intellectual Practice Laboratory | 1 |
| PSYC 513 | Objective Personality Assessment | 2 |
| PSYC 513L | Objective Personality Practice Laboratory | 1 |
| PSYC 516 | Neuropsychological Assessment | 2 |
| PSYC 516L | Neuropsychological Assessment Practice Laboratory | 1 |
| **Psychological treatment** | | |

| | | |
|---|---|---|
| PSYC 581 | Evidence-Based Psychological Practice I | 2 |
| PSYC 581L | Evidence-Based Psychological Practice I (Laboratory) | 1 |
| PSYC 582 | Evidence-Based Psychological Practice II | 2 |
| PSYC 582L | Evidence-Based Psychological Practice II (Laboratory) | 1 |
| PSYC 583 | Evidence-Based Psychological Practice III | 2 |
| PSYC 583L | Evidence-Based Psychological Practice III (Laboratory) | 1 |
| PSYC 584 | Evidence-Based Psychological Practice IV | 2 |
| PSYC 584L | Evidence-Based Psychological Practice IV (Laboratory) | 1 |
| **Elective** | | |
| Possible electives include, but are not limited to: [2] | | 18 |
| PSYC 566 | Cultural Psychology | |
| PSYC 604A | Advanced Topics in Multivariate Analyses I | |
| PSYC 604B | Advanced Topics in Multivariate Analyses II | |
| PSYC 676 | Geropsychology [3] | |
| PSYC 681L | Clinical Supervision and Consultation Laboratory | |
| PSYC 683 | Management and Professional Practice | |
| PSYC 684 | Human Sexual Behavior and Treatment [3] | |
| PSYC 685 | Drug Addiction and Therapy [3] | |
| PSYC 686 | Child, Partner, and Elder Abuse [3] | |
| PSYC 694 | Seminar in Advanced Topics in Psychology | |
| PSYC 795 | Directed Clinical Experience [4] | |
| **Research** | | |
| PSYC 697 | Ph.D. Doctoral Research (1-4) | 51 |
| **Total Units** | | **157** |

| | | |
|---|---|---|
| **Clinical practice [4]** | | |
| PSYC 721 | Practicum Preparation I | 3 |
| PSYC 781 | Internal Practicum (2) | 8 |
| PSYC 782 | External Practicum (4) | 16 |
| PSYC 798 | Pre-Internship (4) | 16 |
| Internship (any combination of PSYC 799A and PSYC 799B is acceptable) | | 40 |
| PSYC 799A | Internship (5) | |
| PSYC 799B | Internship (10) | |
| **Total Units** | | **83** |

1 Required for M.A. degree

2 Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any other school other than the School of Behavioral Health with department approval.

3 California licensure courses

4 700-numbered courses are in addition to didactic units required for the degree

5 Fulfills service learning requirement

## Minimum required grade point average

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the degree. Furthermore, three failed grades (B- or below, or U) is grounds for dismissal from the program.

## Comprehensive examination

Students in the Ph.D. program must successfully pass the comprehensive examination. The comprehensive examination is taken after completing the core curriculum. Though the specific format of the comprehensive examination is subject to change, the department currently utilizes the Examination for Professional Practice in Psychology as the comprehensive examination. This examination covers the following domains:

- biological bases of behavior
- cognitive—affective bases of behavior
- social and multicultural bases of behavior
- growth and life span development
- assessment and diagnosis
- treatment/intervention
- research methods
- ethical/legal/professional issues

## Doctoral research

Students in the Clinical Ph.D. program are expected to meet specified research requirements, among which is the doctoral dissertation. The requirements for the dissertation are delineated by the Department in accordance with standards established by the School of Behavioral Health and the Faculty of Graduate Studies For the doctoral dissertation, a formal proposal must be submitted to and approved by a faculty supervisory committee. Furthermore, upon completion of the doctoral dissertation, a public defense before the supervisory committee is required.

## Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of:

- the core curriculum
- required practicum experiences
- the comprehensive examination
- the doctoral dissertation proposal

## Normal time to complete the program

Six (6) years — full-time enrollment required

# Psychology — Psy.D.

**Director of clinical training**
Kendal C. Boyd

The APA-accredited Psy.D. degree program, influenced by the practitioner-scholar model, emphasizes training in clinical practice based on the understanding and application of scientific psychological principles and research. The Psy.D. degree program is designed to be completed in five years or approximately 20 quarters of full-time enrollment.

## Program learning outcomes

1. Show an advanced understanding of the science of psychology;
2. Function as a highly competent clinician for whom research and practice constantly inform each other;
3. Demonstrate skills for conducting and understanding research;
4. Integrate whole-person care into clinical work;
5. Consistently engage in activities that promote lifelong learning.

The Psy.D. degree program makes a systematic attempt to promote an understanding of human behavior in relation to psychological, physical, spiritual, and social/cultural dimensions. For this purpose, the program provides a positive environment for the study of psychological, biological, cultural, social, and spiritual issues relevant to psychological research and practice.

## Curriculum

The Psy.D. clinical degree program requires completion of coursework in the following areas: psychological science foundations, quantitative/research foundations, wholeness, general and elective courses, psychological assessment and treatment, clinical practice, and research. Specific course requirements are predicated on the practitioner-scholar training model. Curriculum requirements associated with the Psy.D. degree program are indicated below.

All students are required to complete elective units for degree completion. The department offers elective coursework in specialty areas such as primary care psychology, neuroscience and neuropsychology, clinical child psychology, social/cultural health psychology, and psychology of religion.

Students have the option (but are not required) to utilize 12 units of their total elective unit requirement to fulfill a professional concentration. A list of pre-determined concentrations can be found on the departmental website (https://behavioralhealth.llu.edu/academics/psychology/). If a student wishes to create a unique concentration, they must submit a formal proposal to the Department of Psychology Academic Affairs Committee indicating the proposed 12 elective units to use toward the completion of their professional concentration, as well as the proposed title of the professional concentration. The Department of Psychology Academic Affairs Committee will consider each proposal individually in making a recommendation to support/not support the proposed concentration.

Under certain circumstances, and upon recommendation of the Department of Psychology Academic Affairs Committee, students may adjust courses or numbers of units taken during the current and subsequent academic year(s) to best fit their program requirements. Upon such recommendation, students will be permitted to move forward as members of the cohort in which they enrolled.

## Accreditation

The Doctor of Psychology degree in clinical psychology is accredited by the Commission on Accreditation of the American Psychological Association. Questions related to the program's accreditation status should be directed to the Commission on Accreditation:

Office of Program Consultation and Accreditation
American Psychological Association
750 First Street, NE, Washington, DC 20002
telephone: 202/336-5979; email: apaaccred@apa.org; website <https://www.accreditation.apa.org/>. (http://www.apa.org/ed/accreditation/)

## Admissions

In addition to Loma Linda University (p. 23) and School of Behavioral Health (p. 147) and the Faculty of Graduate Studies admissions requirements, the following minimum criteria are preferable to be considered for a pre-admission interview:

- A bachelor's degree in psychology or a related discipline.
- An undergraduate G.P.A. of 3.0 or higher on a 4.0 scale **or** a master's degree G.P.A. of 3.3 or higher from an accredited college or university.
- *Verbal and quantitative scores, Graduate Record Examination (GRE) general test*: The sum of the GRE verbal and quantitative percentile rankings must equal or exceed 100, and neither percentile ranks can be below the 35th percentile. Only the most current GRE scores are admissible (exam must have been taken within the last five years and the most recent dated exam will be considered). The GRE psychology subject examination is not required. Due to issues associated with the COVID-19 pandemic, the GRE General Test is waived for all 2021-2022 applicants to doctoral programs in the School of Behavioral Health. Please do not submit GRE scores through ETS or report your scores in any application materials as they will not be taken into consideration.
- *Writing assessment, GRE general test:* The GRE analytical writing section score must equal 4.0 or higher.
- Structured pre-admission interview by invitation: The psychology department requires a structured pre-admissions interview.
- *Recommendation letters:* Three letters of recommendation from professionals unrelated to the applicant and qualified to assess the applicant's potential for graduate education. A minimum of two letters are preferred from current or previous professors.

Any exceptions to the established G.P.A. and GRE minimum criteria, or any other admissions criteria, are made at faculty discretion and grounded on the faculty's overall assessment of the applicant and their credentials. Credentials include a demonstrated record of scholarship and/or specialized research training, strength of the applicant's prior academic training/institution, strength of applicant's letters of recommendation, and previous clinical experience.

## Degree requirements

| | | |
|---|---|---|
| **Core Curriculum I: Foundations of psychological science** | | |
| PSYC 524 | History, Systems, and Philosophy of Psychology [1] | 2 |
| PSYC 545 | Cognitive Foundations [1] | 4 |
| PSYC 551 | Psychobiological Foundations [1] | 4 |
| PSYC 564 | Foundations of Social and Cultural Psychology [1] | 4 |
| PSYC 575 | Foundations of Human Development [1] | 4 |
| PSYC 591 | Colloquia (one unit each year for three years; one unit for M.A.) [1] | 3 |
| **Core Curriculum II: Quantitative psychology research methodology** | | |
| PSYC 501 | Advanced Statistics I [1] | 4 |
| PSYC 502 | Advanced Statistics II [1] | 4 |
| PSYC 505 | Research Methods in Psychological Science [1] | 4 |
| PSYC 511 | Psychometric Foundations [1] | 3 |
| **Core Curriculum III: Wholeness** | | |
| PSYC 526 | Ethics and Legal Issues in Clinical Psychology [1] | 3 |
| PSYC 554 | Health Psychology [1] | 4 |

| | | |
|---|---|---|
| PSYC 567 | Human Diversity | 3 |
| RELE 5__ | Graduate-level ethics | 3 |
| RELR 540 | Wholeness and Health [1, 5] | 3 |
| RELT 530 | Spirituality and Clinical Psychology | 3 |
| **Clinical psychology: General** | | |
| PSYC 555 | Psychopharmacology | 2 |
| PSYC 571 | Adult Psychopathology [1] | 4 |
| PSYC 681 | Clinical Supervision and Consultation | 2 |
| PSYC 681L | Clinical Supervision and Consultation Laboratory | 1 |
| PSYC 683 | Management and Professional Practice | 1 |
| **Psychological assessment** | | |
| PSYC 512 | Cognitive/Intellectual Assessment | 2 |
| PSYC 512L | Cognitive/Intellectual Practice Laboratory | 1 |
| PSYC 513 | Objective Personality Assessment | 2 |
| PSYC 513L | Objective Personality Practice Laboratory | 1 |
| PSYC 516 | Neuropsychological Assessment | 2 |
| PSYC 516L | Neuropsychological Assessment Practice Laboratory | 1 |
| **Psychological treatment** | | |
| PSYC 581 | Evidence-Based Psychological Practice I | 2 |
| PSYC 581L | Evidence-Based Psychological Practice I (Laboratory) | 1 |
| PSYC 582 | Evidence-Based Psychological Practice II | 2 |
| PSYC 582L | Evidence-Based Psychological Practice II (Laboratory) | 1 |
| PSYC 583 | Evidence-Based Psychological Practice III | 2 |
| PSYC 583L | Evidence-Based Psychological Practice III (Laboratory) | 1 |
| PSYC 584 | Evidence-Based Psychological Practice IV | 2 |
| PSYC 584L | Evidence-Based Psychological Practice IV (Laboratory) | 1 |
| **Electives** | | **19** |
| Electives include, but are not limited to: [2] | | |
| PSYC 566 | Cultural Psychology | |
| PSYC 604A | Advanced Topics in Multivariate Analyses I | |
| PSYC 604B | Advanced Topics in Multivariate Analyses II | |
| PSYC 676 | Geropsychology [3] | |
| PSYC 684 | Human Sexual Behavior and Treatment [3] | |
| PSYC 685 | Drug Addiction and Therapy [3] | |
| PSYC 686 | Child, Partner, and Elder Abuse [3] | |
| PSYC 694 | Seminar in Advanced Topics in Psychology | |
| **Research** | | |
| PSYC 696 | Psy.D. Doctoral Research (1-8) | 16 |
| **Total Units** | | **121** |

| | | |
|---|---|---|
| **Clinical practice** [4] | | |
| PSYC 721 | Practicum Preparation I | 3 |
| PSYC 781 | Internal Practicum (2) | 8 |
| PSYC 782 | External Practicum (4) | 16 |
| PSYC 798 | Pre-Internship (4) | 16 |
| Internship (any combination of PSYC 799A and PSYC 799B is acceptable) | | 40 |
| PSYC 799A | Internship (5) | |
| PSYC 799B | Internship (10) | |
| **Total Units** | | **83** |

1 Required for M.A. degree; includes 4 units of electives

2 Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any other school other than the School of Behavioral Health with department approval.

3 California licensure

4 700-numbered courses are in addition to didactic units required for the degree

5 Fulfills service learning requirement

## Minimum required grade point average

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the degree.

## Comprehensive examination

Students in the Psy.D. program must successfully pass the comprehensive examination. The comprehensive examination is taken after completing the core curriculum. Though the specific format of the comprehensive examination is subject to change, the department currently utilizes the Examination for Professional Practice in Psychology (EPPP) as part of the comprehensive examination. This examination covers the following domains:

- biological bases of behavior
- cognitive—affective bases of behavior
- social and multicultural bases of behavior
- growth and life span development
- assessment and diagnosis
- treatment/intervention
- research methods
- ethical/legal/professional issues

## Doctoral research

Students in the Psy.D. programs are expected to complete specified research requirements, among which is the doctoral project, the requirements of which are delineated by the Department in accordance with standards established by the School of Behavioral Health. For the doctoral project, a formal proposal must be submitted to and approved by a faculty supervisory committee. Furthermore, upon completion of the project, a public defense before the supervisory committee is required.

## Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of:

- the core curriculum (Parts I, II, III)
- required practicum experiences
- the comprehensive examination
- the doctoral project proposal

### Normal time to complete the program

Five (5) years — full-time enrollment required

# Psychology - Ph.D., Psy.D. Comparison

| | Course Title | PsyD | PhD |
|---|---|---|---|
| **Core Curriculum I: Foundations of Psychological Science** | | | |
| PSYC 524 | History, Systems, and Philosophy of Psychology | 2.0 | 2.0 |
| PSYC 545 | Cognitive Foundations | 4.0 | 4.0 |
| PSYC 551 | Psychobiological Foundations | 4.0 | 4.0 |
| PSYC 564 | Foundations of Social and Cultural Psychology | 4.0 | 4.0 |
| PSYC 575 | Foundations of Human Development | 4.0 | 4.0 |
| PSYC 591 | Colloquia (one unit each year for three years) | 3.0 | 3.0 |
| **Totals** | | **21.0** | **21.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Core Curriculum II: Quantitative Psychology Research Methodology** | | | |
| PSYC 501 | Advanced Statistics I | 4.0 | 4.0 |
| PSYC 502 | Advanced Statistics II | 4.0 | 4.0 |
| PSYC 505 | Research Methods in Psychological Science | 4.0 | 4.0 |
| PSYC 511 | Psychometric Foundations | 3.0 | 3.0 |
| PSYC 503 | Advanced Multivariate Statistics (required only for M.A. or students pursuing the Ph.D.) | | 4.0 |
| **Totals** | | **15.0** | **19.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Core Curriculum III: Wholeness** | | | |
| PSYC 526 | Ethics and Legal Issues in Clinical Psychology | 3.0 | 3.0 |
| PSYC 554 | Health Psychology | 4.0 | 4.0 |
| PSYC 567 | Human Diversity | 3.0 | 3.0 |
| RELE 5__ Graduate-level ethics | | 3.0 | 3.0 |
| RELR 540 | Wholeness and Health | 3.0 | 3.0 |
| RELT 530 | Spirituality and Clinical Psychology | 3.0 | 3.0 |
| **Totals** | | **19.0** | **19.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Clinical Psychology: General** | | | |
| PSYC 555 | Psychopharmacology | 2.0 | 2.0 |
| PSYC 571 | Adult Psychopathology | 4.0 | 4.0 |
| PSYC 681 | Clinical Supervision and Consultation | 2.0 | 2.0 |
| PSYC 681L | Clinical Supervision and Consultation Laboratory | 1.0 | |
| PSYC 683 | Management and Professional Practice | 1.0 | |
| **Totals** | | **10.0** | **8.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Psychological Assessment** | | | |
| PSYC 512 | Cognitive/Intellectual Assessment | 2.0 | 2.0 |
| PSYC 512L | Cognitive/Intellectual Practice Laboratory | 1.0 | 1.0 |
| PSYC 513 | Objective Personality Assessment | 2.0 | 2.0 |
| PSYC 513L | Objective Personality Practice Laboratory | 1.0 | 1.0 |
| PSYC 516 | Neuropsychological Assessment | 2.0 | 2.0 |
| PSYC 516L | Neuropsychological Assessment Practice Laboratory | 1.0 | 1.0 |
| **Totals** | | **9.0** | **9.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Psychological Treatment** | | | |

| | | | |
|---|---|---|---|
| PSYC 581 | Evidence-Based Psychological Practice I | 2.0 | 2.0 |
| PSYC 581L | Evidence-Based Psychological Practice I | 1.0 | 1.0 |
| PSYC 582 | Evidence-Based Psychological Practice II | 2.0 | 2.0 |
| PSYC 582L | Evidence-Based Psychological Practice II | 1.0 | 1.0 |
| PSYC 583 | Evidence-Based Psychological Practice III | 2.0 | 2.0 |
| PSYC 583L | Evidence-Based Psychological Practice III | 1.0 | 1.0 |
| PSYC 584 | Evidence-Based Psychological Practice IV | 2.0 | 2.0 |
| PSYC 584L | Evidence-Based Psychological Practice IV | 1.0 | 1.0 |
| **Totals** | | **12.0** | **12.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Electives** | | | |
| Other options available for Psy.D. electives[3] | | 19.0 | |
| PSYC 566 | Cultural Psychology | | |
| PSYC 604A | Advanced Topics in Multivariate Analyses I | | |
| PSYC 604B | Advanced Topics in Multivariate Analyses II | | |
| PSYC 676 | Geropsychology | | |
| PSYC 684 | Human Sexual Behavior and Treatment | | |
| PSYC 685 | Drug Addiction and Therapy | | |
| PSYC 686 | Child, Partner, and Elder Abuse | | |
| Other options available for Ph.D. electives[3] | | | 18.0 |
| PSYC 566 | Cultural Psychology | | |
| PSYC 604A | Advanced Topics in Multivariate Analyses I | | |
| PSYC 604B | Advanced Topics in Multivariate Analyses II | | |
| PSYC 676 | Geropsychology | | |
| PSYC 681L | Clinical Supervision and Consultation Laboratory | | |
| PSYC 683 | Management and Professional Practice | | |
| PSYC 684 | Human Sexual Behavior and Treatment | | |
| PSYC 685 | Drug Addiction and Therapy | | |
| PSYC 686 | Child, Partner, and Elder Abuse | | |
| PSYC 795 | Directed Clinical Experience | | |
| **Totals** | | **19.0** | **18.0** |
| | **Course Title** | **PsyD** | **PhD** |
| **Research** | | | |
| PSYC 696 | Psy.D. Doctoral Research (1-8) | 16.0 | |
| PSYC 697 | Ph.D. Doctoral Research (1-4) | | 51.0 |
| **Totals** | | **16.0** | **51.0** |
| **Overall Totals** | | **121.0** | **157.0** |

| | | | |
|---|---|---|---|
| | **Course Title** | **PsyD** | **PhD** |
| **Clinical practice** | | | |
| PSYC 721 | Practicum Preparation I[4] | 3.0 | 3.0 |
| PSYC 781 | Internal Practicum (2) [4] | 8.0 | 8.0 |
| PSYC 782 | External Practicum (4) [4] | 16.0 | 16.0 |
| PSYC 798 | Pre-Internship (4) [4] | 16.0 | 16.0 |
| PSYC 799B | Internship (10 units per quarter, total 40 units [2000 hours]) [4] | 40.0 | 40.0 |
| **Totals** | | **83.0** | **83.0** |

[1] RELE 500- or 600-level courses will also be accepted.

[2] RELT 500- or 600-level courses will also be accepted.

[3] Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any school other than the School of Behavioral Health, with department approval.

[4] 700-numbered courses are in addition to the didactic units required for the degree.

# Department of Social Work and Social Ecology

The Department of Social Work and Social Ecology is an interdisciplinary academic unit that supports the institution's commitment to human wholeness and its belief that one's fullest development is achieved when all subsystems affecting the individual are understood and balanced. Both conceptually and pragmatically, the programs in the Department of Social Work and Social Ecology are guided by an overarching ecological (bio-psycho-social-spiritual) perspective and methodological framework that supports the use of scientific methods of problem analysis and program design.

A key component in this framework is the importance of interdisciplinary scholarship when studying the interrelated aspects of behavioral, sociopolitical, economic, and environmental problems. The result is an interdisciplinary teaching, learning, and practice environment brought together for the purpose of creating sustainable interventions directed toward improving the functioning of individuals, families, groups, organizations, institutions, and communities. As such, priority has been given to creating an academic milieu favorable to educating competent, ethical, and compassionate professionals and scholars for advanced practice roles—capable of respecting and addressing the needs of diverse populations.

### Chair
Beverly J. Buckles

### Executive associate chair
Kimberly Freeman

### Primary faculty
Qais Alemi

Kelly Baek

Beverly J. Buckles

Monte Butler

Kimberly Freeman

Talolo Lepale

Susanne Montgomery

Larry Ortiz

### Secondary faculty
Jamie Banducci

Cristi Bell

Monica Brown

Vanessa Cortez

Neil Driscoll

Danielle Huntsman

Craig R. Jackson

G. Victoria Jackson

Elaine Karas

Veronica Kelley

Allison Maxwell

Kristen Miller

Georgina Mora Yoshioka

Eric Ontiveros

Martha Parra

Kenneth Sandoval

Kristen Slagter

### Emeritus faculty
Terry Forrester

Ignatius Yacoub

## Programs


- Clinical Leadership — D.S.W. (p. 178)
- Criminal Justice — M.S. (p. 180)
- Gerontology — M.S. (p. 181)
- Play Therapy — Certificate (p. 183)
- Social Welfare and Social Research — Ph.D. (p. 183)
- Social Work — M.S.W. (p. 185)


# Clinial Leadership — D.S.W.

**Program director**
Larry Orgiz

Prior to the end of the 1990s, two doctoral degrees (the Ph.D. and original D.S.W.) were viewed as interchangeable modes of advancing the scholarship of the social work profession. However, flexibility in the articulation of discipline-specific Ph.D. programs led to preference for the Ph.D. doctorate over the D.S.W. degree, finally resulting in the complete elimination of the D.S.W. degree in the United States. Over the last decade, there has been growing recognition by social work professionals and educators that a practice doctorate for social work addresses the expansion of much-needed applied scholarship in ways not being achieved by social work Ph.D. programs. Thus the role, importance, and a new vision of the practice doctorate in social work has been articulated and follows the journey seen in other fields such as nursing, physical therapy, speech, and audiology. As such, the D.S.W., degree in its rearticulated content, provides a pathway for M.S.W. level social workers to further their development as scholar practitioners, providing leadership and innovation in applied social work practice.

## Mission statement

The mission of the Doctor of Social Work program is to transform experienced M.S.W.-level social workers into scholar practitioners capable of advancing clinical social work practice knowledge and innovation through applied scholarship, leadership, education, and the promotion of social justice in support of whole-person care in an increasingly diverse and global practice environment.

## Program goals

The goals of the D.S.W. program are to:

1. Prepare doctoral-level social work scholar practitioners with expertise in clinical leadership.
2. Equip students with the understanding and skills needed to develop, implement, and disseminate knowledge and innovation in behavioral health practice and social work education.
3. Equip students to be transformative leaders in the integration and promotion of social justice in behavioral health services and social work education.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Conduct systematic inquiry that adheres to scholarly conventions;
2. Use and critically evaluate—at an advanced-level—evidenced-based, research-informed, and promising practices;
3. Develop and disseminate clinical practice, and educational innovations and knowledge that reflect the inherent values of the social work profession;
4. Demonstrate expertise in behavioral health clinical leadership that advances social work practice and education;
5. Demonstrate expertise in the application of mission-focused learning that promotes and integrates social justice in practice as well as education delivery and innovation.

## Financial assistance

Students who are accepted into the D.S.W. degree program may apply for work-study and department-funded research and teaching assistantships awarded by the Department of Social Work and Social Ecology. Departmental awards are contingent upon the availability of funds. Students may also apply for need-based financial aid, such as a loan or other work-study programs on campus. Students accepted into the D.S.W. degree program are eligible for and encouraged to apply for the CSWE minority fellowships. See https://www.cswe.org/Centers-Initiatives/Minority-Fellowship-Program/MFP-Doctoral-Students.aspx for information.

For information regarding funding opportunities, see Student Aid (p. 42) in the financial polices section of this CATALOG.

## Accreditation

All doctoral degrees at Loma Linda University fall under the institution's regional accreditation by the WASC Senior College and University Commission (WSCUC). D.S.W. degrees are not currently accredited by the Council on Social Work Education (CSWE), albeit the Council has engaged in public dialogue and dissemination of information that proposes that the criteria for accreditation of D.S.W. degrees will be articulated within the next three years in accordance with its Board's 2016 mandate. At present, the minimum program criteria to be eligible for consideration of future accreditation by CSWE is that: 1) all students must have earned a Master of Social Work (M.S.W.) degree from a program accredited by CSWE; and 2) all programs eligible for accreditation must demonstrate a program of study that is a minimum of three academic years of full-time study. The D.S.W. program at Loma Linda University has been designed to meet these criteria from inception and will apply for CSWE accreditation once available.

## Admissions

Applicants must meet Loma Linda University (p. 23) and School of Behavioral Health (p. 147) admissions requirements, and give evidence of academic ability, professional comportment, and mature judgment. The Doctor of Social Work degree curriculum represents advanced study over and above the M.S.W. degree. Admission is based on an integrated evaluation of the following criteria:

- M.S.W. degree or equivalent (e.g., M.S.S.W.) from a program that is accredited by the CSWE
- A minimum of four-years professional social work experience post receipt of the M.S.W. degree
- A minimum M.S.W. G.P.A. of 3.3
- Writing assessment, GRE general test: The analytical writing section score must equal 4.0 or higher, or applicant can demonstrate proficiency in professional writing as evidenced by first authorship on a professional publication. Due to issues associated with the COVID-19 pandemic, the GRE General Test is waived for all 2021-2022 applicants to doctoral programs in the School of Behavioral Health. Please do not submit GRE scores through ETS or report your scores in any application materials as they will not be taken into consideration.
- License to practice clinical social work is preferred
- Structured essay
- Structured oral interview with program
- Curriculum vitae
- Three letters of recommendation (academic and professional)

**Pre-entrance clearance:**

- A background check
- Health clearance

**Anti-discrimination policy:**

The Doctor of Social Work program adheres to the policy (http://llucatalog.llu.edu/introduction/affirmative-action/) of the university.

## Program requirements

| | | |
|---|---|---|
| **Theory, analytical analysis, and social justice** | | |
| SPOL 610 | Diversity Theory and Global Perspectives | 3 |
| SWCL 615 | Comparative Social Work Practice, Evidence-based Practice and Social Justice | 3 |
| SPOL 658 | Advanced Policy Analysis and Research | 3 |
| **Clinical interventions** | | |
| SWCL 620 | Clinical Interventions I: Advanced Theories and Cognitive Behavioral Therapy Interventions | 3 |
| SWCL 630 | Clinical Interventions II: Emergent Methods for Complex Conditions | 3 |
| SWCL 640 | Clinical Interventions III: Trans-modular Methods for Complex Systems | 3 |
| SWCL 650 | Neuroscience, Resiliency and Trauma-Focused Global Practice | 3 |
| **Clinical leadership, management and program development** | | |
| SWCL 670 | Clinical Leadership I | 3 |
| SWCL 680 | Clinical Leadership II | 3 |
| CFSD 624 | Program Development for Families and Communities | 3 |

| | | |
|---|---|---|
| CFSD 625 | Grant Writing | 3 |
| CFSD 626 | Program Design, Evaluation and Monitoring | 3 |
| **Academic leadership and practice** | | |
| SWCL 604A | Integrative Seminar: Academic Practice | 1 |
| SWCL 604B | Integrative Seminar: Academic Practice | 1 |
| SWCL 604C | Integrative Seminar: Academic Practice | 1 |
| SWCL 605 | Digital Design: Curriculum and Course Development | 2 |
| **Applied clinical leadership and academic practice** [1, 2] | | |
| SWCL 785 | Externship I | 2 |
| SWCL 786 | Externship II | 2 |
| **Spirituality, ethics, and whole person care** | | |
| RELE 5__ | Graduate-level ethics studies | 3 |
| RELR 540 | Wholeness and Health [3] | 3 |
| RELT 5__ | Graduate-level theological studies | 3 |
| **Research** | | |
| CFSD 601 | Statistics I | 4 |
| CFSD 602 | Statistics II | 4 |
| SPOL 654 | Research Methods I | 4 |
| SPOL 655 | Research Methods II | 4 |
| SWCL 660 | Translational Research, Design and Testing | 2 |
| **Applied doctoral project** | | |
| SWCL 690 | Applied Project I | 1 |
| SWCL 691 | Applied Project II | 2 |
| SWCL 692 | Applied Project III | 2 |
| SWCL 693 | DSW Project I | 2 |
| SWCL 694 | DSW Project II | 2 |
| SWCL 695 | DSW Project III | 2 |
| **Total Units** | | **83** |

1 Courses in this section are not taught online.

2 Previous life, work, or academic practicum experiences cannot not be used to meet this requirement. Externships are developed and assigned by the program faculty.

3 Fulfills service learning requirement.

### Non-course requirements

The Doctor of Social Work degree is awarded upon completion of all required coursework and the following non-course requirements:

- An oral defense and the A=applied D.S.W. project
- Submission to the Program and School of Behavioral Health the final approved copy of the applied D.S.W. project document(s).

### Normal time to complete the program

Three (3) years (eleven [11] academic quarters) — based on full-time enrollment including two summer externships

# Criminal Justice — M.S.

**Program director**
Kimberly Freeman

The M.S. in criminal justice emphasizes integrated behavioral health interventions, restorative justice, and community reintegration to address the prevention, early intervention, treatment, and rehabilitation needs of persons at risk for or who have already been incarcerated.

An interdisciplinary approach to this course of study considers the biological, psychological, social, and spiritual well-being of victims, offenders, and communities. The curriculum provides a deeper understanding of crime and social justice through the lens of a forensic behavioral health specialization.

## Mission

The mission of the Criminal Justice Program is to prepare students to think critically and analytically about the problems of crime and social control in contemporary American society and to work with the legal system as it relates to a forensic behavioral health framework.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Integrate and utilize knowledge of social science and theories of criminology as applied to criminal justice issues within behavioral health settings;
2. Describe the dimensions and causes of crime and delinquency;
3. Describe the structure of the American criminal and juvenile justice systems;
4. Use research in evaluating the effectiveness or practice and programs within criminal and juvenile justice settings;
5. Practice ethical principles that guide the concepts of justice, fairness, and treatment within criminal and juvenile justice systems;
6. Use mental illness and treatment interventions within a forensic behavioral health framework;
7. Identify differences between retributive and restorative justice approaches in addressing the effects of crime.

## General overview

The 48-quarter unit program begins with 20 units of foundation coursework that is divided into three professional areas of study: criminal justice, human wholeness, and social research methods. During the final year of study, students complete a forensic behavioral health specialization along with specialized selectives. Forensic behavioral health is a specialized branch of professional practice in which the behavioral health and criminal-justice worlds overlap. Students will focus on the needs of individuals in the criminal and/or juvenile justice systems who experience severe mental illness and may also present co-occurring substance use. Students will gain knowledge and skills in treatment programming. In addition, they will be prepared to assess and provide expert testimony regarding continued institutionalization versus readiness for community treatment.

Students have two options to complete the program:

1. Nonthesis: Professional practicm (540 hours of integrated practicum and seminar) and eight units of didactic selectives.
2. Thesis: Six units of academic thesis and two units of didactic selectives.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, this program follows the admission requirements of the School of Behavioral Health (p. 147), as follow:

1. A four-year baccalaureate degree from an accredited college or university
2. At least three letters of recommendation—preferably one of which is from an academic source and one from a work supervisor
3. Applicants must meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
   - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45-quarter credits (30 semester units) of non-field practica coursework shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for graduate education in the area of Criminal Justice. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in Criminal Justice. Students who are admitted to the Criminal Justice Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.
   - Demonstration, through the application and interview processes, of compatibility with professional standards set by the program including the ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Science in Criminal Justice curriculum.

## Program requirements

The 48-unit curriculum for the M.S. degree in criminal justice provides the mix of academic, experiential, and research activities essential for M.S. degree students.

A grade of B or better indicates a student has mastered knowledge, skills, and professional practice performance competencies outlined by the program. In order to progress successfully though the program and complete the degree, students must meet the G.P.A. and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| **Core criminal justice courses** | | |
| CRMJ 515 | Crime and Society | 3 |
| CRMJ 517 | Criminal Procedure and Rules of Evidence | 3 |
| CRMJ 574 | Theories of Crime and Restitution | 3 |
| SOWK 585 | Legal and Ethical Aspects in Health and Behavioral Health Services | 3 |
| **Religion, wholeness, relationships** | | |
| RELR 540 | Wholeness and Health [3] | 3 |
| **Social research methods** | | |
| SOWK 548 | Research Methods | 5 |
| **Forensic Behavioral Health Specialization** | | **20** |
| CRMJ 519 | Expert Testimony: Procedure and Practice | |
| CRMJ 620 | Forensic Mental Health | |
| SOWK 513 | Human Behavior in a Culturally Diverse Environment | |
| SOWK 681 | Behavioral Health Policies and Systems | |
| SOWK 663 | Crisis and Trauma Interventions | |
| SOWK 659 | Recovery in Behavioral Health | |
| SOWK 648 | Co-occurring Processes and Interventions | |
| **Degree completion options** | | **8** |
| Nonthesis option: | | |
| Selectives (8 units) [1] | | |
| CRMJ 599 | Directed Study/Special Project | |
| GLBH 550 | Women in Development | |
| MFAM 644 | Child Abuse and Family Violence | |
| PSYC 685 | Drug Addiction and Therapy | |
| SOWK 684 | Advanced Policy Projects | |
| **Professional Practicum [2]** | | |
| CRMJ 757A | Professional Practicum and Seminar | |
| CRMJ 757B | Professional Practicum and Seminar | |
| CRMJ 757C | Professional Practicum and Seminar | |
| SOWK 578 | Field Orientation | |
| Thesis option: | | |
| Selective (2 units from nonthesis option above) | | |
| SOWK 697 | Applied Research (4 units) | |
| SOWK 698 | Thesis (2 units) | |
| **Total Units** | | **48** |

1. Other courses may be approved for elective credits in consultation with the faculty advisor and in accordance with University policies for academic variances
2. Professional practicum and seminar units are not calculated into total didactic units required for the degree. Students pay program fees for professional practicum units instead of tuition. Practicum and seminar hours: 480 + 60.
3. Fulfills service learning requirement

### Normal time to complete the program

Two (2) years (seven [7] quarters) — based on full-time enrollment; part time permitted

# Gerontology — M.S.

**Program director**
Kimberly Freeman

Gerontology is the multidisciplinary-multidimensional study of aging and aging processes. Emphasis is placed on the knowledge and skills required for competent practice, with considerable attention given to understanding the social, cultural, and economic factors that affect services for this population.

## Mission

The mission of the Gerontology Program is to provide graduate-level education for current and future professionals who are dedicated to enhancing the lives of older adults through evidenced-based interventions.

### Program learning outcomes

By the end of this program, the graduate should be able to:

1. Integrate human behavior and developmental theories of aging, incorporating a bio-psycho-social-spiritual strength-based orientation to geriatric practice;
2. Use research in evaluating the effectiveness of practice and programs in achieving intended outcomes for older adults;
3. Integrate into practice intersectionality and the unique needs of older adults belonging to specific racial, ethnic, socioeconomic groups; of men and women; and of those with different sexual orientations;
4. Demonstrate professional ethics in proving assistance to older adults;
5. Effectively implement evidenced-based interventions that enhance the lives of older adults;
6. Follow policies that shape and regulate the continuum of care and services available to older adults.

## General overview

The 48-unit program provides students with a balance of academic, experiential, and research activities essential for work with older adults. The curriculum begins with 22 units of foundational coursework divided into three professional areas of study: gerontology, religion and wholeness, and social research methods. During the final year of study, students complete geriatric practice courses along with specialized selectives. The curriculum allows students to develop their knowledge and skills in locating and providing resources, services, and opportunities for older adults and their families, as well as a problem-solving approach supporting the development of coping skills for older adults and their caregivers.

In addition to the above, students are given either a thesis or a non-thesis professional practicum option.

1. Thesis: completion of six research-related units and five units of selectives.
2. Nonthesis: completion of a practical orientation, 540 hours of integrated practicum and seminar, and 11 units of didactic selectives.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, this program follows the admission requirements of the School of Behavioral Health (p. 147), as follow:

1. A four-year baccalaureate degree from an accredited college or university.
2. A personal statement
3. At least three letters of recommendation—preferably one of which is from an academic source and one from a work supervisor.
4. Meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
   - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45-quarter credits (30 semester units) of non-field practica coursework shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for graduate education in Gerontology and geriatric practice. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in gerontology. Students who are admitted to the Gerontology Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.
   - Demonstration, through the application and interview processes, of compatibility with professional standards set by the Program including the ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Science in Gerontology curriculum.

## Program requirements

The 48-unit curriculum for the Master of Science degree in Gerontology provides the mix of academic, experiential, and research activities essential for M.S. degree students.

A grade of B or better indicates a student has mastered knowledge, skills, and professional practice performance competencies outlined by the program. In order to progress successfully though the program and complete the degree, students must meet the G.P.A. and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| **Core gerontology courses** | | |
| GERO 515 | Diversity and Aging | 3 |
| GERO 615 | Economics and Management Issues of Older Adult Services | 4 |
| GERO 617 | Bio-psycho-social-spiritual Theories of Aging | 4 |
| SOWK 585 | Legal and Ethical Aspects in Health and Behavioral Health Services | 3 |
| **Religion, wholeness, and relationships** | | |
| RELR 540 | Wholeness and Health [2] | 3 |
| **Social research methods** | | |
| SOWK 548 | Research Methods | 5 |
| **Geriatric practice** | | |
| GERO 654 | Therapeutic Interventions with Older Adults | 3 |
| SOWK 647 | Integrated Behavioral Health | 2 |
| SOWK 661 | Psychodynamic Therapies | 4 |
| SOWK 663 | Crisis and Trauma Interventions | 3 |
| SOWK 681 | Behavioral Health Policies and Systems | 2 |
| **Degree completion options** | | **12** |
| Nonthesis option: | | |
| **Selectives (12 units)** | | |
| GERO 599 | Directed Study/Special Project | |
| PSYC 685 | Drug Addiction and Therapy | |
| PSYC 686 | Child, Partner, and Elder Abuse | |
| SOWK 513 | Human Behavior in a Culturally Diverse Environment | |
| SOWK 648 | Co-occurring Processes and Interventions | |
| SOWK 659 | Recovery in Behavioral Health | |
| SOWK 684 | Advanced Policy Projects | |
| **Professional Practicum [1]** | | |
| GERO 757A | Professional Practicum and Seminar | |
| GERO 757B | Professional Practicum and Seminar | |

| | |
|---|---|
| GERO 757C | Professional Practicum and Seminar |
| SOWK 578 | Field Orientation |
| Thesis option: | |
| Selective (6 units from selectives listed above) | |
| SOWK 697 | Applied Research (4 units) |
| SOWK 698 | Thesis (2 units) |
| **Total Units** | **48** |

[1] Professional practicum and seminar units are not calculated into total didactic units required for the degree.

[2] Fulfills service learning requirement

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) — based on full-time enrollment; part time permitted.

# Play Therapy — Certificate

**Program director**
Kimberly Freeman

Play therapy is a recognized, theory-based approach for working with children and adolescents presenting with behavioral health issues. This approach utilizes toys and other expressive activities as forms of communication and as intervention methods for problem-solving and promoting well-being.

The fully online Play Therapy Program certificate is designed to meet the educational requirements of the Association of Play Therapy to become a registered play therapist (RPT) and is designed for behavioral health professionals with—or in the process of obtaining—a licensable graduate degree from an accredited college.[1]

### Program learning outcomes

By the end of this program, the graduate should be able to:

- Relate the history of play therapy to applications in the assessment and treatment of children and youth;
- Describe theories that inform play therapy with children and adolescents, including those guiding assessment, diagnosis, and specialized interventions;
- Use play therapy methods and techniques with children and adolescents, including those applicable in specialized interventions.

The Play Therapy Program certificate is housed under the Division of Interdisciplinary Studies in the School of Behavioral Health. Programs under the Division of Interdisciplinary Studies are considered areas of study that are applicable to all of the behavioral health professions. As such, these programs bring together the collective academic and clinical expertise of all of the departments in the School of Behavioral Health.

[1] Completion of the Play Therapy Certificate coursework at Loma Linda University does not include certification as a Registered Play Therapist. Individuals must apply to the Association for Play Therapy (United States) or the applicable certifying association in their country, and complete all additional requirements.

## Admissions

Applicants must meet the admission requirements as follow:

1. A fully completed LLU application form.
2. A graduate with a licensable mental health degree from an accredited university. Official transcripts are evidence of degrees and courses completed. Individuals already licensed as mental health professionals must be in good standing with the relevant licensing board.
3. Consideration for admission will be given to individuals in the process of completing licensable mental health graduate degrees from accredited universities. Applicants must be in good academic standing and have permission from their current programs to enroll.
4. Submit three letters of recommendation from an academic source, professional peer, or a work supervisor.

## Program requirements

A grade of B or better indicates a student has mastered knowledge, skills, and professional practice performance competencies outlined by the program. In order to progress successfully though the program and complete the certificate, students must meet the G.P.A. and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| **Required foundation courses** | | |
|---|---|---|
| PLTH 513 | Introduction to Play Therapy | 3 |
| PLTH 516 | Child-Centered Play Therapy | 3 |
| PLTH 546 | Child-Parent Relationship Therapy-CPRT (Filial Therapy) | 3 |
| PLTH 550 | Trauma Focused Play Therapy | 3 |
| REL_ 5__ [1] | | 1 |
| **Total Units** | | **13** |

[1] Students select the religion course to be taken in consultation with their advisor.

### Normal time to complete the program

Four (4) academic quarters — based on less than half-time enrollment

# Social Welfare and Social Research — Ph.D.

**Program director**
Larry Ortiz

The mission of the Social Welfare and Research Program is to extend the distinctive principles of whole-person care beyond the individual to include interventions with communities and social institutions. The program's emphasis on an integrative approach to an advanced curriculum in social science, social welfare, Christian ethics, and social research provides students with the theoretical and methodological knowledge and professional skills needed to conduct innovative and interdisciplinary research. Graduates of the program are prepared for advanced administrative and research roles in national and international health and human services, policy development and analysis, and as university faculty members.

## Program learning outcomes

In addition to institutional learning outcomes (p. 19) (ILOs), graduates of the program should be able to:

1. Integrate advanced concepts from social science theories, social ethics, and social justice values in oral and written scholarship; (ILO: 1,2, 5)
2. Utilize critical thinking to distinguish among the moral, ethical, and political differences that affect research, policies, programs, interventions, and their consequences; (ILO 5)
3. Meet conceptual and analytical requirements of research questions through the integration of behavioral, political, economic, and social and human diversity; (ILO 4, 5)
4. Independently define research problems and formulate appropriate questions and hypotheses; (ILO 3, 4)
5. Explain the rationale for particular qualitative and quantitative research methods; (ILO 3)
6. Select appropriate strategies for independent research and/or evaluation; (ILO 3)
7. Demonstrate competence in utilizing different methods of collecting, recording, analyzing, and interpreting data; (ILO 1,2,3)
8. Formulate research questions reflecting the global perspective of Loma Linda University that link the local with global; (ILO 4,5)
9. Demonstrate the role of social justice in transdisciplinary research and practice for transprofessional interventions addressing significant social problems; (ILO 5)
10. Prepare to join a faculty as a researcher, teacher, and mentor. (ILO 1,2)

## Social welfare and research specialization

Students admitted to the program should have demonstrated evidence of interest in social values aligned with a commitment to social justice, and research interests compatible with the areas of expertise supported by the program's faculty. Information regarding faculty areas of expertise is available by contacting the program director. Years one and two are largely composed of coursework and shaping of one's dissertation question.

While completing all required coursework, each student will choose a dissertation committee chair and committee with whom he or she will work closely to develop and defend a dissertation proposal following University guidelines. Upon successful defense of the proposal, students are admitted to candidacy and actively engage in dissertation research, culminating in the successful defense of their dissertations. Consistent with Faculty of Graduate Study policy, the department requires a two-publication dissertation. More information is available from the program director.

## Combined degrees

Students interested in completing a combined degrees curriculum with social welfare and social research with bioethics should refer to the Combined Degrees Programs section of the CATALOG or contact the Department of Social Work and Social Ecology directly.

# Admissions

In addition Loma Linda University (p. 23) admission requirements, admission to the program is governed by the policies and procedures established by the School of Behavioral Health (p. 147). Admission requirements include:

1. Master's degree from an accredited institution of higher education. Examples would include disciplines such as social work (M.S.W.), nursing (M.S.), business (M.B.A.), public health (M.P.H.), education (M.Ed.), and theology (M.Div.).
2. Evidence of adequate academic preparation in graduate education. This includes a minimum cumulative G.P.A. of 3.5 (on a 4.0 scale) for graduate/postgraduate work.
3. Strong intellectual abilities, including background in social sciences and statistics.
4. Evidence of research and social welfare interests reflecting the values of social justice. Professional experience and achievement that demonstrate the competence, motivation, organization, and leadership to complete doctoral education in a timely manner. It is preferred that applicants have at least two years post-masters degree experience in their professional area.
5. Personal interview.
6. Sample of writing in the form of a published article, academic or professional paper prepared for a research purpose, or an essay prepared for admission to the program.
7. Satisfactory performance on the Graduate Record Examination. Due to issues associated with the COVID-19 pandemic, the GRE General Test is waived for all 2021-2022 applicants to doctoral programs in the School of Behavioral Health. Please do not submit GRE scores through ETS or report your scores in any application materials as they will not be taken into consideration.
8. Curriculum vitae or other description of education and employment history.
9. Three letters of recommendation including one from an academic source and one from a work supervisor.

The application process for the Ph.D. degree in social welfare and social research utilizes a pooled application process by which the top candidates meeting the admissions criteria are selected. The number of new candidates admitted each year ranges from three to four students, depending on the total number of students previously completing the program and the program's ability to support potential candidates in their areas of interest.

# Program requirements

All course grades should meet the minimum B (3.0) standard, which by university policy indicates satisfactory performance. In some cases, conditional consideration of course grades below a B (3.0) may be given if the requirements for independent research and competency in consumer protection are not compromised. Academic variances that document the rationale for acceptance of grades below a B (3.0), must be submitted to the dean's office for approval.

| | | |
|---|---|---|
| **Theory** | | |
| SPOL 610 | Diversity Theory and Global Perspectives | 3 |
| SPOL 613 | Social Science Concepts I | 3 |
| SPOL 614 | Social Science Concepts II | 3 |
| **Policy** | | |
| SPOL 616 | History and Philosophy of Social Welfare Policy | 3 |
| SPOL 658 | Advanced Policy Analysis and Research | 3 |
| **Research** | | |
| SPOL 654 | Research Methods I | 4 |
| SPOL 655 | Research Methods II | 4 |
| SPOL 667 | Research Methods Practicum Seminar | 2 |
| **Statistics** | | |
| CFSD 601 | Statistics I | 4 |
| or PSYC 501 | Advanced Statistics I | |
| CFSD 602 | Statistics II [1] | 4 |

| | | |
|---|---|---|
| or PSYC 502 | Advanced Statistics II | |
| CFSD 603 | Statistics III [1] | 4 |
| or PSYC 503 | Advanced Multivariate Statistics | |
| SPOL 665 | Statistical Practicum Seminar | 2 |
| Advanced statistics electives | | 4 |
| **Integrative seminars** | | |
| SPOL 601 | Integrative Seminar: Pro-seminar [1] | 3 |
| SPOL 602 | Integrative Seminar: Global Perspective [1] | 6 |
| SPOL 603 | Integrative Seminar: Implementation Science [1] | 3 |
| SPOL 604A | Integrative Seminar: Academic Practice | 1 |
| SPOL 604B | Integrative Seminar: Academic Practice | 1 |
| SPOL 604C | Integrative Seminar: Academic Practice | 1 |
| **Dissertation** | | |
| SPOL 681 | Dissertation Proposal I | 3 |
| SPOL 682 | Dissertation Proposal II | 3 |
| SPOL 683 | Dissertation Proposal III | 3 |
| SPOL 697 | Research [1] | 12 |
| **Religion** | | |
| RELE 588 | Philosophical Ethics | 3 |
| RELR 540 | Wholeness and Health [2] | 3 |
| RELT 557 | Theology of Human Suffering | 3 |
| **Electives** | | **4** |
| **Total Units** | | **92** |

[1] Course repeated to fulfill unit requirement
[2] Fulfills service learning requirement

## Noncourse requirements

### Concept Paper

Prior to the beginning of SPOL 681 Dissertation Proposal I, students submit to the doctoral faculty a short concept paper, three to five pages in length, briefly describing their plan for dissertation research.

### Candidacy

Students must successfully complete:

1. required coursework
2. the applied research requirements
3. the defense of the dissertation proposal before advancing to candidacy

### End of year two deliverables

Publishable paper (from SPOL 665 Statistical Practicum Seminar)
Draft proposal (from SPOL 667 Research Methods Practicum Seminar)

### End of year three deliverable

Defend dissertation proposal

### Dissertation

The PhD degree candidacy is spent in full-time dissertation research, culminating in the successful defense of the completed dissertation. Dissertation research for Ph.D. degree candidates follows University guidelines. Details regarding these requirements can be obtained from the program director.

## Normal time to complete the program

Four (4) years — based on full-time enrollment; part time permitted

# Social Work — M.S.W.

**Program director**
Kimberly Freeman

The social work profession centers on improving the quality of life for people and enhancing human potential for full, productive participation in society. With this philosophy at its core, the master's degree offered by the Social Work Program (M.S.W.) in the School of Behavioral Health emphasizes an ecological perspective that focuses on the interaction of a person or system with their environment. Reflecting this stance is Loma Linda University's motto, "To make man whole" and its heritage as an international leader in the delivery of health-care services and related facilities. It is the combination of these influences that has guided the development of the generalist curriculum, clinical practice specialization, and selection of practicum sites for the Social Work program.

## Mission

The mission of the Master of Social Work Program at Loma Linda University is to prepare competent, ethical, and compassionate advanced social work practitioners who possess the knowledge, values, attitudes, and skills necessary for lives dedicated to whole-person care in advanced practice and leadership roles within behavioral health institutions and agencies.

## Goals

The goals of the M.S.W. degree in social work are to:

- Instill in graduates the knowledge, ethics, values, and skills expected of professional social workers.
- Prepare students for advanced practice with diverse populations and the advancement of social and economic justice in local, national, and international communities.
- Equip students to integrate research and practice for advancing the profession of social work.
- Prepare advanced social work practitioners for work in behavioral health institutions and agencies.
- Transition students into professional roles with a commitment to lifelong learning.

## Program outcomes

Reflected in the goals above are the following nine social work competencies that describe the knowledge, values, skills, and the cognitive and affective processes that define and inform generalist and clinical practice. By the end of the program, the graduate should be able to:

1. Demonstrate ethical and professional behavior;
2. Engage in diversity and difference in practice;
3. Advance human rights and social, economic, and environmental justice;
4. Engage in practice-informed research and research-informed practice;
5. Engage in policy practice;
6. Engage with individuals, families, groups, organizations, and communities;
7. Assess individuals, families, groups, organizations, and communities;
8. Intervene with individuals, families, groups, organizations, and communities;

9. Evaluate practice with individuals, families, groups, organizations, and communities.

## Liberal arts preparation

The M.S.W. degree curriculum is built upon a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses.

Prerequisite requirements must be completed before admission to the M.S.W. degree program.

## General overview

The program begins with first-year, generalist content common to all graduate social work education. The generalist practice curriculum is grounded in the liberal arts and the person-in-the-environment framework. Students learn to promote social well-being, and build on the strength and resiliency of all human beings through a range of prevention and intervention practice methods when working with diverse individuals, families, groups, organizations, and communities. Integrated within the curriculum, students learn to apply ethical principles, critical thinking, and research-informed practice at the micro, mezzo, and macro levels, while maintaining an emphasis on diversity, advocacy for human rights, and social and economic justice.

The clinical practice specialization builds on the strengths-based and ecological practice perspective of the generalist curriculum by extending, expanding, and enhancing students' abilities to effectively engage in advanced clinical practice. This requires the integration of generalist and clinical practice theories and intervention methods as applied to individuals, families, groups, organizations, and communities. Theoretical perspectives include empowerment, strengths approach, attachment, child development, risk and resiliency, trauma, cognitive neuroscience, family systems, cognitive behavior, and psychodynamics—all of which are enhanced by the person-in-the-environment perspective. These theoretical underpinnings support student skill acquisition and development through clinical specialization courses with a firm grounding in engagement, diagnostic assessment, problem solving, social policy, and evidence-informed treatment approaches. Students' clinical practice experiences also address the needs and rights of all persons to promote social and economic justice. Clinical students learn to be alert to and understand the importance of continuous self-reflection and practice evaluation.

## Program options

### On-Campus M.S.W. Program

Program options have been designed to address the varying needs of students. As such, the program offers two-, three-, and four-year options. Students completing the two-year option cannot be engaged in regular full-time employment. An advanced standing option is also available to qualified B.S.W. degree graduates (see below).

### Hybrid M.S.W. Program

An online hybrid (online and onsite) M.S.W. degree program is offered to meet the varying needs of students who are not able to attend a traditional program due to full-time employment or with geographic hardship within Southern California. Degree requirements for the M.S.W. hybrid cohort are the same as those required for the on-campus cohorts for the three-year, part-time option. A separate application portal has been created for the hybrid M.S.W. program option. Courses for the onsite portion of this hybrid program are taught on the main campus on Wednesday evenings.

Inquiries about this program should be directed to the Dr. Kimberly Freeman, M.S.W. degree program director.

## Advanced standing for B.S.W. degree graduates

Students who have earned a B.S.W. degree from a Council on Social Work Education (CSWE)-accredited program within the past five years have the opportunity to remove areas of redundancy in their education through consideration for advanced standing. In their personal statements, which are part of the application for admission to the M.S.W. degree program, B.S.W. degree graduates can request consideration for advanced standing status and thus have the opportunity to complete the M.S.W. degree in 12 months. Students completing the advanced standing track must begin the M.S.W. degree program during the Summer Quarter, which requires individuals to submit all components of their application packet by January 15 of the enrollment year. Exceptions to this date will be reviewed on a case-by-case basis. Advanced standing students enrolling as part of the summer cohort are eligible to receive a tuition waiver covering up to 14 units, not including living expenses and fees. See the *M.S.W. Handbook* on the department website for more specific information: <http://behavioralhealth.llu.edu/programs/social-work/msw-social-work>. (http://behavioralhealth.llu.edu/programs/social-work/msw-social-work/)

## Transfer students

Transfer students who have taken courses in an M.S.W. degree program accredited by the Council on Social Work Education may transfer up to 20 percent of the 78 units required for the M.S.W. degree at Loma Linda University, unless otherwise approved. Evaluation of all courses is conducted on a case-by-case basis using course outlines, transcripts, and course catalog entries to review and assure adequate equivalency. The Academic Standards Committee evaluates these equivalencies. The 20 percent transfer of units is limited to credits that have not already been applied to a degree and for which a B (G.P.A. of 3.0) grade or better has been recorded. Transferred course grades are not calculated into a student's G.P.A. earned while matriculating through the program at Loma Linda University.

A maximum of nine quarter units that have been previously applied to another master's degree may be accepted as transfer credits in the areas of research methods and statistics. Individuals wishing to transfer research methods and/or statistics courses must first pass the program's competency examination/s in these areas. Consideration is given to other course transfers on a case-by-case basis.

Professional, field practicum grades/credits are not typically transferable —review is made on a case-by-case basis. Consideration may be given if there is clear evidence that the student has met the practice competencies of the M.S.W. degree program.

No academic credit is given for life experience and/or previous work experience for any part for the M.S.W. degree program (i.e., generalist and clinical practicums, courses in the generalist, or clinical specialization curricula).

# Central academic requirements and processes

## M.S.W. advancement G.P.A.

The M.S.W. degree advancement G.P.A. provides an initial predictor of success. The first 12 units completed toward the M.S.W. degree, including units acquired during non-matriculation, must be completed with a G.P.A. of 3.0. Students who fail to achieve this level may be dismissed from school. Students receive orientation to the process and requirements of the M.S.W. degree advancement G.P.A. during the new student orientation.

## Qualifying review

When all generalist coursework is completed, students are required to pass the program's qualifying review (see the *M.S.W. Handbook*). The intent of this process is to assist faculty members and students in the assessment of strengths and areas for improvement, provide feedback, foster an environment of self-evaluation, and encourage heightened participation in individualized academic development.

## Generalist and clinical practicums

Field practicums are regarded as an integral part of the Social Work Program. These offer students opportunities to integrate and apply theoretical and research knowledge with social work practice and interventional skills in institutional or agency settings. Practicums are designed and selected to provide maximum learning opportunities under the supervision of a qualified field instructor. As such, experiences are patterned to build upon one another, presenting the increasing challenges present in the continuum of generalist to clinical practice. Students complete 1,080 hours of field work in a qualified setting and 120 hours of concurrent integrated seminar for a total of 1,200 hours.

The emphasis of SOWK 757A Generalist Practicum and Seminar, SOWK 757B Generalist Practicum and Seminar, and SOWK 757C Generalist Practicum and Seminar (480 hours of practicum and 60 hours of seminar or nine generalist practicum units) is on achieving generalist social work knowledge, values, and skills that include developing rapport with agency personnel and clients, acquiring interviewing skills, and obtaining beginning-level psychosocial assessment and intervention capabilities. The content of the concurrent seminar further supports this perspective, providing students with opportunities to integrate their practicum experiences with their developing professional identity.

The emphasis of SOWK 787A Advance Clinical Case Consultation, SOWK 787B Advanced Clinical Case Consultation, and SOWK 787C Advanced Clinical Case Consultation(600 hours of practicum and 60 hours of seminar or 12 clinical practicum units) reflects the clinical practice specialization, and provides the depth and breadth of learning opportunities that underpin the acquisition of advanced practice capabilities. Specifically, clinical practicum experiences are expected to promote increased insight and understanding of agency and/or client systems, building on the generalist skills achieved during the first year of study.

## Research

The program includes completion of coursework in applied research. An individually authored thesis option is available for students meeting program criteria. These study options aim to develop knowledge for the advancement of social work practice and provide guided experiences in the conduct of research applicable to a variety of professional and academic settings. Guidelines for these options are provided by the program.

## Wholeness portfolio

Each student completes a wholeness portfolio during the generalist and clinical practicums as well as seminar experiences. This review of the student's individualized objectives and professional development begins during the first year of study and culminates during the second year as the student completes the final quarter of the clinical practicum. This experience emphasizes the student's plans for employment, lifelong learning, and integration of the core values of Loma Linda University. It is seen as a capstone academic experience that facilitates closure as well as the final stage of reflection and review in the development of transitioning professional.

## Combined degrees

Students interested in completing combined degrees in social work should view the list of combined degree programs (p. 403) in this CATALOG.

# Accreditation

The Master of Social Work Program is accredited to provide master's degree-level education by the Council on Social Work Education (CSWE). The next reaffirmation will be completed in 2025. CSWE may be contacted at: 1600 Duke Street, Suite 500, Alexandria, VA 22314-3457; telephone: 703/683-8080; email: <info@cswe.org>.

# Admissions

In addition to Loma Linda University (p. 23) admission requirements, admission to the Social Work Program is governed by the policies and procedures established by the School of Behavioral Health (p. 147).

Preference for the hybrid M.S.W. degree program is given to individuals who are working full-time or have a geographic distance of approximately 25 miles from the campus.

Admission requirements for both the main campus and hybrid M.S.W. Program include the following:

1. A four-year baccalaureate degree from an accredited college or university.
2. The MSW curriculum is built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses.
3. Applicants must submit a completed application, including a personal statement; application fee; all college and/or university transcripts; and at least three letters of recommendation—preferably one of which is from an academic source and one from a work supervisor. All students who are working full time must also submit a letter from their agency director acknowledging support in completing the practicum and educational requirements of the M.S.W. program and must commit to at least one full weekday of practicum each week.
4. Applicants must meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
    - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45 quarter credits (30 semester units) of non-field practica coursework shows significant improvement or if they have additional attributes that demonstrate preparedness

and an appropriate fit for graduate social work education. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in social work. Students who are admitted to the Social Work Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.

- Demonstration, through the application and interview processes, of compatibility with the profession of social work, ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Social Work curriculum. Interview content and process may vary based on integration agreements with CSWE accredited B.S.W. programs.

# Program requirements

The M.S.W. degree consists of 78 units of didactic coursework and 21 units of professional practica experience. Students must maintain a program grade point average of B (3.0 on a 4.0 scale) and meet the knowledge, skills, and professional performance competencies outlined by the program.

A grade of B or better indicates a student has mastered knowledge, skills, and professional practice performance competencies outlined by the program. In order to progress successfully through the program and complete the degree, students must meet the G.P.A. and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| **Generalist curriculum** | | |
| SOWK 510 | Diversity Theory in Practice and Research | 3 |
| SOWK 513 | Human Behavior in a Culturally Diverse Environment | 5 |
| SOWK 514 | Social Welfare History and Policy | 5 |
| SOWK 517 | Practice I: Individuals | 4 |
| SOWK 518 | Practice II: Groups | 3 |
| SOWK 519 | Practice III: Organizations and Communities | 3 |
| SOWK 520 | Practice IV: Families [1] | 3 |
| SOWK 548 | Research Methods | 5 |
| SOWK 574 | Practice V: Social Work Administration | 3 |
| SOWK 578 | Field Orientation [1] | 0 |
| SOWK 585 | Legal and Ethical Aspects in Health and Behavioral Health Services | 3 |
| **Clinical practice specialization curriculum** | | |
| SOWK 613 | DSM: Diagnosis Within the Context of Diversity and Difference | 4 |
| SOWK 617 | Global Practice | 3 |
| SOWK 647 | Integrated Behavioral Health | 2 |
| SOWK 648 | Co-occurring Processes and Interventions | 3 |
| SOWK 661 | Psychodynamic Therapies | 4 |
| SOWK 662 | Behavioral and Cognitive Therapies | 4 |
| SOWK 663 | Crisis and Trauma Interventions | 3 |
| SOWK 675 | Supervision | 3 |
| SOWK 681 | Behavioral Health Policies and Systems | 2 |
| SOWK 695A | Advanced Research Methods [3, 7] | 2 |
| SOWK 695B | Advanced Research Methods [3, 7] | 2 |
| SOWK 695C | Advanced Research Methods [3, 7] | 2 |
| **Required cognate** | | |
| RELR 540 | Wholeness and Health [8] | 3 |
| **General selectives** | | |
| Select 4 units from one of the following lists: [6] | | 4 |
| **Population groups** | | |
| GERO 515 | Diversity and Aging | |
| GERO 654 | Therapeutic Interventions with Older Adults | |
| MFAM 644 | Child Abuse and Family Violence | |
| SOWK 550 | Clinical Interventions with Service Members, Veterans, and Families | |
| SOWK 584 | Special Topics in Social Work | |
| SOWK 651 | Medical Social Work | |
| SOWK 653 | Child Welfare Practice | |
| SOWK 658 | Children's Psychotherapy | |
| SOWK 680 | Children and Families Policies and Services | |
| **Problem areas** | | |
| BHCJ 550 | Fundamentals of Dialectical Behavior Therapy | |
| CRMJ 519 | Expert Testimony: Procedure and Practice | |
| MFAM 665 | Structural and Multidimensional Family Therapy | |
| SOWK 584 | Special Topics in Social Work | |
| SOWK 659 | Recovery in Behavioral Health | |
| SOWK 684 | Advanced Policy Projects | |
| SOWK 679 | Advanced Professional Projects | |
| **Total Units** | | **78** |

| | | |
|---|---|---|
| **Professional practica experience** | | |
| Generalist practicum and seminar | | |
| SOWK 757A | Generalist Practicum and Seminar [2,5] | 3 |
| SOWK 757B | Generalist Practicum and Seminar [2,5] | 3 |
| SOWK 757C | Generalist Practicum and Seminar [2,5] | 3 |
| Clinical practicum and seminar | | |
| SOWK 787A | Advanced Clinical Case Consultation [4,5] | 4 |
| SOWK 787B | Advanced Clinical Case Consultation [4,5] | 4 |
| SOWK 787C | Advanced Clinical Case Consultation [4,5] | 4 |
| **Total Units** | | **21** |

1. Not eligible for waiver.
2. Hours: 160 + 20; Not eligible for waiver
3. Thesis option is available for students meeting program criteria. Once approved students will take SOWK 697 (4 units) and SOWK 698 (2 units) in place of SOWK 695ABC (6 units).
4. Hours: 200 + 20
5. 700-numbered courses are not calculated into the total didactic units required for the degree.
6. Students wishing to take courses that are not included in this list of approved selectives must obtain an academic variance through the department's Academic Standards Committee prior to enrolling in the course.

[7] SOWK 695ABC is equivalent to SOWK 695.

[8] Fulfills service learning requirement

## Normal time to complete the program

Two (2) years (six [6] academic quarters) — based on full-time enrollment; part time permitted

# SCHOOL OF DENTISTRY

## Dean's welcome

If your eyes are the windows to your soul, it has been said that the mouth is a window to your health. As such, dentistry plays a strategic part in providing integrated patient care. Loma Linda University School of Dentistry is a vibrant center of education where you will acquire knowledge, technical skills, and management expertise to thrive in the new health-care model that is evolving. Our expectation is that our graduates will provide care that exceeds patients' expectations.

Our faculty is committed to providing an evidence-based education that incorporates the most advanced electronic education resources available. In our new Innovation Center, students now have the opportunity to gain experience with the most contemporary equipment and techniques that enhance the practice of dentistry and the care we provide our patients. Students also receive abundant experience in patient care—both in the School of Dentistry and at extramural clinics—that help meet the dental health needs of individuals with limited or no access to dental care.

We are proud of our history and contributions to research. Our ongoing commitment to clinical and foundational research provides students with rich opportunities to work with outstanding faculty members in a wide variety of investigative activities.

During your time at Loma Linda University School of Dentistry, you will receive an excellent contemporary education filled with rich clinical experiences. However, it is the people who have been drawn to this unique environment of Christian education and mission who make Loma Linda University a special place. I invite you to learn more about our clinical services, programs, and exceptional dental school family of students, faculty, and staff.

Robert A. Handysides, D.D.S.
Dean, School of Dentistry

# School foundations

## History

A small but determined group of dentists met during the summer of 1943 in Grand Ledge, Michigan. Their purpose was to establish an organization that would serve as a catalyst, urging the Seventh-day Adventist Church to sponsor a dental school where young adults could learn the dental profession in an environment consistent with their religious beliefs. These men were the founders of the National Association of Seventh-day Adventist Dentists (NASDAD).

Under the leadership of Dr. J. Russell Mitchell, the organization's first president, the goal of a Christian dental school began taking conceptual form. NASDAD expanded in membership and objectives through men such as Dr. C. C. Ray, who toured the country on his own time in search of fellow Seventh-day Adventist dentists who were willing to pursue NASDAD's goals.

Dr. M. Webster Prince served as president of NASDAD in 1948 and 1949. At a meeting in San Francisco in 1949, NASDAD members voted unanimously to support the dental school project. Later that year at a NASDAD session in Hinsdale, Illinois, the members pledged a strong financial base in support of their goals.

The momentum of the effort became evident in the early 1950s. The General Conference of Seventh-day Adventists, under the guidance of President W. H. Branson, asked Dr. Prince to conduct a feasibility study. Subsequently, official action was taken in 1951 to authorize establishment of the School of Dentistry as a unit of Loma Linda University's School of Medicine. Dr. Prince was selected as the first dean of the School of Dentistry. His leadership in organizing and eventually administering the new School of Dentistry was facilitated by his prior experience as president of the Michigan Dental Association and as chair of the American Dental Association Council on Dental Education. Forty-two students comprised the inaugural class in the late fall of 1953.

A dental hygiene curriculum leading to a Bachelor of Science degree was developed in 1959 under the direction of Dr. Gerald A. Mitchell, chair of the Department of Periodontics. Violet Bates became chair of the new department, and the first class of ten dental hygienists graduated in 1961.

In 1960, Dr. Charles T. Smith became dean. During this period, the school experienced positive growth in many areas. A dental assisting curriculum was developed in 1968 under the leadership of Betty Zendner. The first class graduated in 1969, receiving the Associate in Science degree. A dental auxiliary utilization (DAU) program was initiated to provide enhanced learning for dental students. The Monument Valley Dental Clinic for Navajo Indians was started in 1966, and Dean Smith succeeded in finding, from public sources, fiscal support for the clinic building and for faculty housing. New advanced education (postdoctoral) programs were initiated in five clinical disciplines: orthodontics, oral surgery, periodontics, endodontics, and oral pathology.

During the 1970s, the School of Dentistry continued its evolution into one of the premier clinical programs in the United States. Dr. Judson Klooster became dean in 1971. One of his major contributions was the expansion of Prince Hall, which was completed in May 1976. The new building more than doubled the number of clinical units; provided facilities for specialized areas of clinical instruction; and included eight new research laboratories, new classrooms, seminar rooms, amphitheaters, urgently needed teacher office space, and a commensurate expansion of support facilities and services. The Oral and Maxillofacial Surgery Clinic was remodeled, and an outpatient surgicenter was developed to meet the needs of patients requiring general anesthesia for dental treatment.

The School of Dentistry became an important regional resource for providing dental care for developmentally disabled children and adults, many of whom require such a treatment setting. The Biomaterials Research Laboratory was constructed; and new advanced education programs were initiated in pediatric dentistry, implant dentistry, dental anesthesiology, and prosthodontics. A new program was established in 1985 to provide a U.S. dental education for internationally trained dentists. An increasing number of dental professionals from other countries were seeking an American education and the opportunity to practice dentistry in the United States or to gain advanced knowledge to share in their own countries. The International Dentist Program continues to offer an intensive, twenty-four-month course of study leading to a D.D.S. degree. The program has added a six-month certificate program limited to dental missionaries from other countries who sense the need for updated continuing education.

Beginning with the nineteen-year deanship of Dr. Charles Goodacre in 1994, the School of Dentistry focused particularly on research, service learning, and technology that included the development of electronic learning materials as well as the acquisition and utilization of 3-D computed tomography (3DCT) and computer-aided manufacture (CAD/CAM) technology.

In 2000, the first major expansion of the School of Dentistry in more than twenty years added 15,000 square feet to Prince Hall on the east side and provided two new patient entrances. The expanded Special Care Dentistry Clinic and the enlarged Pediatric Dentistry Clinic were relocated to the ground floor. An additional student laboratory was also included on that level. On the second floor, the new space allowed for expansion of the predoctoral clinic, with thirty-six additional operatories.

A preclinical laboratory was remodeled into a simulation laboratory in 2008. The laboratory included flat-panel monitors with access to faculty presentations and the clinical management system.

In the autumn of 2010, the LLU Center for Dentistry and Orthodontics was opened in San Bernardino, three miles from the school. The three-story treatment, research, and teaching facility brought together the University's Advanced Education Program in orthodontics and dentofacial orthopedics and the School of Dentistry's faculty practices —creating the most comprehensive oral health care center in the Inland Empire.

A year later (August 2012), another opening featured the school's groundbreaking for the Hugh Love Center for Research and Education in Technology. Comprising six operatories and a three-chair open clinic, the 3,000-square-foot center enables qualified students, under faculty supervision, the opportunity to treat patients using the very latest in dental technology.

Dr. Ronald J. Dailey was named School of Dentistry dean in July of 2013. Having led the school through all of its academic challenges as an associate dean since 1993, Dr. Dailey was well prepared to pilot the school's programs through revisions that accommodated new accreditation standards, as well as the Joint Commission on National Dental Board Examination's integration of basic, clinical, and behavioral sciences into a single national board examination.

The School of Dentistry continues to regularly expand the opportunities for enhanced student learning by improving physical facilities, making

regular curricular modifications, and reinforcing the excellence of its clinical practices in light of its motto, "Service Is Our Calling."

### Our mission

Loma Linda University School of Dentistry seeks to further the teaching and healing ministry of Jesus Christ as:

- Students learn to provide high-quality oral health care based on sound biologic principles.
- Patients receive competent care that is preventive in purpose, comprehensive in scope, and provided with compassion and respect.
- Faculty, students, and staff value patient relationship, respect diversity, and share responsibility by working together toward academic, professional, spiritual, and personal growth.
- Scholarly activity and research provide a foundation for evidence-based learning and enhance whole-person care.
- The workplace environment attracts and retains a superior and diverse faculty and staff who motivate, educate, and serve.
- Our communities (local, global, and professional) benefit from our service, stewardship, and commitment to lifelong learning.

### Vision

Loma Linda University School of Dentistry is a preeminent health-care organization seeking to represent God in all we do. We are enthusiastically committed to excellent, innovative, comprehensive education of our students, and to whole-person care of our patients.

Our students, staff, and faculty are empowered through an enabling environment that honors the dignity, diversity, and worth of everyone.

Our graduates are exemplary professionals and progressive clinicians of integrity.

Our Lord's example inspires us to enrich our local and global communities through service. This is our calling.

### Core values

- Belief in God
- Respect for the individual
- Principled spirituality
- Focus on students
- Empathic care
- Commitment to service
- Pursuit of truth
- Progressive excellence
- Analytical thinking
- Effective communication

## General information

University students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. This section of the CATALOG provides the general setting for the programs of the School of Dentistry and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

### Specific program requirements

Information on the preceding pages pertains to general requirements governing all students. The student is reminded of individual responsibility to be fully informed not only of these general requirements but also of the specific requirements in the following pages, which govern the curriculum of the chosen program.

### Programs and degrees

The School of Dentistry offers a comprehensive range of programs. Each of the school's six programs draws on the curricula of the various departments.

1. The undergraduate curriculum, the DENTAL HYGIENE program, leads to the Bachelor of Science degree and prepares the dental hygienist to enter a variety of careers. Dental hygiene is a four-year college curriculum; the junior and senior years are taken in the Loma Linda University School of Dentistry.
2. The four-year professional curriculum, the GENERAL DENTISTRY program, leads to the Doctor of Dental Surgery degree and equips the general dentist to meet the needs of a diverse patient population.
3. The INTERNATIONAL DENTIST program, a two-academic-year curriculum, leads to a Doctor of Dental Surgery degree from Loma Linda University. The program is designed for the dentist who has previously earned a dental degree outside the United States.
4. ADVANCED DENTAL EDUCATION programs lead to postdoctoral certificates in eight specialty and non-specialty areas of dentistry and, at the student's option, additionally to a Master of Science or a Master of Science in Dentistry degree.
5. The COMBINED DEGREES program leads to the Doctor of Dental Surgery degree (through the School of Dentistry) earned concurrently with a Master of Arts degree in Bioethics (through the School of Religion)—D.D.S./M.A.

### Combined degrees program

**D.D.S. / M.A.**

The combined degrees program leading to the Doctor of Dental Surgery and the Master of Arts in bioethics is designed to fit the schedule of Doctor of Dental Surgery degree students. Ethics in dentistry is an emerging academic interest, and this program aims to evolve the dental school into one of a very select few in the nation known for their expertise in ethical issues. This program requires 48 units of credit. This degree is offered cooperatively by the School of Religion and the School of Dentistry.

## Awards

All School of Dentistry students are eligible to receive awards of various kinds for demonstrated excellence, scholastic attainment, leadership ability, technical ability, professional proficiency, initiative, and other accomplishments or achievements, according to the bases established by the donors. Awards are given through various organizations, associations, and school and university departments. The names of all award recipients are printed in the University commencement program.

## Student life

### School of Dentistry inherent requirements

In harmony with its own didactic, clinical, research, and service objectives, and using the American Dental Education Association suggested guidelines, Loma Linda University School of Dentistry has

identified the following inherent requirements for entry into all its programs.

### Cognition

Students must have the cognitive abilities that allow the accurate and effective ability to measure, verify, calculate, reason, analyze, synthesize, and critically problem solve. Effective dental education requires the capacity to gather, organize, and assess relevant information in order to arrive at integrated solutions. Students must be able to comprehend three-dimensional relationships and understand the spatial relationships of structures in order to fully solve clinical problems.

### Sensation and perception

For learning to occur, students must be able to visualize and comprehend physical demonstrations in the classroom, laboratory, and clinic. Such observation requires the functional use of vision, touch, hearing, smell, and somatic sensation.

Specifically, students must be able to acquire information from written documents and to visualize information presented in images from papers, videos, and digital media—including interpretation of radiographic and other graphic images, with or without the use of assistive devices. Sufficient visual acuity is required to read charts, records, small print, and handwritten notations.

Adequate visual and tactile skills are also necessary to perform dental examinations and provide treatment. Visual acuity, accommodation, and color vision are necessary to discern variations in color, shape, and general appearance between normal and abnormal hard and soft tissues.

Students must be able to observe and describe changes in mood, activity, and posture in their patients, possessing skills in effective perception and understanding of nonverbal communications. Accurately noting verbal and nonverbal communication is essential when performing dental operations or administering medications.

### Communication skills

Students must be fluent in the use of standard written and spoken English. They must be able to communicate effectively and sensitively with patients, the faculty and staff, and other students. Specifically, students must be able to observe, hear, and speak to patients in order to elicit and provide information. In addition, they must have the ability to read and understand written communications and generate effective oral and written communications with all members of the health-care team. This includes the ability to discern when a matter is of a confidential nature in order to maintain confidentiality. Students may be required to remediate written and/or verbal language skills before admission or during their program. This remediation may include accent modification.

### Fine and gross motor skills

Students need sufficient motor and sensory capability in both hands to provide general dental care; to perform palpation, percussion, auscultation and other diagnostic maneuvers; basic laboratory tests; and diagnostic procedures. These actions require fine and gross muscular movements, coordination, and equilibrium. Individuals must be able to operate foot controls utilizing fine movements, operating high- or low-speed dental instruments to achieve accurate movements of less than one-half millimeter.

Students must be able to perform basic life support (e.g., CPR), transfer and position disabled patients, assist patients who lack motor control, and position themselves around the patient and dental chair.

### Behavioral and psychosocial attributes

Students must possess the emotional stability and demonstrate the resilience required by a challenging educational program. Success requires use of good judgment, insight, self-motivation, self-assessment and self-control, high achievement striving, and the development of a mature, sensitive, and effective personal relationship style.

It is imperative that students be able to tolerate physically taxing workloads and to function effectively under stress. Students must be able to adapt to changing environments, demonstrate flexibility, and learn to function in the face of uncertainties inherent in the clinical issues of many patients. Compassion, integrity, honesty, concern for others, and cultural sensitivity are required personal qualities.

### Disabled applicants and students

The LLU School of Dentistry provides reasonable and appropriate accommodations in accordance with the Americans with Disabilities Act for individuals with documented disabilities who demonstrate a need for accommodation.

The Americans with Disabilities Act defines a person with a disability as an individual with a physical or mental impairment that substantially limits one or more major life activities. Problems such as English as a second language, test anxiety, or slow reading without an identified underlying physical or mental deficit, or failure to achieve a desired outcome are generally not covered by the Americans with Disabilities Act.

To be considered for an accommodation based on a learning disability, a student must experience marked difficulty when compared with the average person in the general population, not just other dental school students, in one or more basic academic areas as a result of a significant information processing or attentional disorder.

Students requesting accommodations must provide supporting documentation for the disability requiring accommodation, including:

- A report from a licensed professional approved by Loma Linda University School of Dentistry identifying the diagnosed disability and the recommended accommodations.
- Record of any previous accommodations provided by educational institutions or other testing agencies.
- If no prior accommodations were provided, the licensed professional should include a detailed explanation as to why no accommodations were given in the past and why they are needed now.

Documentation needs to be reviewed by the assistant dean for admissions and student affairs, before accommodation is formally implemented. While awaiting assessment and documentation, temporary accommodation may be granted. The temporary accommodation will not exceed 90 days.

Students requesting accommodation are responsible for:

- Reporting their request for accommodation to the Office of Admissions and Student Affairs
- Providing the supporting documentation

## Policies for this school

The information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the

contents of the *Student Handbook* at <http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>.

## Professional ethics

Successful students should demonstrate behaviors and attributes in harmony with School of Dentistry's core values. The school seeks students who openly and enthusiastically align themselves with the following core values:

- Belief in God
- Spiritual maturity
- Demonstrated compassion
- Service to others
- Commitment to excellence
- Critical thinking
- Respect for self and others
- Ethical integrity
- Principled care
- Pursuit of knowledge
- Conscientiousness and industry
- Effective communication

The school code of ethics expands and elaborates Loma Linda University's standards of ethical conduct.

Organized dentistry is proud of its reputation for honesty and integrity. These virtues are essential if dentistry is to continue to maintain its position of trust in society. The establishment of peer review committees, ethics committees, codes of ethics, and other regulatory and/or advisory processes and standards within the profession indicate a vital and continuing concern for maintaining high standards of integrity.

The School of Dentistry is a partner in this process where future professionals are selected and trained in the development of professional and ethical attitudes consistent with the highest goals of the profession.

The school seeks to broaden students' ethical perceptions by including a religious perspective not always found in ethical codes. By adding a spiritual foundation to the professions' ethical frameworks, it is anticipated that the dental professionals' ethic will be more completely informed and not only will reflect concern for their fellows, but also will reflect an intimate relationship with the Creator God.

The code contains specific admonitions that are limited in number but comprehensive in nature. It is anticipated that the values of honesty, integrity, and altruism will be enhanced during professional training so that, following graduation, these virtues will be second nature in the service provided to patients. Thus, the relationship of trust between dental professional and patient can develop to benefit both the profession and the public. This is a goal the school feels it must meet as it seeks to train dental professionals to become competent in all aspects of patient care.

The School of Dentistry code of ethics applies to all students (baccalaureate dental hygiene; predoctoral, including international dentist students; graduate, certificate, residents, fellows, preceptors, research scholars; and exchange students).

The School of Dentistry code of professional ethics with its specific guidelines is available for review in Section VII of the LLU *Student Handbook*.

## Student leadership

### Student Government

Loma Linda University American Student Dental Association (LLU ASDA) is composed of peer voted student officials who are charged by administration to carry out the actions necessary for a successful student government, as well as serving as a representation for he ASDA chapter at regional and national meetings and events. LLU ASDA's central body if the Executive Council (EC) compromised of the First Delegate/President, Second Delegate/President-elect, two class representatives, secretary, and treasurer.

The EC has the authority to appoint members to other designated offices to fulfill the work of the local chapter as needed and delegate duties to subcommittees as needed in governing the student body, including representation for other state and national professional organizations (CDA, ADEA, AGD) and class leadership. The EC oversees the utilization of all funds paid by student dues and obtained through fundraising.

Elections for all positions of LLU ASDA occur in the Spring Quarter.

### Class leadership

Class leaders are elected annually during the Autumn term for the first year and Spring term thereafter. Leaders are elected by confidential peer vote to work as a team to coordinate class events—including academic, spiritual, and social experiences. Class leadership consists of:

DDS - President and four vice presidents serving in various capacities.
IDP - Two class representatives
DH BS - President and three vice presidents.

### Committee representation

Students are invited to serve on school standing committees. The Office of Admissions and Student Affairs consults with LLU ASDA and class leadership to select students to serve on committees, including the Admissions Committees, Academic Review Committees, Curriculum Committee, and Professional Standards Committee.

To maintain a leadership position, a minimum 2.7 GPA must be maintained by the president, vice presidents and professional organization representatives.

## Special opportunities

### Alumni-Student Convention

The annual Alumni-Student Convention, now part of the One Loma Linda Homecoming, sponsored since 1960 by the Alumni Association, gives opportunity for students to meet alumni and listen to presentations by prominent guest lecturers in the dental profession.

### Research presentation

Students have the opportunity to give research presentations in the form of table clinics. The winners are invited to present their table clinics at state and national conventions.

### Dedication service

A dedication service is held during the Alumni-Student Convention, giving students an opportunity to dedicate their professional lives to Christ. Incoming students are presented with personalized Bibles and graduating students are given personalized white coats embroidered with the School logo.

# Academic information

## General policies

### Registration

The student must register on or before the dates designated by the Office of University Records. Early registration is encouraged. Registration is completed online at the myLLU registration portal <https://ssweb.llu.edu/login (https://ssweb.llu.edu/login/) >. Once at the portal, a student must clear registration holds—student health, transcript, housing and finance. At the beginning of the first year of attendance, a student is required to have a picture taken for the student identification badge. International students must also register with the International Student Affairs office as required by law.

Late registration is permissible only in case of a compelling reason. A charge is applied if registration is not completed by the designated dates. The student may not attend class without being registered. A change in registration after the second week affects the grade record. A student may not concurrently register for courses in another school of the University without permission from the associate dean for academic affairs.

### Attendance

Regular attendance at lectures, clinics, and other assemblies is required of all students. All lectures and laboratories provide information essential for successful completion of the program. Each student is responsible for all material covered and assignments made. *Absences in excess of 15 percent may be sufficient cause for a failing or unsatisfactory grade to be recorded.* Clinics and individual courses/instructors may have more stringent requirements.

### Length of academic residence

To fulfill the requirement pertaining to length of academic residence, the student must be registered for a full course load at the University for the entire senior year for the Bachelor of Science degree; and the entire third (D3) and fourth (D4) years for the Doctor of Dental Surgery degree.

### Dean's list

Outstanding academic performance will be rewarded by publication of the Dean's List each review period. The eligibility requirements are:

- Complete at least 12 units of graded coursework during the term.
- Achieve a term grade point average of at least 3.50 with no grade lower than a B-.
- Receive no incomplete (I) or in-progress (IP) grades on the grade report.

### Course waiver

A course requirement may be waived if the applicant has previously taken the course and earned a grade of B or above, but no credit results. Evaluation for waiver of courses will be completed only after an applicant has been accepted to the program, and must be approved by the course director at this University and the school's associate dean for academic affairs. Tuition is not reduced if courses are waived or if a student takes less than a full load.

### Examinations

It is the policy of the school that all students are expected to take examinations at the scheduled time. The only acceptable excuse for not taking an examination on time is major illness (documented by the Student Health Service and conveyed to the course director). The consequences of missing an examination under the circumstances of documented illness are determined by the course director. If a student appears late for an examination, they may be denied admission to the examination site. If a student arrives late for an examination and is allowed to take it, they will be required to finish the examination at the same time as students who arrive on time.

### Repeating/remediating a course (predoctoral, IDP, and dental hygiene programs)

If a student receives an unsatisfactory or failing grade in a required course, it will be necessary for them to do additional work. Based on the original grade earned by the student, and upon the recommendation of the Academic Review Committee, one of the following plans will be pursued:

1. For courses with unsatisfactory performance (D+/D/U grades), the student must reregister for the course, review the coursework independently, repeat required assignments or quizzes, and take any or all course examinations as required by the course director. The highest grade allowed for a remediated course is C. At the discretion of the Academic Review Committee and course director, the student may be required to repeat the course at the next course offering.
2. For courses with failing performance (F grades), the student must reregister for the course, attend the class and/or laboratory, and take all course examinations at the next regular course offering.
3. Both the original and repeat grades are entered into the student's permanent academic record, but only the repeat grade units are computed in the grade point average.
4. Under certain circumstances and upon recommendation of the Academic Review Committee, a student may remediate/repeat a maximum of 12 units during the current and subsequent academic year. Upon such recommendation, the student will be permitted to move forward as a member of the cohort with which they enrolled.

## Academic criteria for promotion (predoctoral, IDP, and dental hygiene programs)

### Academic criteria for academic advancement and program completion

#### Predoctoral

#### Level D1 to Level D2

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of all courses in the D1 curriculum.

#### Level D2 to Level D3

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of all courses in the D2 curriculum.

#### Level D3 to Level D4

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of all courses in the D3 curriculum.

#### IDP

#### LEVEL IDP2 TO LEVEL IDP3

- Cumulative didactic and clinical course G.P.A. at or above 2.0.
- Successful completion of all courses in the IDP2 curriculum.

#### Level IDP3 to Level IDP4

- Cumulative didactic and clinical course G.P.A. at or above 2.0.
- Successful completion of all courses in the IDP3 curriculum.

**Dental hygiene (B.S. degree)**
**Junior to senior**

- Cumulative didactic and preclinical G.P.A. at or above 2.0.
- Successful completion of junior clinic promotion OSCE.
- Successful completion of all courses in the junior curriculum.

**Graduate students/residents**

- Cumulative didactic and laboratory G.P.A. at or above 3.0 (B).
- Successful completion of all evaluations.
- Successful completion of annual student evaluation (includes a review of entire academic record).
- Selection for advancement to Master of Science degree candidacy (for those on M.S. degree track only).

## School of Dentistry academic requirements for graduation

### Dentistry

A candidate for the Doctor of Dental Surgery degree must be at least twenty-one years of age and must have:

1. Satisfactorily completed all the requirements of the curriculum —including specified attendance, level of scholarship, length of academic residence, number of credit units, and service-learning requirements.
2. Completed special examinations, as required by the faculty.
3. Attempt the Integrated National Board Dental Examination (INBDE).
4. Demonstrated evidence of satisfactory moral and professional conduct, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University.
5. Discharged financial obligations to the University.
6. Been certified by the faculty as approved for graduation.

### Dental hygiene (B.S. degree)

In order to be eligible for graduation, the student must have:

1. Completed the Undergraduate Intent to Graduate form.
2. Completed all the requirements for admission to the chosen curriculum.
3. Satisfactorily completed all chosen requirements of the curriculum —including specified attendance, level of scholarship, length of academic residence, and number of credit units.
4. Attended an accredited college for the first two years, and Loma Linda University School of Dentistry for the junior and senior years.
5. Achieved no lower than a C- grade in all core courses and a minimum grade point average of 2.0.
6. Completed special examinations as required by faculty.
7. Passed the Dental Hygiene National Board Examination.
8. Demonstrated evidence of satisfactory moral and professional conduct, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University.
9. Discharged financial obligations to the University.
10. Been certified by the faculty as approved for graduation.

### National Dental Board Examinations

Attempting the Integrated National Board Dental Examination (INBDE) is a requirement for graduation. The INBDE is designed to assess cognitive knowledge of the basic, behavioral, and clinical sciences. Eligibility to sit for the INBDE is determined by successful completion of the curriculum leading up to the examination. In addition, students are required to pass a comprehensive examination that assesses mastery of the test specifications prior to the INBDE. The eligibility requirements and timetable for passing the INBDE is as follows:

> INBDE examination is scheduled after the third year. A candidate for the Doctor of Dental Surgery degree must have attempted the INBDE at least once before being awarded the D.D.S. degree.

## Procedures for academic review (predoctoral, IDP, and dental hygiene programs)

There are six academic review committees: D1, D2, D3, D4, IDP, and Dental Hygiene. Membership of each committee consists of the associate dean, academic affairs; the assistant dean, admissions and student affairs; and the department representative/course directors of all courses required of the respective class in the academic year. The associate dean, clinic administration, the clinic director, and primary attending faculty are members of the D3/D4 academic review committees. In addition, each committee has two student members appointed by the dean in consultation with the assistant dean, admissions and student affairs and DSA officers. Student committee members will be in the class one year ahead of the class being reviewed.

The academic review committees meet a minimum of two times annually to evaluate student academic and clinical performance and progress records. Students whose performance does not meet the stated academic standards and students who are being considered for academic sanctions may be scheduled for a hearing with the committee.

The committee also recommends to the dean all appropriate candidates for promotion, academic probation, repeat, or other appropriate actions; as well as students who should receive special recognition for academic excellence.

The process for evaluation of academic performance is as follow:

1. The academic review committee—by reviewing grades, reports, and other pertinent information—identifies students whose academic and/or clinical performance is below acceptable levels.
2. The associate dean for academic affairs notifies a student facing possible academic sanctions regarding the time and place for a hearing called for the purpose of allowing the student to appear before the committee to present reasons why action should not be taken. The academic review committee considers the student's presentation and all available information before making a recommendation.
3. The dean may enforce one or more of four academic sanction options:
   - Academic probation
   - Remedial action
   - Academic leave of absence
   - Academic discontinuation
     Please refer to the academic disciplinary policy for more specific descriptions regarding each academic sanction.
4. A student may appeal the recommendation of the academic review committee to the dean. Such appeals are not expected to be routine and should be considered only in circumstances where new and relevant information exists that was not available for consideration by the academic review committee. The dean will decide if the appealing student will be permitted to continue participating in classes and/or clinical assignments during the appeal proceedings.

The dean will review the matter and either render a decision or appoint a three-member ad hoc committee. Members of this committee will not have been involved in the academic review committee decision process. The ad hoc committee will determine whether the process was appropriately followed, review new information, and judge whether the record supports the recommendation. They will report their findings and recommendation to the dean, who will decide if the appeal is warranted or not.

## Academic disciplinary policy (predoctoral, IDP, and dental hygiene programs)

### Academic probation

Academic probation is a specified period of time during which the student is given an opportunity to comply with specific academic standards. Such action must be confirmed by letter to the student.

#### Criteria for placement on academic probation

A student will be placed on academic probation if they meet one or more of the following conditions:

1. Term or cumulative grade point average (G.P.A.) below 2.0.
2. Failing or unsatisfactory (U/F/D+/D) grades in any course required for the degree.
3. Social/behavioral/ethical problems that significantly impact academic and/or clinical performance.

#### Level of academic probation

The level of academic probation indicates the seriousness of the cumulative academic deficiency. However, depending on the seriousness or nature of the academic deficiency, a student may be considered for academic leave of absence or discontinuation at any level of probation.

| | |
|---|---|
| Level I | First term on academic probation |
| Level II | Second term on academic probation, consecutive or nonconsecutive. |
| | EXCEPTION: Continued academic probation due to failing grade in a course that cannot be repeated until a later term or failure to reregister in the succeeding year. |
| Level III | Third term on academic probation, consecutive or nonconsecutive. If a student is unable to remove academic probationary status within the following term, they will be considered for academic discontinuation. |
| | EXCEPTION: Continued academic probation due to failing grade in a course that cannot be repeated until a later term or failure to reregister in the succeeding year. |
| Level IV | If a student meets the criteria for academic probation for a fourth term, consecutive or nonconsecutive, they will be considered for academic discontinuation. |

### Restrictions for a student on academic probation

A student on academic probation:

1. May not serve as an officer for any class, school, or extracurricular organization.
2. May not take any elective courses.
3. May not participate in any elective off-campus, service-learning, or mission activities.
4. Remains on academic probation until all the terms of the probation sanctions have been fulfilled, unless the student is discontinued.

### Remedial action or remediation

As a condition for continued enrollment, remedial action for the student may consist of:

1. Counseling, tutoring, and/or repeating assignments or coursework; or completing additional assignments or course work, possibly including repeating an academic year or portion thereof.
2. Other specified requirements.

### Academic leave of absence

Academic leave of absence is a specified period of time during which the student is withdrawn from the academic program. Upon request to and approval by the academic review committee, the student may return to the program at a year/term level specified by the committee. The student may be requested to fulfill specific requirements prior to re-entering the academic program.

The following guidelines pertain to when an academic leave of absence may be considered for a student who is in one or more of the following situations:

- Student has a serious academic deficit that cannot be removed while continuing with current coursework.
- At the end of the academic year, student does not meet the criteria for promotion to the next academic year.
- Student has three consecutive reviews or terms on academic probation.
- Student fulfills criteria for academic discontinuation, yet shows promise for future success despite current deficiencies.

Return from an academic leave of absence requires that the student reapply for admission by written request to the assistant dean for admissions and student affairs. The student must meet the requirements for readmission specified by the academic review committee at the time the leave of absence was granted. The requirements for readmission may also be reviewed by the academic review committee.

### Academic discontinuation

Guidelines for academic discontinuation are indicated below for predoctoral, IDP, and dental hygiene students:

#### D1 Year

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Three consecutive reviews or terms on academic probation.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to meet criteria for promotion to D2 year by the end of the D1 year.

#### D2 Year

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Four or more unsatisfactory or failing grades since enrollment in the program, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Level IV academic probation.

- Failure to meet criteria for promotion to D3 year by the end of the D2 year.

**D3 Year**

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Five or more unsatisfactory or failing grades since enrollment in the program, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Level IV academic probation.
- Failure to meet criteria for promotion to D4 year by the end of the D3 year.

**D4 Year**

- Failure to achieve eligibility for graduation within five full academic years of enrollment in the dental program. *Exception: Students who are required to repeat an academic year or who are on a revised program. These students must achieve eligibility for graduation within one year of the new graduation date assigned at the time of change to an alternate program.*

**Dental hygiene B.S. degree juniors**

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to meet criteria for promotion to dental hygiene B.S. senior year by the end of the dental hygiene B.S. junior year.

**Dental hygiene B.S. degree seniors**

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to pass the National Board Dental Hygiene Examination within three attempts.
- Failure to achieve eligibility for graduation within three full academic years of enrollment in the dental hygiene program.

In some situations, the academic review committee may recommend that a student repeat an academic year (or portion thereof) as an alternative to discontinuation.

### Scholastic standing

Grades and grade points for the predoctoral, IDP, and dental hygiene programs may be found in Section II of this catalog, with the following exceptions:

- Satisfactory (S)—grade if the student exceeded the minimum requirements for overall performance.
- Marginal Satisfactory (MS)—grade if the student met but did not exceed the minimum requirements for overall performance.
- Unsatisfactory (U)—grade if the student did not meet the minimum requirements for overall performance.

## Student-initiated academic grievance procedure

If a student wishes to contest a grade, they should discuss the grade first with the instructor, where appropriate; then with the course director, if applicable; and finally with the department chair. If the student is not satisfied, they may then appeal to the associate dean for academic affairs (for further discussion of the academic grievance process, see Loma Linda University *Student Handbook*, Section V—University Policies).

## Service-learning

Service-learning at Loma Linda University School of Dentistry continues the original purpose of the school—to train dental health professionals to provide service to underserved populations, both locally and abroad.

Field experience for students of dentistry and dental hygiene includes extramural opportunities within the U.S. and in foreign countries. In addition to providing clinical treatment, service-learning experiences include local health fairs and elementary school dental health presentations. Service experiences may last from one day to several weeks.

All students are required to complete assigned service-learning rotations and minimum clock hours, as described in each program. Predoctoral dental students are required to complete a minimum of 120 service-learning hours. Forty hours must be completed doing local community service dentistry. Up to 30 of the remaining 80 hours may be completed doing non-dental service. Dental hygiene students must complete 60 service-learning hours. Thirty-five hours of local service are required, and up to 15 non-dental service hours may be credited. International Dentist Program students must complete 60 hours of service. Of the 60 hours, 40 will be assigned by the program. Up to 15 hours of non-dental service may be completed as part of the 60 hours total requirement. In addition, a didactic component is included within the service-learning program. Lectures are embedded within existing courses and occur throughout the curricula.

Students are required to be in good and regular standing to be eligible to participate in elective international service-learning experiences.

## Learning environment

Because the study of dental sciences and arts is based on a foundation in essentially the same science subjects as are studied in medicine and allied health curricula, the School of Dentistry shares with the School of Medicine the facilities for teaching basic sciences.

Classrooms, laboratories, student lounges, teachers' offices, and clinical facilities related solely to dentistry occupy the School of Dentistry building, named in honor of M. Webster Prince, the first dean. Prince Hall is on the University mall facing the University Church and adjacent to the Medical Center. The facilities effectively accommodate collaboration with the Medical Center in ongoing research and service programs.

The total resources of the University constitute a wealth of opportunity for the student with initiative and willingness to develop individual capacity to the fullest extent. Students find varied opportunities for serving and learning in the immediate University community, in school-sponsored service-learning clinics, clinical and research electives, and diverse volunteer programs.

## Basic sciences

The Loma Linda University departments of basic sciences include anatomy, biochemistry, microbiology, and physiology and pharmacology. The basic sciences serve as the foundation for the dental sciences by

leading toward an understanding of normal structure and function, as well as introducing the basis for pathology in the practice of dentistry.

Subjects are taught in the first year of the dental hygiene and the first two years of the general dentistry curricula as part of three conceptually integrated sequences of courses—sequences in physiology, in anatomy, and in applied science. Throughout the basic sciences, an appreciation of God's creation and His wisdom is reinforced through the study of human biology. Students are encouraged to extend their knowledge and apply it for their own well-being and for the well-being of their patients.

The purpose of the basic science curriculum is to provide a foundation of knowledge that is essential for the practice of dentistry and dental hygiene. The faculty is dedicated to providing students with tools that expand their thinking and challenge them to ask probing questions and to earnestly search for answers. Its aim is to prepare students to excel scientifically. The higher aim is, through the Christian atmosphere of this University, to prepare students to become truly compassionate dentists.

# Financial information

## Financial policies

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must be settled.

### Satisfactory academic progress policy (all programs)

To be eligible for federal, state, and University financial aid, students are required by the U.S. Department of Education and the state of California to maintain satisfactory progress toward their degree objectives. In compliance with prescribed regulations, the University and School of Dentistry have established guidelines that are designed to ensure that students successfully complete courses to promote timely advancement toward a specific degree objective.

#### Definition of satisfactory academic progress

The School of Dentistry defines satisfactory academic progress by the following three criteria:

1. Meeting a minimum grade point average requirement
2. Making yearly progress by completing the academic requirements defined for a program
3. Completing the degree objective within the maximum time allowed

#### Grade point average requirement

To maintain satisfactory academic progress, students in the predoctoral, IDP, and dental hygiene programs must maintain a minimum cumulative grade point average of 2.0. In addition, dental hygiene students must achieve no grade lower than a C- in all core courses.

#### Yearly progress requirement

Each student's academic progress is evaluated by the Academic Review Committee throughout each academic term, and a cumulative review is conducted to determine eligibility for promotion at the end of each academic year. The Office of Academic Affairs monitors the minimum grade point average requirement. The Office of Financial Aid, along with the School of Dentistry Office of Academic Affairs, monitors yearly progress and the maximum time allowance.

Students whose academic standing or degree progress falls below the standard receive a financial aid warning during the next term of registration. If their academic standing or degree progress is not raised to the standard by the end of the term in which the financial aid warning was issued, their financial aid will be terminated until the requirements have been met.

#### Reasonable degree progress

It is expected that students will complete the requirements for a degree within the scheduled curriculum time. The Doctor of Dental Surgery degree is scheduled to be completed in four years for the traditional program and 27 months for the international program and may not exceed six for the traditional program and three for the international program. The Bachelor of Science degree in dental hygiene is scheduled to be completed in two years and may not exceed three years.

#### Certification of status

The Office of Academic Affairs will certify the official status of each enrolled student at the end of each academic year to the Office of University Records and to the Office of Financial Aid.

## Student financial aid

Federal loans are available only to United States citizens, green card holders, or those with permanent resident status. With good credit or a creditworthy cosigner, federal loans may be used to cover the entire academic budget. For more information, contact the Office of Financial Aid <finaid@llu.edu> or 909/558-4509.

## Schedule of charges

### Dentistry

All tuition, enrollment fees and technology fees are set for one academic year.

| | 1st Year | 2nd Year | 3rd Year | 4th Year |
|---|---|---|---|---|
| Tuition | $72,545 | $87,015 | $87,015 | $87,015 |
| Enrollment fees | $2,625 | $3,500 | $3,500 | $3,500 |
| School of Dentistry | $132 | $176 | $176 | $176 |
| Technology fees (Computer set-up, technical support) | $1,585 | $780 | $780 | $780 |
| The following are estimates based on the information available at this time and are subject to change. | | | | |
| Instrument issue (Includes usage fees) | $10,800 | $7,448 | $286 | $96 |
| Computer (Budget revised at purchase with financial aid) | $2,265 | $0 | $0 | $0 |
| CPR (Mandatory on-campus training) | $40 | $0 | $0 | $0 |
| Optics (Loupes and light) | $1,800 | $0 | $0 | $0 |
| Laboratory fees | $144 | $148 | $128 | $44 |
| Dental supplies (Billed with usage) | $144 | $550 | $465 | $600 |
| Departmental fees (Includes course materials; dental laboratory gold) | $257 | $1,106 | $321 | $384 |
| Books | $1,020 | $1,660 | $795 | $0 |
| ASDA/CDA (Not covered with financial aid) | $93 | $93 | $93 | $93 |
| National Board Examinations | $0 | $455 | $0 | $500 |
| Estimated living expenses (For off-campus student, not living with relative) | $17,086 | $20,757 | $20,757 | $20,757 |
| Total | $110,536 | $123,688 | $114,316 | $113,945 |

### International Dentist Program

All tuition, enrollment fees and technology fees are set fees for one academic year. The following amounts are based on the 24-month program. Adjustments will be made for the 27-month program which begins Spring 2020.

| | IDP 3rd Year | IDP 4th Year |
|---|---|---|
| Tuition | $105,680 | $105,680 |
| Enrollment fees | $3,500 | $3,500 |
| School of Dentistry | $176 | $176 |
| Technology fees (Computer set-up, technical support) | $1,780 | $780 |
| The following are estimate based on the information available at this time and are subject to change. | | |
| Instrument issue (Includes usage fees) | $17,100 | $0 |
| Computer (Budget revised at purchase with financial aid) | $2,265 | $0 |
| CPR (Mandatory on-campus training) | $40 | $0 |
| Optics (Loupes and light) | $1,800 | $0 |
| Laboratory fees | $140 | $40 |
| Books | $1,500 | $1,500 |
| ASDA/CDA (Not covered with financial aid) | $93 | $93 |
| Estimated living expenses (For off-campus student, not living with relative) | $20,757 | $20,757 |
| Total | $154,831 | $132,526 |

### Dental Hygiene—B.S. (Entry Level)

All tuition, enrollment fees and technology fees are set for one academic year and are divided equally per term.

| | Junior | Senior |
|---|---|---|
| Tuition | $34,650 | $46,200 |
| Enrollment fees | $2,625 | $3,500 |
| School of Dentistry | $57 | $76 |
| Technology fees (Computer set-up, technical support) | $1,584 | $780 |
| The following are estimates based on the information available at this time and are subject to change. | | |
| Instrument issue (Includes usage fees) | $6,204 | $88 |
| Computer (Budget revised at purchase with financial aid) | $2,200 | $0 |
| CPR (Mandatory on-campus training) | $60 | $0 |
| Optics (Loupes) | $1,500 | $0 |
| Laboratory fees | $60 | $0 |
| Supplies (Billed with usage) | $55 | $150 |
| Books | $1,500 | $1,500 |
| SADHA dues | $90 | $90 |
| National Board Review Course (Budgeted for students to purchase their choice) | $0 | $450 |
| National Board Examination | $0 | $500 |
| Extramural | $0 | $960 |
| Estimated living expenses (For off-campus student, not living with relative) | $16,605 | $22,140 |
| Total | $67,190 | $76,434 |

### On- and off-campus student housing

Students may go to <llu.edu/central/housing (http://www.llu.edu/central/housing/)> for housing information and a housing application form.

# Programs

## Undergraduate

- Dental Hygiene — B.S. (p. 203)

## Professional

- Dentistry — D.D.S. (p. 206)
- International Dentist Program (IDP) — D.D.S. (p. 218)

## Advanced Education

- Endodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 226)
- Implant Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 229)
- Oral and Maxillofacial Surgery — post-D.D.S. Certificate (p. 230)
- Orthodontics and Dentofacial Orthopedics — post-D.D.S. Certificate, M.S. (p. 231)
- Pediatric Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 233)
- Periodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 234)
- Prosthodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 235)

# Undergraduate

Established in 1959, the Department of Dental Hygiene, the Bachelor of Science degree undergraduate curriculum of the School of Dentistry, is largely focused on preventive oral health services and continuing care. Dental science courses, preclinical lectures and seminars, laboratory exercises, and clinical assignments have been developed to provide training in the variety of procedures delegated to the dental hygienist within the dental practice setting. These experiences are sequenced in an organized manner that provides for continual growth and competency in performance of all traditional and expanded function procedures.

The purpose of the program is to develop professionals prepared for the current practice of dental hygiene, as well as graduates who are additionally prepared to deal with future changes in dentistry. Courses that encourage critical thinking and problem-solving techniques and that enhance the ability to evaluate the latest in research are important adjuncts to clinical training. Upon completion of this curriculum, graduates will be prepared to enter a variety of career options available to dental hygienists.

Dental Hygiene Program curricula are approved by the Western Association of Schools and Colleges (WASC) Senior College and University Commission (WSCUC). The program is also approved by the Commission on Dental Accreditation of the American Dental Association.

# Philosophy

A profession in the health arts and sciences calls increasingly for persons of intelligence, integrity, responsibility, and depth of human understanding. Therefore, the program of instruction is built on a strong liberal arts foundation. The student is encouraged to take electives that contribute to breadth of knowledge and quality of values. The choice of electives in early college work is important for many reasons.

The School of Dentistry is interested in applicants with the potential to become hygienists who are well-read and caring persons prepared to communicate effectively in professional and community relationships. They should be able to draw on knowledge of the structure and function of the human body in health and disease, applying resources based on Christian ideals and values to aid in the solution of personal problems. They should also be able to develop attitudes and skills that will most effectively serve society.

# Goal

The goal of the Dental Hygiene Program is to educate competent, concerned, and active members of the dental hygiene profession who possess the ability to effectively perform the expanding scope of practice of the dental hygienist.

Loma Linda University emphasizes Christian values and beliefs as well as the concept of whole-person care. Opportunities for spiritual growth and fellowship among faculty and students are interwoven into daily academic pursuits, clinical practice, and social interactions.

The advancement of dental hygiene depends on an ever-growing body of knowledge. Therefore, this program also places great importance on providing an atmosphere in which students can develop skills necessary to objectively assess new theories and trends in dentistry in light of scientific knowledge and principles. By combining Christian values with an appreciation for research and the scientific method, graduates will continually apply evidence-based principles to patient care and exhibit God's love in the quality of service they render.

### Chair

Shelly A. Withers

### Primary faculty

Darlene A. Armstrong

Larysa Baydala

Danielle Ellington

Debra K. Friesen

Shelley L. Hayton

Shirley A. Lee

Patricia M. Lennan

Colleen A. Whitt

Shelly Withers

Debra A. Zawistowski

### Emerita faculty

Joni A. Stephens

# Application procedures

The Dental Hygiene Program is an undergraduate program in the School of Dentistry. A student must have a high school diploma or its equivalent and must meet college entrance requirements. Admission to the Dental Hygiene Program is in the junior year after successful completion of the required prerequisite courses in a regionally accredited college or university.

The application is available at <http://www.adea.org/>. An LLU supplemental application is also required. The application deadline for the Bachelors program is April 1 and June 1 for the Dental Hygiene to DDS Bridge pathway.

## Application procedure

1. *DHCAS application*. The DHCAS application is completed online by the applicant at adea.org (between November 1 and April 1. The DHCAS application takes approximately four to six weeks to be processed and sent to the school where the applicant has applied.
2. *Supplemental application*. As soon as the DHCAS application is verified by DHCAS and received by LLU the applicant is sent an email invitation from LLU to complete an electronic supplemental application.
3. *Supplemental application deadline*. The applicant must return the completed supplemental application and materials within 30 days. This includes essays specific to Loma Linda University, a photograph, and the nonrefundable application fee of $100.
4. *Transcripts*. Official college transcripts must be sent to DHCAS and high school transcripts sent directly to LLU. When an applicant becomes an accepted student, official college/university transcripts are required to be sent to LLU in order for the student to be registered for the first quarter of classes. International students must submit official transcripts at time of supplemental application.
5. *References*. The applicant is asked to send DHCAS three personal references. These must include an academic reference from a science instructor; a reference from an employer or professional; a character or religious reference; such as, from a minister. Members of the applicant's family are excluded from writing the required letters of reference.
6. *Interview*. The applicant's records will be screened when the supplemental application, recommendation, and transcripts are on file. The applicant may then be invited to the school for a personal interview. An interview is required for admission. The interview provides an opportunity for evaluation of noncognitive factors, including communication skills, personal values, motivation, and commitment to goals of the profession; as well as genuine concern for others in the service of dental hygiene. At the time of the interview, a tour of the school will be given by a current student.
7. *Observation*. It is important that students seek experience observing and assisting in a dental office in order to become familiar with the work of a dental hygienist. Prior to interviewing, applicants are expected to complete a minimum of 20 hours of observation/work experience in a dental facility.
8. *Acceptance*. Accepted students receive a phone call, an email, and an acceptance letter signed by the Dean. Upon payment of the deposit, accepted students receive an email that serves as a receipt, as well as information about how to access registration information.

Pre-entrance requirements:

1. *Pre-entrance health requirements/immunizations*. It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid having a hold placed on registration, the student is encouraged to return the documentation forms to Student Health Service no later than six weeks prior to the beginning of classes.
   For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.
   For further information, consult the *Student Handbook*, Section V—University Policies—Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770.

If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.

2. *Deposits*. The student accepted into the dental hygiene program must submit a nonrefundable deposit of $100. All deposits become part of the first quarter's tuition. Failure to submit this deposit will result in loss of the applicant's position in the class. The remaining balance of the first quarter's tuition and fees are due no later than the day of matriculation in late September. If the applicant has submitted a completed application for financial aid by March 2, and if the Stafford application has been submitted by June 15, the final installment can be paid utilizing University-assisted sources.
3. *Financial requirement*. Non-U.S. citizens and non-permanent residents are required by U.S. Immigration regulation to pay for their first year of tuition and fees before they can register for Autumn term. In addition, they must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa applications and registration information after they have submitted their deposit and payment plan.
4. *Financial aid*. A financial aid advisor and financial aid programs are available. Please contact the Office of Financial Aid by email at finaid@llu.edu; or by telephone, 909/558-4509. Website information is located at <llu.edu/central/ssweb/finaid (http://www.llu.edu/central/ssweb/finaid/)>.

# General regulations

The student is also subject to School of Dentistry academic information (p. 195), technical standards (p. 192), financial policy (p. 199), and University academic policies (p. 34) outlined in this CATALOG.

## Employment

Dental hygiene students are discouraged from working, however, may accept part-time employment during the school year after receiving approval from the department chair and the associate dean for academic affairs. Permission to work is granted on the basis of grades, class load, and health. Work hours may not interfere with course, laboratory, or clinic assignments.

## Supplies

Dental hygiene students must obtain required textbooks, computers, supplies, instruments, and uniforms. The official instruments issued must be purchased from the School of Dentistry during registration. Unauthorized or incomplete equipment is not acceptable. Advance consent must be obtained for any exception. The student must purchase the professional apparel (uniforms, protective eyewear, and shoes) specified by the School of Dentistry.

## License

To practice, the dental hygienist must pass clinical licensing examinations given by state and/or regional dental examining boards. Examinations are given several times each year. Credentials from the National Board of Dental Examiners are accepted in lieu of the written portion of a state examination in some states. Some states have additional computer-based written examinations. Further information can be obtained from each state licensing board or regional clinical examination website.

# Program

Dental Hygiene — B.S. (p. 203)

# Dental Hygiene — B.S.

Dental hygiene—a profession dating back to 1913—is largely concerned with preventive health services. The hygienist works in cooperation with the dentist in private practice offices, industrial organizations, schools, hospitals, state or federal public health services, and the armed forces.

The B.S. degree is organized as a four-year college curriculum. The freshman and sophomore years of largely prescribed, preprofessional study may be taken at any regionally accredited college. The professional curriculum begins with the junior year in the School of Dentistry. The curriculum is approved by the Commission on Dental Accreditation of the American Dental Association. The first class at this University graduated in 1961.

## Institutional learning outcomes

Students who graduate with the Bachelor of Science degree in dental hygiene will meet the University outcomes (p. 19).

## Dental hygiene's ten core competencies

The curriculum is designed to ensure that by graduation, all students will have been equipped with the knowledge, skills, and attitudes to successfully enter the practice of dental hygiene. By the end of the program, graduates should be able to:

1. Apply a professional code of ethics in all patient and professional interactions;
2. Adhere to the federal/state legal and regulatory framework in the provision of oral health care;
3. Apply critical-thinking and problem-solving skills in the provision of oral health care to promote whole-patient health and wellness;
4. Use evidence-based rationales and emerging treatment modalities to evaluate and incorporate accepted standards of care;
5. Incorporate self-assessment and professional growth through lifelong learning;
6. Advance oral health services through affiliations with professional organizations, service activities, and research;
7. Apply quality-assurance processes to ensure a continued commitment to accepted standards of care;
8. Communicate effectively with diverse individuals and groups serving all persons without discrimination by acknowledging and appreciating diversity;
9. Provide accurate, consistent, and complete assessment, planning, implementation, evaluation, and documentation for the provision of all phases of the dental hygiene process of care;
10. Provide collaborative, individualized patient care that is comprehensive and compassionate.

# Accreditation

The entry-level B.S. degree curricula is accredited by the Commission on Dental Accreditation of the American Dental Association, 211 East Chicago Avenue, Chicago, IL 60611-2678; telephone: 312/440-250; e-mail: <accreditation@ada.org>; website: <http://www.ada.org>.

# Admissions

The entry-level dental hygiene applicant must meet the following minimum requirements:

- 96 quarter or 64 semester units of accredited college coursework. *NOTE:* Loma Linda University requires all students who graduate with a baccalaureate degree to complete a minimum of 68 quarter units of general education, which is integrated into the entire undergraduate program.
- A grade point average of 2.7 or higher in science and nonscience coursework, averaged separately; a minimum grade of C for all pre-entrance coursework to be transferred to the University. The entering grade point average is typically 3.2 or higher.
- A personal interview with a representative designated by the School of Dentistry. This interview will assess personal qualities such as, values, spiritual heritage, communication skills, service orientation, and volunteer experience. The interview is by invitation only.
- Three personal letters of reference.
- A minimum of 20 hours observation with a dental hygienist. Completion of observation hours prior to an interview is recommended. Dental assisting experience is also highly recommended.
- Dental hygiene applicants are expected to complete all general education requirements before matriculating in the School of Dentistry. A student may be accepted with a deficiency in one or more of the areas but is expected to eliminate deficits before registering for the Dental Hygiene Program.
- Required science courses must be completed within five years prior to the desired date of matriculation.

For further details, please see the application procedures tab in the School of Dentistry undergraduate section (p. 201) of this catalog.

## Dental hygiene general education requirements

### Domain I: 28-32 units

**Religion and Humanities**

Four quarter or three semester units of religion for each full year of attendance at a Seventh-day Adventist college, based on the total units graded; humanities courses (20-24 quarter units or 14 semester units) selected from a minimum of three content areas—history and/or civilization, fine arts theory, literature, philosophy/ethics, foreign language, performing arts/visual arts (not to exceed four quarter units).

### Domain II: 24-32 units

**Scientific Inquiry and Analysis and Social Sciences**

One full year of chemistry covering inorganic, organic, and biochemistry —*each* with laboratory; human anatomy and human physiology with laboratory (may be two separate courses or sequential courses); microbiology with laboratory. Required science coursework must be completed within five years prior to matriculation. Nonremedial college mathematics or statistics. Introductory sociology, general psychology, and cultural anthropology/diversity courses are required.

### Domain III: 9-13 units

**Communication**

English composition and literature, a complete sequence (two semesters or two to three quarters); and a speech/interpersonal communication/persuasion course are required. Introductory courses in computers are highly recommended.

### Domain IV: 2-6 units

**Health and Wellness**

A personal health or nutrition course and two physical education activity courses with letter grades (C or better) are required.

For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

# Program requirements

| Code | Title | Clock Hours | | | | Total Units |
|---|---|---|---|---|---|---|
| | | Lec | Lab | Clinical | Total | |
| **Junior Year, Autumn Quarter** | | | | | | |
| ANAT 301 | Head and Neck Anatomy, DH | 46 | | | 46 | 4.0 |
| DNES 200 | Curricular Practical Training[2, 3] | | 75 | | 75 | 0.0 |
| DNHY 305 | Oral Anatomy Lecture | 22 | | | 22 | 2.0 |
| DNHY 305L | Oral Anatomy Laboratory | | 30 | | 30 | 1.0 |
| DNHY 309 | Radiology I | 22 | 40 | | 62 | 3.0 |
| DNHY 321 | Preclinical Dental Hygiene I Lecture | 22 | | | 22 | 2.0 |
| DNHY 321L | Preclinical Dental Hygiene I Laboratory | | 60 | | 60 | 2.0 |
| RELT 423 | Loma Linda Perspectives | 20 | | | 20 | 2.0 |
| **Winter Quarter** | | | | | | |
| ANAT 303 | General and Oral Histology and Embryology | 42 | | | 42 | 3.0 |
| ANDN 314 | Dental Anesthesia: Local Anesthesia and Inhalation Sedation | 33 | 30 | | 63 | 4.0 |
| DNHY 310 | Radiology II | 22 | 40 | | 62 | 3.0 |
| DNHY 322 | Preclinical Dental Hygiene II Lecture | 22 | | | 22 | 2.0 |
| DNHY 322L | Preclinical Dental Hygiene II Laboratory | | 60 | | 60 | 2.0 |
| DNHY 375 | Dental Hygiene Clinic | | | 40 | 40 | 1.0 |
| DNHY 380 | Medically Compromised Patients | 22 | | | 22 | 2.0 |
| DNHY 381 | Pharmacology for the Dental Hygienist I | 22 | | | 22 | 2.0 |
| **Spring Quarter** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| DNHY 323 | Preclinical Dental Hygiene III | 22 | | | 22 | 2.0 |
| DNHY 323L | Preclinical Laboratory | | 40 | | 40 | 1.0 |
| DNHY 376 | Dental Hygiene Clinic | | | 120 | 120 | 4.0 |
| DNHY 380 | Medically Compromised Patients | 22 | | | 22 | 2.0 |
| DNHY 382 | Pharmacology for the Dental Hygienist II | 22 | | | 22 | 2.0 |
| DNHY 405 | Introduction to Periodontics | 22 | | | 22 | 2.0 |
| DNHY 450 | Junior Clinical Seminar | 22 | | | 22 | 1.0 |
| ODRP 311 | General and Oral Pathology DH | 50 | | | 50 | 5.0 |
| RELE 457 | Christian Ethics and Health Care | 20 | | | 20 | 2.0 |
| **Senior Year, Summer Quarter** | | | | | | |
| DNES 200 | Curricular Practical Training[3] | | 75 | | 75 | 0.0 |
| DNES 305 | Etiology and Management of Dental Caries | 22 | | | 22 | 2.0 |
| DNES 400 | Interprofessional Laboratory Experience[1, 3] | | 4 | | 4 | 0.0 |
| DNHY 303 | Dental Materials and Techniques | 12 | 30 | | 42 | 2.0 |
| DNHY 328 | Dental Hygiene Portfolio Practicum[3] | 10 | | | 10 | 1.0 |
| DNHY 376 | Dental Hygiene Clinic | | | 120 | 120 | 4.0 |
| DNHY 390 | Introductory Statistics | 22 | | | 22 | 2.0 |
| DNHY 406 | Orthodontics Concepts for Dental Hygiene | 12 | | | 12 | 1.0 |
| DNHY 416 | Dental Health Education I | 22 | | | 22 | 2.0 |
| DNHY 421 | Research I | 22 | | | 22 | 2.0 |
| DNHY 450 | Junior Clinical Seminar | 22 | | | 22 | 1.0 |
| **Autumn Quarter** | | | | | | |
| DNHY 411 | Dental Hygiene Topics I | 22 | | | 22 | 2.0 |
| DNHY 415 | Applied Nutrition | 22 | | | 22 | 2.0 |
| DNHY 417 | Dental Health Education II | 22 | | | 22 | 2.0 |
| DNHY 422 | Research II | 20 | | | 20 | 2.0 |
| DNHY 435 | Special Topics in Periodontal Therapy | 22 | | | 22 | 2.0 |
| DNHY 451 | Clinical Seminar I | 22 | | | 22 | 1.0 |
| DNHY 475 | Dental Hygiene Clinic I | | | 176 | 176 | 4.0 |
| DNHY 495 | Dental Hygiene National Board Preparation | 22 | | | 22 | 1.0-2.0 |
| RELR 475 | Whole Person Care | 20 | | | 20 | 2.0 |
| **Winter Quarter** | | | | | | |
| DNHY 408 | Professional Ethics | 22 | | | 22 | 2.0 |
| DNHY 431 | Public Health Dentistry | 33 | | | 33 | 3.0 |
| DNHY 452 | Clinical Seminar II | 22 | | | 22 | 1.0 |
| DNHY 476 | Dental Hygiene Clinic II | | | 176 | 176 | 4.0 |
| DNHY 495 | Dental Hygiene National Board Preparation | 22 | | | 22 | 1.0-2.0 |
| **Spring Quarter** | | | | | | |
| DNHY 409 | Jurisprudence and Practice Management | 22 | | | 22 | 2.0 |
| DNHY 413 | Dental Hygiene Topics III | 22 | | | 22 | 2.0 |
| DNHY 414 | Personal Finance | 20 | | | 20 | 2.0 |
| DNHY 453 | Clinical Seminar III | 22 | | | 22 | 1.0 |
| DNHY 477 | Dental Hygiene Clinic III | | | 204 | 204 | 4.0 |
| RELR 408 | Christian Perspectives on Marriage and the Family | 20 | | | 20 | 2.0 |
| **Total Units** | | **996** | **484** | **836** | **2316** | **115-117** |

[1] Course may be taken in the junior or senior year.

[2] Fulfills service learning requirement

[3] Course may be repeated during each term

## Normal time to complete the program

Four (4) years — Two (2) years (seven [7] academic quarters) at LLU — full-time enrollment required

NOTE: Consult advisor regarding other courses that may be applied towards graduation.

# Professional


- Dentistry — D.D.S. (p. 206)
- International Dentist Program (IDP) — D.D.S. (p. 218)


# Dentistry — D.D.S.

**Dean**
Robert A. Handysides

The goal of the General Dentistry Program is to train practitioners in the delivery of high-quality dental care that is preventive in purpose and comprehensive in scope, and that is based on sound biological principles.

## Curriculum

Dentistry, like all health professions, exists to benefit society. Therefore, it continually assesses its professional services to ascertain what measures, attitudes, and skills most effectively serve society.

The School of Dentistry is committed to:

- Beginning the curriculum with a strong foundation in the sciences that are basic to knowledge of the structure and function of the human being in health and in sickness.
- Providing an educational environment that progressively leads a student to mastery and correlation of clinical sciences and skills.
- Developing a frame of reference from which to mobilize the resources of dentists and associated professional personnel in both delivery of health care and contribution to community well-being by education for the prevention of illness.

These concepts include responsibility for contributing to the body of scientific knowledge by questioning, investigating, and teaching; for remaining sensitive and adaptive to the needs of humanity in ever-changing conditions; and for maintaining consciousness of the individual obligation to live, practice, and strive for the good of humanity.

The curriculum in dentistry, organized to be completed in four academic years, fulfills the requirements for the Doctor of Dental Surgery degree.

## Objective

The primary objective of the dentistry curriculum is to graduate individuals who attest to the purpose of the University and the goals of the School of Dentistry—which include advancing knowledge and understanding of health, disease, and ways to improve health and the dental health-care delivery system through basic and applied research.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Perform clinical decision making that is supported by foundational knowledge and evidence-based rationales;
2. Promote, improve, and maintain oral health in patient-centered and community settings;
3. Function as a leader in a multicultural work environment and manage a diverse patient population;
4. Maintain physical, emotional, financial, and spiritual health in one's personal life;
5. Apply ethical principles to professional practice.

## Regulations

The student is also subject to the conditions of registration, attendance, financial policy, governing practices, and graduation requirements outlined in Section II and in the School of Dentistry general information in Section III of this CATALOG.

## Instruments, textbooks, additional materials

Instruments, textbooks, and materials required for the study and practice of dentistry are prescribed by the School of Dentistry. The school issues dental instruments each quarter as needed in the program.

Unauthorized or incomplete equipment is not acceptable. Advance administrative approval must be obtained for any exception.

## Employment

Because the dental program is very rigorous, first-year students in dentistry may not accept part-time employment during the first term. Thereafter, such employment may be accepted by the student only upon receiving written permission from the associate dean for academic affairs.

## Licensing

Eligibility to take examinations given by the state and regional boards of dental examiners is based on essentially the same requirements as are stipulated by the School of Dentistry for the Doctor of Dental Surgery degree. Information about the examinations of the respective states is available at the office of the associate dean for academic affairs. Credentials from the National Board of Dental Examiners are accepted in lieu of the written portion of a state examination in most states. Many states require the National Board Dental Examination and provide no alternative. The national board does not include a clinical examination.

## D.D.S. competencies

The curriculum is designed to ensure that upon graduation all students will have the foundational knowledge (basic sciences), clinical sciences (clinical skills), and human and applied sciences (professional behaviors) necessary for the successful practice of general dentistry. LLUSD students must be competent in the following areas:

**Domain I: Practice and Profession**

1. **Critical Thinking: Perform clinical decision making that is supported by foundational knowledge and evidence-based rationales.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge
      - Understand the fundamental principles governing the structure and functioning of the human organism.
      - Read and evaluate scientific literature and other appropriate sources of information in making oral health-management decisions.

   b. Clinical Sciences
      - Apply critical-thinking and problem-solving skills in the comprehensive care of patients.
      - Integrate information from biomedical, clinical, and behavioral sciences in addressing clinical problems.

   c. Human and Applied Sciences

- Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.

2. **Community Involvement: Promote, improve, and maintain the oral health of patients in various types of community settings.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge
      - Explain the principles of leadership and motivation.
      - Explain the role of professional dental organizations in promoting the health of the public.
      - Explain the concept of a worldwide community as described in the world mission of the Seventh-day Adventist Church.
      - Explain the role of the dental professional in a community setting.

   b. Clinical Sciences
      - Participate in local, national, or global community-based oral health-care programs.
      - Recognize the effectiveness of community-based programs.

   c. Human and Applied Sciences
      - Demonstrate the skills to function successfully as a leader on an oral health-care team.
      - Communicate effectively with patients, peers, other professionals, and staff.
      - Demonstrate the ability to serve patients and interact with colleagues and allied dental personnel in a multicultural work environment without discrimination.
      - Demonstrate honesty and confidentiality in relationships with staff.

3. **Professional Practice: Understand the basic principles important in developing, managing, and evaluating a general dental practice.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge
      - Evaluate the advantages and disadvantages of different models of oral health-care management and delivery.
      - Explain legal, ethical, and risk-management principles relating to the conduct of dental practice.
      - Explain the basic principles of personnel management, office systems, and business decisions.

   b. Clinical Sciences
      - Demonstrate the ideal of service through the provision of compassionate, personalized health care.
      - Understand the importance of maintaining a balance between personal and professional needs for successful life management.
      - Apply knowledge of informational technology resources in contemporary dental practice.
      - Recognize and manage significant cultural, psychological, physical, emotional, and behavioral factors affecting treatment and the dentist-patient relationship.

   c. Human and Applied Sciences
      - Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.
      - Apply financial management skills to debt and business management.
      - Understand the importance of spiritual principles as a basis for developing a philosophy of health care.
      - Establish rapport and maintain productive and confidential relationships with patients using effective interpersonal skills.

4. **Patient Management: Apply behavioral and communication skills in the provision of patient care**.
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge
      - Understand the fundamental principles governing the structure and functioning of the human organism.
      - Read and evaluate scientific literature and other appropriate sources of information in making oral health-management decisions.

   b. Clinical Sciences
      - Apply critical-thinking and problem-solving skills in the comprehensive care of patients.
      - Integrate information from biomedical, clinical, and behavioral sciences in addressing clinical problems.

   c. Human and Applied Sciences
      - Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.
      - Recognize and manage significant cultural, psychological, physical, emotional, and behavioral factors affecting treatment and the dentist-patient relationship.
      - Establish rapport and maintain productive and confidential relationships with patients, using effective interpersonal skills.
      - Recognize common behavioral disorders and understand their management.
      - Use appropriate and effective techniques to manage anxiety, distress, discomfort, and pain.
      - Manage dental fear, pain, and anxiety with appropriate behavioral and pharmacologic techniques.

**Domain II: Assessment of the Patient and the Oral Environment**

5. **Examination of Patients: Conduct an appropriately comprehensive examination to evaluate the general and oral health of a diverse patient population at all stages of life within the scope of general dentistry.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge/Basic Sciences
      - Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
      - Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of disease.

- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of disease.
- Apply knowledge of the biology of microorganisms in physiology and pathology for the prevention, diagnosis, and management of disease.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences
- Identify the chief complaint and take a history of the present illness.
- Conduct thorough medical, social, and dental histories.
- Perform an appropriate clinical and radiographic examination using diagnostic aids and tests, as needed.
- Establish and maintain accurate patient records.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems in maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.
- Identify patient behaviors that may contribute to orofacial problems.
- Identify signs of abuse or neglect.

6. **Diagnosis: Determine a diagnosis by interpreting and correlating findings from the examination.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology for the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.

b. Clinical Sciences
- Identify each problem that may require treatment.
- Recognize clinical and radiographic changes that may indicate disease.
- Establish a clinical or definitive diagnosis for each disorder identified.
- Recognize conditions that may require consultation with or referral to another health-care provider, and generate the appropriate request.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

7. **Treatment Planning: Develop a comprehensive treatment plan and treatment alternatives.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology for the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences
- Identify treatment options for each condition diagnosed.
- Identify systemic diseases or conditions that may affect oral health or require treatment modifications.
- Develop an appropriately sequenced integrated treatment plan.
- Modify the treatment plan when indicated due to unexpected circumstances, noncompliant individuals, or for patients with special needs (such as frail or elderly, or medically, mentally, or functionally compromised individuals).
- Present the final treatment plan to the patient, including time requirements, sequence of treatment, estimated fees, payment options, and other patient responsibilities in achieving treatment outcomes.
- Identify patient expectations and goals for treatment.
- Explain and discuss the diagnosis, treatment options, and probable outcomes for each option with the patient or guardian.
- Secure a signed consent to treat.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.

- Identify barriers that prevent patients from seeking oral health care.

8. **Management of Emergencies, Pain, and Anxiety: Manage dental and medical emergencies that may be encountered in dental practice, as well as pain and anxiety with pharmacologic and nonpharmacologic methods.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge/Basic Sciences
      - Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
      - Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
      - Recognize common behavioral disorders and understand their management.

   b. Clinical Sciences
      - Evaluate the patient's physical and psychological state and identify factors that may contribute to orofacial pain.
      - Manage patients with craniofacial pain and be able to differentiate pain of a nondental origin.
      - Manage dental emergencies of infectious, inflammatory, and traumatic origin.
      - Provide basic life support measures for patients.
      - Develop and implement an effective office strategy for preventing and managing medical emergencies.

   c. Human and Applied Sciences
      - Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
      - Identify patient behaviors that may contribute to problems related to maintaining oral health.
      - Identify barriers that prevent patients from seeking oral health care.
      - Use appropriate and effective techniques to manage anxiety, distress, discomfort, and pain.
      - Manage dental fear, pain, and anxiety with appropriate behavioral and pharmacologic techniques.

9. **Health Promotion and Maintenance: Provide appropriate preventive and/or treatment regimens for patients with various dental carious states, using appropriate medical and surgical treatments.**
   Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
   a. Foundational Knowledge/Basic Sciences
      - Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
      - Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
      - Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.

   b. Clinical Sciences
      - Use accepted prevention strategies, such as oral hygiene instruction, microbiologic evaluation, nutritional education, and pharmacologic intervention to help patients maintain and improve their oral and systemic health.
      - Properly isolate the tooth/teeth from salivary moisture and bacterial contamination.
      - Differentiate between sound enamel, hypomineralized enamel, remineralized enamel, and carious enamel.
      - Develop and implement an appropriate treatment plan for enamel surfaces that can be managed by remineralization therapies.
      - Develop and implement an appropriate treatment plan for tooth surfaces with caries involving the enamel and/or dentin.
      - Remove or treat carious tooth structure and restore with appropriate materials.
      - Determine when a tooth has such severe carious involvement as to require extraction.

   c. Human and Applied Sciences
      - Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases; as well as the promotion and maintenance of oral health.
      - Identify patient behaviors that may contribute to problems related to maintaining oral health.
      - Identify barriers that prevent patients from seeking oral health care.

**Domain III: Oral Health Management**

10. **Management of Preventive Care: Evaluate and manage the implementation of preventative treatment modalities.**
    Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:
    a. Foundational Knowledge/Basic Sciences
       - Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
       - Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as

their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of disease.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of disease as well as the promotion and maintenance of oral health.

b. Clinical Sciences
- Provide patient education to maximize oral health.
- Manage preventive oral health procedures.
- Perform therapies to eliminate local etiological factors to control caries, periodontal disease, and other oral diseases.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

11. **Treatment of Periodontal Disease: Evaluate and manage the treatment of periodontal diseases.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of periodontal disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of periodontal diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of periodontal diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of periodontal diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of periodontal diseases as well as the promotion and maintenance of the periodontium.

b. Clinical Sciences
- Develop an appropriate oral hygiene instruction plan.
- Treat and manage patients with periodontal diseases with up to localized moderate chronic periodontitis (including patient education, management of interrelated systemic health, and effective subgingival scaling and root planing).
- Demonstrate knowledge of therapeutic and referral options for treatment of patients with generalized moderate-to-severe chronic periodontitis.
- Evaluate the outcomes of periodontal therapies provided to their patients either within their office or services provided by a periodontal specialist to whom the patient may have been referred for treatment.
- Provide and assess success of periodontal maintenance for patients with up to localized moderate chronic periodontitis.
- Manage care of patients who are candidates for referral (those with moderate to severe chronic periodontitis, aggressive forms of periodontitis, mucogingival conditions, periodontal disease associated with systemic disease, or periodontitis that is refractory to treatment) by effective communication and coordination of therapy with a periodontal specialist when appropriate.
- Manage patients requiring modification of oral tissues to optimize restoration of form, function, and esthetics.
- Manage a comprehensive maintenance plan following the active phase of periodontal treatment.
- Manage patients with gingival esthetic needs.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of periodontal diseases as well as the promotion and maintenance of periodontal health.
- Identify patient behaviors that may contribute to periodontal problems (examples: poor oral hygiene and poor compliance with periodontal maintenance).
- Identify barriers that prevent patients from seeking periodontal care.

12. **Management of Disease of Pulpal Origin: Evaluate and manage diseases of pulpal origin and subsequent periapical disease.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of disease.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of disease as well as the promotion and maintenance of oral health.

b. Clinical Sciences
- Prevent and manage pulpal disorders through the use of indirect and direct pulp capping and pulpotomy procedures.

- Assess case complexity of each endodontic patient.
- Manage endodontic emergencies.
- Manage nonsurgical endodontic therapy on permanent teeth.
- Recognize and manage endodontic procedural accidents.
- Manage pulpal and periapical disorders of traumatic origin.
- Manage endodontic surgical treatment.
- Manage bleaching of endodontically treated teeth.
- Evaluate outcome of endodontic treatment.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of pulpal diseases as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

13. **Basic Surgical Care: Provide basic surgical care to manage disease and improve oral health conditions.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.

b. Clinical Sciences
- Perform uncomplicated extractions of teeth.
- Manage surgical extraction, common intraoperative and postoperative surgical complications.
- Manage pathological conditions, e.g., lesions requiring biopsy, localized odontogenic infections, impacted third molars, and other referrals.
- Manage patients with dentofacial deformities or patients who can benefit from preprosthetic surgery.
- Manage oral and maxillofacial pathologic conditions using pharmacologic and nonpharmacologic methods.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

14. **Assessment and Management of Maxillary and Mandibular Skeletodental Discrepancies: Assess and manage maxillary and mandibular skeletodental discrepancies, including space maintenance, as represented in the early, mixed, and permanent dentitions.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
- Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.

b. Clinical Sciences
- Perform mixed dentition analyses utilizing the Moyers and Nance methods.
- Perform a Steiner cephalometric analysis to evaluate for individual sagittal and coronal plane skeletodental discrepancies compared to normative data.
- Evaluate the noncephalometric, skeletodental facial esthetics of the child, adolescent, or adult patient.
- Manage multidisciplinary treatment cases involving orthodontics.
- Recognize the effects of abnormal swallowing patterns, mouth breathing, bruxism, and other parafunctional habits on the skeletodental structures; and manage treatment of these conditions.

c. Human and Applied Sciences
- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of disease as well as the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems related to maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

15. **Restoration and Replacement of Teeth: Manage the restoration of individual teeth and replacement of missing teeth for proper form, function, and esthetics.**
Examples for a new dentist to demonstrate competence in this area may include, but are not limited to, the following:

a. Foundational Knowledge/Basic Sciences
   - Apply knowledge of molecular, biochemical, cellular, and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
   - Apply knowledge of the principles of genetic, congenital, and developmental diseases and conditions as well as their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
   - Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
   - Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
   - Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.

b. Clinical Sciences
   - Assess teeth for restorability.
   - Assess esthetic and functional considerations.
   - Manage preservation of space following loss of teeth or tooth structure.
   - Select appropriate methods and restorative materials.
   - Design fixed and removable prostheses.
   - Implement appropriate treatment sequencing.
   - Perform biomechanically sound preparations.
   - Fabricate and place biomechanically sound provisional restorations.
   - Make impressions for diagnostic and treatment casts.
   - Obtain anatomic and occlusal relation records for articulation of casts.
   - Prepare casts and dies for the construction of restorations and prostheses.
   - Manage the laboratory fabrication of restorations and prostheses.
   - Evaluate and place restorations that are clinically acceptable.
   - Instruct patients in follow-up care of restorations and prostheses.
   - Determine causes of postoperative problems after restoration and resolve such problems.
   - Recognize and manage occlusal discrepancies

c. Human and Applied Sciences
   - Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of diseases as well as the promotion and maintenance of oral health.
   - Identify patient behaviors that may contribute to problems related to maintaining oral health.
   - Identify barriers that prevent patients from seeking oral health care.

# Departments and faculty


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- Dental Education Services (p. 215)
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- Radiology and Imaging Sciences (p. 217)


# Admissions

The Admissions Committee looks for evidence of scholastic competence, high moral and ethical standards, and significant qualities of character and personality. In broad terms, the following are standards required for admission:

- Intellectual capacity to complete the curriculum
- Emotional adaptability and stability
- Social and perceptual skills
- Physical ability to carry out observation and communication activities, and the possession of sufficient motor and sensory abilities to practice general dentistry
- Commitment to a dynamic spiritual journey and service to mankind

Official transcripts and documents are to be sent to:

Loma Linda University
Admissions Processing
11139 Anderson Street
Loma Linda, CA 92350

## Admission requirements

Although the predental curriculum can be completed in three years, a baccalaureate degree or equivalent is strongly recommended. The following college courses are required for entrance into the D.D.S. degree programs and must be taken in an accredited college in the U.S. or Canada:

### Humanities

A complete sequence of English composition (two semesters or three quarters) to include composition and literature is required. Students with a Baccalaureate degree are considered to have met this requirement.

### Natural Sciences

A complete course sequence, two semesters or three quarters, is required in each science listed unless otherwise noted.

General biology with laboratory
General chemistry with laboratory
General physics with laboratory
Organic chemistry with laboratory
Biochemistry (4 semester units or 6 quarter units)

### Electives (strongly recommended in order of priority)

Histology
Human gross anatomy
Systems physiology
Microbiology
Cell and molecular biology
Immunology
Neuroscience
Genetics
Ceramics
Management

Developmental psychology
Accounting
Nutrition

Students preparing for the predoctoral program are required to complete a minimum of three academic years with no fewer than 96 semester or 144 quarter units in an accredited college or university. Preference is given to applicants who have completed or will complete the requirements for a baccalaureate degree prior to admission. A maximum of 64 semester or 96 quarter units of credit may be accepted from an accredited junior or community college.

A complete academic year of class work (8 semester or 12 quarter units) in each subject: general biology, general chemistry, organic chemistry, and general physics are required. Also required is a complete sequence of English Composition (two semesters or three quarters). The biochemistry requirement is one semester or a minimum of (four semester units or 6 quarter units). All science prerequisites must be completed within five years prior to matriculation, with a grade of C or above in each course. A minimum grade point average of 2.7 in science subjects and in nonscience subjects, averaged separately, is required. The average grade point average for accepted students is substantially higher.

Students who are enrolled in another program in Loma Linda University are not considered for admission until they have completed or have been released from the program.

Prior to consideration for admission, the applicant must meet specific criteria related to past academic performance (G.P.A.), performance on the Dental Admission Test (DAT), and a personal interview. Applicants are expected to have taken the DAT within the previous two years, preferably not later than October of the year preceding expected matriculation.

In order to be better prepared with specific vocabulary and understanding, the applicant should include science courses with content similar to courses offered during the first year of the professional curriculum. The applicant's purpose should be the pursuit of diverse knowledge, the cultivation of an inquiring mind, the practice of efficient methods of study, and the habit of thinking and reasoning independently.

An applicant from a college or university outside the U.S. or Canada or from a nonaccredited college or university in the U.S. must complete a minimum of one full academic year (24 semester or 36 quarter credits) in an accredited college or university in the U.S. or Canada. This includes the required specific core sciences in the areas of biology, general chemistry, organic chemistry, biochemistry, and physics (all sciences except Biochemistry must include laboratories). A grade of C or above in each course completed is required. (A grade of C- will not be accepted.)

Credit for studies taken at a military service school is granted to veterans according to recommendations in the *Guide of the American Council on Education* and/or the California Committee for the Study of Education. The University reserves the right to require satisfactory completion of written or practical examinations in any course for which transfer credit is requested.

## Application procedure

The school participates in the American Association of Dental Schools Application Service (AADSAS). Applications are available online at <http://www.adea.org/>.. Due to the high volume of applicants LLUSD recommends that AADSAS applications be submitted before August. The following is a step-by-step process for completing an application to Loma Linda University (LLU).

1. *AADSAS application.* Is submitted to the American Association of Dental Schools Application Service between June 1 and November 1 at www.adea.org where it is processed in approximately four to six weeks prior to being sent to the LLUSD Office of Admissions.
2. *Supplemental application.* After AADSAS completes coursework verification. The applicant then receives an email invitation from LLU to complete an electronic supplemental application.
3. The applicant must return the completed supplemental application and materials within thirty (30) days. This includes an essay specific to Loma Linda University, a photograph, and the application fee of $150.
4. *Transcripts.* Official transcripts must be sent to AADSAS at the time application is submitted. When an applicant becomes an accepted student, official transcripts—mailed directly from all colleges/universities to LLU—are required and must be submitted by August 1 in order for the student to be registered for the first academic year of classes.
5. International students must submit official transcripts to LLU at time of supplemental application.
6. *References.* The applicant is asked to supply a minimum of three personal references. A reference from a pre-professional committee or science professor; a reference from an employer or professional and a reference from a spiritual leader. Applicants who have attended a college or university that has a preprofessional committee that prepares preprofessional evaluations, are encouraged to submit a preprofessional evaluation to LLUSD. Members of the applicant's family are excluded from writing the required letters of reference, although letters will be accepted for the file in addition to those required. All recommendation letters sent to AADSAS will be sent to Loma Linda University School of Dentistry along with the application.
7. *Dental Admission Test.* The applicant is required to complete and meet specific criteria related to performance on the Dental Admission Test (DAT). Preference is given to applicants who have taken the test by October of the academic year preceding that for which admission is desired. Entering D1 students are expected to have taken the test within the past two years. If the test has been taken more than one time, the most recent scores are used for admission criteria. The committee reviews all scores on the test. The DAT scores must be on file at Loma Linda University before an applicant is invited to interview.
8. *Interview.* The applicant's records will be screened when the supplemental application, recommendations, transcripts, and DAT scores are on file. The applicant may then be invited to the school for a personal interview. An interview is required for admission as it provides an opportunity for evaluation of noncognitive factors, including communication skills, core values, motivation, and passion for the profession; as well as genuine concern for others in the service of dentistry. At the time of the interview, a tour of the school will be given.
9. *Observation.* It is important that students seek experience observing and assisting in a dental office in order to become familiar with the work of a dentist. Prior to interviewing, applicants are expected to complete a minimum of fifty (50) hours of observation/work experience in a dental facility, twenty (20) of which must be done with a general dentist.
10. *Acceptance.* The student receives notification of an acceptance via a phone call, email and letter signed by the Dean. Upon payment of the

deposit, accepted students receive an email that serves as a receipt, as well as information about how to access registration information.

11. *Pre-entrance health requirements/immunizations.* It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid having a hold placed on registration, the student is encouraged to return the documentation forms to Student Health Service no later than six weeks prior to the beginning of classes.
For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.

    For further information, consult the *Student Handbook*, Section V—University Policies—Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770.

    If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.

12. *Deposits.* The student accepted into dentistry must submit a nonrefundable deposit of $1,000 to the Office of Admissions. All deposits become part of the first term's tuition. Failure to submit this deposit will result in loss of the applicant's position in the class. A second nonrefundable deposit of $1,000 is due on May 1 in order to secure a place in the class. The remaining balance of the first term's tuition and fees are due no later than the day of matriculation in August.
13. *Financial requirement.* All first-year students are required to pay their first year's tuition, enrollment fee, and program fees before they can register for classes. In addition, international students (all non-U.S. Citizens and non-Permanent Residents) must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa application and instructions after they have paid their first year's tuition and enrollment fee and submitted their second-year payment plan. In order to complete registration, the remaining program fees must be paid.
14. *Financial aid.* A financial aid advisor and financial aid programs are available. Please contact the Office of Financial Aid by email, <finaid@llu.edu>; or by telephone, 909/558-4509. Website information is located at <http://www.llu.edu/students/financial-aid/>.

### Transfer

Transfer from another school of dentistry in the United States is considered only in unusual circumstances. A transfer applicant should expect to begin at the first-year level and will be considered only if there is space available. An application for transfer will be considered when the following information is received in the school's Office of Admissions:

- Letter from applicant, stating reason for requesting transfer;
- Letter of recommendation from the dean of the dental school where the applicant is enrolled;
- Official transcripts sent directly to the LLUSD Office of Admissions for both predental and dental school courses completed;
- Dental Admission Test results.

## Program requirements

| Code | Title | Clock Hours | | | | Total Units |
|---|---|---|---|---|---|---|
| | | Lec | Lab | Clinical | Total | |
| **First Year (Term 1)** | | | | | | |
| DENT 700A | Dental Fundamentals I | 50 | | | 50 | 5.0 |
| DENT 701L | Dental Fundamentals I Laboratory | | 90 | | 90 | 3.0 |
| DENT 710A | Professionalism, Mission, and Personal Development I | 25 | | | 25 | 2.5 |
| DENT 720A | Patient-Centered Care I | | | 60 | 60 | 2.0 |
| DENT 730A | Biomedical Sciences and Oral Ecosystems I | 135 | 31 | | 166 | 14.5 |
| DNES 500 | Curricular Practical Training[1, 4] | | 120 | | 120 | 0.0 |
| RELR 776 | Spirituality and the Christian Health Professional | 20 | | | 20 | 2.0 |
| **First Year (Term 2)** | | | | | | |
| DENT 700B | Dental Fundamentals I | 60 | | | 60 | 6.0 |
| DENT 702L | Dental Fundamentals I Laboratory | | 120 | | 120 | 4.0 |
| DENT 710B | Professionalism, Mission, and Personal Development I | 15 | | | 15 | 1.5 |
| DENT 720B | Patient-Centered Care I | | | 135 | 135 | 4.5 |
| DENT 730B | Biomedical Sciences and Oral Ecosystems I | 155 | 92 | | 247 | 18.5 |
| RELE 734 | Christian Ethics for Dentists | 20 | | | 20 | 2.0 |
| **Second Year (Term 1)** | | | | | | |
| DENT 750A | Dental Fundamentals II | 150 | 150 | | 300 | 20.0 |
| DENT 760A | Professionalism, Mission, and Personal Development II | 15 | | | 15 | 1.5 |
| DENT 770A | Patient-Centered Care II | 60 | 90 | | 150 | 9.0 |
| DENT 780A | Biomedical Sciences and Oral Ecosystem II | 80 | | | 80 | 8.0 |
| **Second Year (Term 2)** | | | | | | |
| DENT 750B | Dental Fundamentals II | 140 | 210 | | 350 | 21.0 |
| DENT 760B | Professionalism, Mission, and Personal Development II | 15 | | | 15 | 1.5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| DENT 770B | Patient-Centered Care II | 30 | 180 | | 210 | 9.0 |
| DENT 780B | Biomedical Sciences and Oral Ecosystem II | 100 | | | 100 | 10.0 |
| **Third Year (Term 1)** | | | | | | |
| DENT 800A | Dental Fundamentals III | 130 | 90 | | 220 | 16.0 |
| DENT 810A | Professionalism, Mission, and Personal Development III | 45 | | | 45 | 4.5 |
| DENT 820A | Patient-Centered Care III | | | 360 | 360 | 12.0 |
| DENT 830A | Biomedical Sciences and Oral Ecosystems III | 30 | | | 30 | 3.0 |
| DNES 800 | Interprofessional Laboratory Experience[2] | | 4 | | 4 | 0.0 |
| RELR 717 | Diversity and the Christian Health Professional | 20 | | | 20 | 2.0 |
| **Third Year (Term 2)** | | | | | | |
| DENT 800B | Dental Fundamentals III | 65 | 30 | | 95 | 7.5 |
| DENT 810B | Professionalism, Mission, and Personal Development III | 35 | | | 35 | 3.5 |
| DENT 820B | Patient-Centered Care III | | | 360 | 360 | 12.0 |
| DENT 830B | Biomedical Sciences and Oral Ecosystems III | 50 | | | 50 | 5.0 |
| RELR 749 | Marriage and Family Wholeness | 20 | | | 20 | 2.0 |
| RELT 726 | Jesus[3] | 20 | | | 20 | 2.0 |
| **Fourth Year (Term 1)** | | | | | | |
| DENT 850A | Dental Fundamentals IV | 20 | 30 | | 50 | 3.0 |
| DENT 860A | Professionalism, Mission, and Personal Development IV | 35 | | | 35 | 3.5 |
| DENT 870A | Patient-Centered Care IV | | | 450 | 450 | 15.0 |
| DENT 880 | Biomedical Sciences and Oral Ecosystems IV | 20 | | | 20 | 2.0 |
| **Fourth Year (Term 2)** | | | | | | |
| DENT 850B | Dental Fundamentals IV | 10 | 30 | | 40 | 2.0 |
| DENT 860B | Professionalism, Mission, and Personal Development IV | 35 | | | 35 | 3.5 |
| DENT 870B | Patient-Centered Care IV | | | 450 | 450 | 15.0 |
| RELR 715 | Christian Dentist in Community | 20 | | | 20 | 2.0 |
| **Total Units** | | **1625** | **1267** | **1815** | **4707** | **261** |

1 DNES 500 Curricular Practical Training may be repeated during each term

2 DNES 800 Interprofessional Laboratory Experience may be repeated twice during the third year

3 May be substituted with another 700-level RELT course in religion including RELT 716, 718, or 740.

4 Fulfills service learning requirement

### Normal time to complete the program

4 years (15 academic quarters) — full-time enrollment required

# Dental Anesthesiology

The Department of Dental Anesthesiology is staffed by dentists with advanced training in anesthesiology. The faculty provides didactic and clinical instruction in all areas of pain and anxiety control in dentistry. Didactic and clinical instruction in clinical pharmacology, medical emergency management, and the use of local anesthetics is provided to predoctoral dental and undergraduate dental hygiene students. Postdoctoral students receive instruction in physical diagnosis, clinical medicine, hospital protocol, medical emergency management, and local anesthesia, as well as all forms of sedation and general anesthesia. Anesthesia management of the medically and physically compromised dental patient is emphasized.

### Primary faculty

Carlos Poni

# Dental Education Services

The Department of Dental Education Services provides instruction for a variety of nonclinical subject areas, including behavioral science, practice management, preventive and community dentistry, and service learning. Patient, staff, and dentist interactions are examined in light of varied personality characteristics. In addition, the art and science of establishing and operating a successful practice are examined. Preventive dentistry in the office and community—as the underlying philosophy of dental practice—is studied. Students are required to participate in providing dental services and dental health education in underserved settings outside the dental school clinic—providing the experience of involvement in the real world—"to make man whole."

### Interim chair

Robert A. Handysides

### Primary faculty

Jack C. Burdick IV

Eun-Hwi E. Cho

Edna M. Loveless

Lancelot S. McLean

Kathleen L. Moore

Udochukwu E. Oyoyo

P. Esther Valenzuela

Krista J. Weymar

Wu Zhang

### Emeritus faculty
James M. Crawford

James Kettering

George M. Lessard

# Division of General Dentistry

The Division of General Dentistry encompasses the disciplines of oral diagnosis, operative dentistry, fixed prosthodontics, and removable prosthodontics. It is the aim of the division to provide each student with a thorough understanding of both technical and clinical skills which enable comprehensive patient care. The primary objectives of the Division of General Dentistry can be described on two levels: preclinical didactic courses and clinical education. The division also aims at instilling in each student an interest in exploring new frontiers in dentistry and in recognizing the need for a continued quest for knowledge.

The division houses the International Dentistry Program which is responsible for the management of preclinical and clinical education for students.

### Head
John B. Won

### International Dentist Program director
Michael J. Fitzpatrick

### Primary faculty
Edward Albrecht

Daniel R. Armstrong

H. Brooks Burnsed

Perry D. Burtch

Vincent K. Chee

Eun-Joo P. Choi

Heidi L. Christensen

Kwang-Su Chung

L. Todd Cochran

Ronald E. Forde

Robert L. Fritz

Gary J. Golden

Wendy C. Gregorius

Paula M. Izvernari

Balsam F. Jekki

Rami R. Jekki

Zina F. Johnston

Lynda M. Juhl-Burnsed

Vaughn Kearbey

Jeong Suk Kim

Jessica Kim

Edward Ko

Iris H. Nam

Doyle R. Nick

Steven Powell

Erin E. A. Richards

Paul L. Richardson

Holli C. Riter

Clyde L. Roggenkamp

Ronald L. Sorrels

Raghad J. Sulaiman

Daniel E. Tan, Jr.

L. Parnell Taylor

F. Jose Torres

James R. Trott

Robert D. Walter

### Emeritus faculty
William H. Heisler

# Endodontics

Endodontics is the discipline of dentistry concerned with the morphology, physiology, and pathology of human dental pulp and apical tissues. Its study and practice encompass the basic clinical science, including biology of the normal pulp; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated apical conditions. Department faculty members have developed preclinical lectures, laboratory exercises, and clinical training that cover the scope of endodontics. These experiences are coordinated and incorporated in a manner that provide patients with optimum oral health care in a setting that promotes the mission of the School of Dentistry.

### Chair
Tory Silvestrin

### Program Director
Tory Silvestrin

### Primary faculty
Shelley Aronson

Robert A. Handysides

Steven G. Morrow

Rinku Parmar

**Emeritus faculty**
Leif K. Bakland

# Radiologic and Imaging Services

The Department of Radiology and Imaging Sciences provides support in the form of didactic, preclinical, and clinical instruction to students within the School of Dentistry. Courses offered cover principles of acquisition of images, radiographic recognition and interpretation of normal and disease conditions of the oral cavity and hard tissues, patient assessment, and incorporation of findings into treatment planning. The department aims to enable students to excel in compassionate and knowledgeable service to patients that is based on a comprehensive gathering and interpretation of pertinent radiographic data. The Radiologic and Imaging Services clinical program is overseen by Clinic Administration. The didactic components are overseen by the Division of General Dentistry, as well as where faculty reside.

**Primary faculty**
Dwight D. Rice

# Oral and Maxillofacial Surgery

The Department of Oral and Maxillofacial Surgery offers courses that include didactic and clinical instruction to prepare the student for the practice of dentistry. These courses cover aspects of general, systemic, and oral pathology; patient evaluation, including differential diagnoses; treatment planning; and the identification and management of complications throughout all phases of treatment. Clinical instruction focuses on proper surgical technique for extraction of teeth, alveoplasty, and biopsies. Additionally, proper prescription writing and suturing techniques are evaluated.

**Chair**
Alan S. Herford

**Director, Advanced Specialty Education Program**
Jayini S. Thakker

**Director, Predoctoral Program**
Carlos Moretta

**Primary faculty**
Anupama Grandhi

Murray K. Jacobs

Frederick Mathews

Susan D. Richards

Susan Roche

Rafik Rofael

**Emeritus faculty**
Lane C. Thomsen

# Orthodontics

Pre-doctoral courses in the Department of Orthodontics, as outlined by the American Dental Association, apply knowledge derived from the basic sciences, research, and clinical treatment to the science of orthodontics so that the dental graduate will have the background necessary to recognize those conditions they are capable of managing. Clinical experience ranges from minor tooth movement and early treatment cases to more difficult, advanced cases—according to the student's demonstrated ability, perseverance, judgment, and interest in orthodontics.

**Chair**
V. Leroy Leggitt

**Director, Advanced Specialty Education Program**
Toufic M. Jeiroudi

**Faculty**
James Farrage

Gabriela Garcia

Roland Neufeld

Gregory W. Olson

Kitichai Rungcharassaeng

R. David Rynearson

**Distinguished professor**
Joseph M. Caruso

# Pediatric Dentistry

The Department of Pediatric Dentistry is committed to teaching clinical techniques in dentistry for children, while providing an emotionally healthy environment for the child patient. The faculty has developed didactic, laboratory, and clinical learning environments in pediatric dentistry—a broad experience designed to prepare the student for general pediatric dentistry practice.

**Chair**
Bonnie A. Nelson

**Program director**
Jung-Wei Chen

**Primary faculty**
Shahnaz Bonyanpoor

Wesley K. Okumura

Samah Omar

Laurita Siu

Melva Wyatt

**Emeritus faculty**
John E. Peterson, Jr.

# Periodontics

The Department of Periodontics provides education and training for predoctoral, dental hygiene, and advanced education students in the art and science of periodontics, which encompasses the study of the supporting structures of the teeth as well as the etiology, pathogenesis, diagnosis, and treatment of diseases that affect those supporting structures. The study of periodontics helps form basic concepts of health and disease, which are applied to the treatment of periodontal diseases as well as the maintenance of dental health over a patient's lifetime—

providing comprehensive dental therapy for the individual patient. In this way, the Department of Periodontics contributes directly to the School of Dentistry's academic and service mission, "to make man whole."

**Chair**
Yoon-Jeong Kim

**Director, Advanced Specialty Education Program**
Erik F. Sahl

**Primary faculty**
Amelia David

Mario Flores

Ahmed Khocht

Yoon-Jeong Kim

Sangmoo Scott Lee

Leticia Lenoir

Adrian Mobilia

Manoochehr Goshtasbpour Parsi

Cynthia Scheines

Loredana E. Trica

Barbara Valadez

Klaus D. Wolfram

**Emeritus faculty**
R. Leslie Arnett, Jr.

# International Dentist Program — D.D.S.

The International Dentist Program, founded by Dr. Lloyd Baum in 1985, is designed to allow qualified dentists educated in countries outside the United States to earn the Doctor of Dental Surgery (D.D.S.) degree in the United States. More than 500 students from 81 countries have graduated from the program.

The D.D.S. degree from a U.S. dental college is an educational requirement for eligibility to take the dental licensure examination in many states. The program has a minimum length of two academic years (27 calendar months); but may be extended, when necessary, to meet the particular needs of students.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Perform clinical decision making that is supported by foundational knowledge and evidence-based rationales;
2. Promote, improve, and maintain oral health in patient-centered and community settings;
3. Function as a leader in a multicultural work environment and manage a diverse patient population;
4. Maintain physical, emotional, financial, and spiritual health in one's personal life;
5. Apply ethical principles to professional practice.

## Regulations

The student is subject to the conditions of registration, attendance, financial policy, governing practices, and graduation requirements outlined in Section II (p. 34) and in the School of Dentistry (p. 195) general information in Section III of this CATALOG.

**Program director**
Michael J. Fitzpatrick

**Faculty**
H. Brooks Burnsed

Paula M. Izvernari

Balsam F. Jekki

Rami R. Jekki

Ronald L. Sorrels

Klaus D. Wolfram

## Admissions

Applications are available online at <http://www.adea.org/>. Requests for information are accepted by email or telephone.

### Admission requirements

- Dental degree from a recognized international dental school.
- Successful completion of the National Dental Board Examination, Integrated or Part I and Part II.
- TOEFL examination, with a minimum score of 20 in each area of the Internet-based examination. To be competitive, a score of 100 or higher is recommended.
- Dental school transcript (evaluated by an LLU-approved organization).

Other documentation is required, as outlined in the application. All application material sent to the Office of Admissions becomes the property of the school.

Students currently enrolled in a similar program at another university are not eligible to apply and will not be accepted for admission.

### Application procedure

1. CAAPID application. The Centralized Application for Advanced Placement for International Dentists (CAAPID) application is completed online by the applicant at <http://www (http://www/).adea.org/>. It takes approximately four weeks for CAAPID applications to be processed and sent to the dental school where the applicant has applied.

2. Supplemental application. The applicant then receives an email invitation from LLU to complete an electronic supplemental application.

3. Supplemental application deadline. The applicant must return the completed supplemental application and materials within 30 days. This includes an essay specific to Loma Linda University, a photograph, and the application fee of $150.

4. Transcripts. Official transcripts and diploma or certificate with English translations and documentation of all postsecondary education must be mailed directly to LLU from all colleges/universities attended by the student. If the dental education was received in India, transcripts must be sent directly from the University and not the dental school college. Applicants submitting a WES evaluation are exempt from submitting official transcripts to LLU.
5. Official Foreign educational credential evaluation report(course by course evaluation) mailed directly from WES, ECE, or AACRAO; links available at www.llu.edu/apply/intltrans.html (http://www.llu.edu/apply/intltrans.html)
6. Non-English Language Documents. Must be submitted in their original language along with an English translation.
7. Language. All classes are conducted in English, and patients treated in the clinic communicate in English. Applicants must demonstrate competence in both written and spoken English.
8. References. Two letters of recommendation, preferably from former teachers or mentors who can attest to applicant's character, conduct, and professional ability. Members of the applicant's family are excluded from writing the required letters of reference, although letters will be accepted for the file in addition to those required. Letters should be sent directly to CAAPID.
9. Photograph. A recent passport size photograph uploaded through your supplemental application.
10. Deadline. To be considered, the CAAPID and LLU applications and all required documents must arrive at the School of Dentistry Office of Admissions by June 1. All documents sent to Loma Linda become property of LLU.
11. Selection process
    - Screening: Completed applications submitted before the application deadline will be given priority consideration by the Office of Admissions.
    - Admissions testing: Is by invitation only and is conducted one or more Sundays in the fall.
    - Interview : Based on admissions testing, applicants may be invited to interview .
    - Final selection: The applicant's admissions testing results, interview and application file are presented to the School of Dentistry Admissions Committee for final selection. Thirty-two applicants are accepted each year for enrollment in the International Dentist Program which begins in the summer term.
12. Deposits. A student accepted into the International Dentist Program must submit a deposit of $4,000 USD to Loma Linda University within 30 days of acceptance. Deposits become part of the first term's tuition. Failure to submit this deposit will result in the loss of the applicant's position in the class.
13. Financial requirement. Students applying for or holding F-1 U.S. student visas are required by U.S. immigration regulation to pay for the first year's tuition and fees and provide documented evidence of sufficient funds for their second year prior to enrolling. For students eligible for government-sponsored financial aid programs, only the first term tuition is required at the initial registration.
14. Financial aid. A financial aid advisor and financial aid programs are available. Applicants should contact the Office of Financial Aid by e-mail <finaid@llu.edu (id@llu.edu)>; or by telephone, 909-/558-4509. Website information can be obtained at <llu.edu/central/ssweb/finaid>.
15. Pre-entrance health requirements/immunizations. It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid registration holds, the student is encouraged to return documentation forms to Student Health Service no later than six weeks prior to the beginning of classes.

For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.

For further information, consult the *Student Handbook*, Section V--University Policies--Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770.

If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.

Students in the International Dentist Program have the same benefits, including health-care coverage, as are described elsewhere in this CATALOG.

# Program requirements

Curriculum for cohort starting Spring 2022.

| Code | Title | Clock Hours | | | | Total Units |
|---|---|---|---|---|---|---|
| | | Lec | Lab | Clinical | Total | |
| **Second Year** | | | | | | |
| DNES 504 | Curricular Practical Training for IDP[1, 2] | | 60 | | 60 | 0.0 |
| ENDN 831 | Endodontics I | 10 | | | 10 | 1.0 |
| ENDN 832 | Endodontics II | | 60 | | 60 | 2.0 |
| ENDN 834 | Endodontics III | 12 | | | 12 | 1.0 |
| IDPC 815 | Clinical Orientation I - IDP | 11 | 30 | | 41 | 2.0 |
| IDPO 725 | Patient Assessment and Data Management II | 11 | 33 | | 44 | 2.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| IDPO 826 | Oral and Maxillofacial Surgery | 22 | | | 22 | 2.0 |
| IDPO 827 | Oral and Maxillofacial Surgery | 22 | | | 22 | 2.0 |
| IDPP 754 | Fundamentals of Periodontics | 22 | | | 22 | 2.0 |
| IDPR 701 | Operative Dentistry I | 11 | 33 | | 44 | 2.0 |
| IDPR 761 | Removable Prosthodontics I | 11 | 33 | | 44 | 2.0 |
| **Third Year (Term 1)** | | | | | | |
| IDPC 816 | Clinical Orientation II - IDP | | 30 | | 30 | 1.0 |
| IDPC 817 | Clinical Orientation III - IDP | | | 30 | 30 | 1.0 |
| IDPC 826 | General Clinics | | | 180 | 180 | 6.0 |
| IDPO 720 | Oral and Maxillofacial Radiology for the IDP Program | 20 | | | 20 | 2.0 |
| IDPO 726 | Patient Diagnosis and Treatment Planning | 11 | 33 | | 44 | 2.0 |
| IDPP 756 | Pediatric Dentistry | 22 | | | 22 | 2.0 |
| IDPP 756L | Pediatric Dentistry Laboratory | | 44 | | 44 | 1.0 |
| IDPR 702 | Operative Dentistry II | 11 | 33 | | 44 | 2.0 |
| IDPR 704 | Introduction to Occlusion | 22 | | | 22 | 2.0 |
| IDPR 762 | Removable Prosthodontics II | 11 | 33 | | 44 | 2.0 |
| IDPR 763 | Removable Prosthodontics III | 11 | 33 | | 44 | 2.0 |
| IDPR 771 | Fixed Prosthodontics I | 11 | 33 | | 44 | 2.0 |
| IDPR 772 | Fixed Prosthodontics II | 11 | 33 | | 44 | 2.0 |
| IDPR 854 | Implant Dentistry for the IDP Student | 22 | 44 | | 66 | 3.0 |
| ORDN 801 | Minor Tooth Movement | 18 | 16 | | 34 | 2.0 |
| ODRP 807 | Oral Medicine I: TMJ/Orofacial Pain I | 12 | | | 12 | 1.0 |
| ODRP 821 | Special Care Dentistry | 13 | | | 13 | 1.0 |
| **Third Year (Term 2)** | | | | | | |
| DENT 800B | Dental Fundamentals III | 65 | 30 | | 95 | 7.5 |
| DENT 810B | Professionalism, Mission, and Personal Development III | 35 | | | 35 | 3.5 |
| DENT 820B | Patient-Centered Care III | | | 360 | 360 | 12.0 |
| DENT 830B | Biomedical Sciences and Oral Ecosystems III | 50 | | | 50 | 5.0 |
| RELR 749 | Marriage and Family Wholeness | 20 | | | 20 | 2.0 |
| RELT 740 | World Religions and Human Health | 30 | | | 30 | 2.0-3.0 |
| **Fourth Year (Term 1)** | | | | | | |
| DENT 850A | Dental Fundamentals IV | 20 | 30 | | 50 | 3.0 |
| DENT 860A | Professionalism, Mission, and Personal Development IV | 35 | | | 35 | 3.5 |
| DENT 870A | Patient-Centered Care IV | | | 450 | 450 | 15.0 |
| DENT 880 | Biomedical Sciences and Oral Ecosystems IV | 20 | | | 20 | 2.0 |
| **Fourth Year (Term 2)** | | | | | | |
| DENT 850B | Dental Fundamentals IV | 10 | 30 | | 40 | 2.0 |
| DENT 860B | Professionalism, Mission, and Personal Development IV | 35 | | | 35 | 3.5 |
| DENT 870B | Patient-Centered Care IV | | | 450 | 450 | 15.0 |
| RELR 715 | Christian Dentist in Community | 20 | | | 20 | 2.0 |
| **Total Units** | | **667** | **671** | **1470** | **2808** | **130-131** |

[1] This course may be taken in the second, third, and fourth year.

[2] Fulfills service learning requirement

## Normal time to complete the program

Three (3) years (27 months) at LLU—full-time enrollment required

# Advanced Dental Education

**Associate dean for advanced dental education**
Steven G. Morrow

The School of Dentistry offers advanced dental education programs in specialty and nonspecialty disciplines of dentistry. Postdoctoral certificates, Master of Science (M.S.), and Master of Science in Dentistry (M.S.D.) degrees are available. The purpose of these programs is to offer candidates an opportunity to integrate advanced clinical training with meaningful exposure to applied basic science and research. For additional information and to submit an online application, interested applicants should visit the School of Dentistry website (Graduate Programs).

Advanced dental education programs leading to a professional certificate with an option to also pursue the Master of Science (M.S.) degree or the Master of Science in Dentistry (M.S.D.) degree include:

- Endodontics
- Implant Dentistry
- Orthodontics and Dentofacial Orthopedics (M.S. degree only)
- Pediatric Dentistry
- Periodontics
- Prosthodontics

These programs are organized to comply with the standards of the Council on Dental Education of the American Dental Association, and the objectives and content meet the requirements of the respective specialty boards. In addition, the programs in endodontics, oral and maxillofacial surgery, orthodontics and dentofacial orthopedics, pediatric dentistry, periodontics, and prosthodontics are accredited by the Commission on Dental Accreditation, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education. For additional information, the student may contact:

The Office of Advanced Education
Loma Linda University
School of Dentistry
Loma Linda, CA 92350

<llu.edu/dentistry/gradprograms (http://www.llu.edu/dentistry/gradprograms/)>

## Program learning outcomes

Graduate students and residents in advanced dental education programs are expected to:

1. Describe the didactic foundation of their discipline and master the clinical skills required to utilize that foundation;
2. Integrate advanced clinical training with meaningful exposure to the applied basic sciences;
3. Engage in a project involving advanced clinical training with meaningful exposure to research;
4. Integrate interdisciplinary treatment planning into their didactic and clinical activity;
5. Apply for and pursue board certification in their discipline through the appropriate sponsoring organization;
6. State the importance of developing a commitment to the University-wide student learning outcomes.

## Residence

The required time in residence varies with each program. For the length of a program, refer to the information under each program description.

## Stipends

Stipends are provided in the Oral and Maxillofacial Surgery and Pediatric Dentistry programs. For details, contact the program coordinator personally.

## Tuition

Tuition and fees quoted in the school financial information section of this CATALOG are for the academic year 2021-2022.

## Thesis

The student must complete a research project presented in thesis format and orally defend it according to the standards set by the Faculty of Graduate Studies. A written thesis, approved by the student's research committee, must be submitted to the Faculty of Graduate Studies in order to receive a satisfactory grade for the course.

## Publishable paper

Students on the Master of Science in Dentistry degree track must submit a publishable paper no later than one year from the date they complete their certificate program. Candidates are admitted to only one master's degree track of their choice.

## General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult Section II of this CATALOG.

## Admissions

### Admission requirements for advanced dental education programs/postdoctoral programs

An appropriate degree from an accredited college or university is required for admission into the advanced dental education programs and postgraduate programs. A doctoral degree in dentistry (Doctor of Dental Surgery or Doctor of Dental Medicine) or the equivalent is required for admission to all programs. The applicant should have achieved a general grade point average of not less than 3.0 on a 4.0 scale, with no grade below 2.0. In addition to acceptable scholastic performance, the applicant must give evidence of personal and professional fitness for growth in the science and art of the intended dental discipline. For application deadlines, see the section on each individual program or refer to the chart on the following page.

After applicants are accepted into the advanced dental education programs in endodontics, oral and maxillofacial surgery, pediatric dentistry, periodontics, prosthodontics, or the postdoctoral program in implant dentistry, they may apply for admission to the Faculty of Graduate Studies for the purpose of earning an M.S. degree; or to the Office of Advanced Education to earn an M.S.D. degree (in addition to the advanced program certificate). Applicants for the Master of Science (M.S.) degree who meet or exceed the minimum entrance requirements may be accepted to the Faculty of Graduate Studies (FGS) by the School

of Dentistry's assistant dean for advanced dental education. The master's degree thesis must be completed, defended, and accepted in final form by both the graduate program and the Faculty of Graduate Studies. Students have up to five years from the date of acceptance of the certificate program to complete the requirements for the M.S. degree. All the M.S.D. requirements may be completed during the program but no later than one year from the candidate's anticipated program completion date.

## Admissions criteria for advanced dental education programs 2021

| Program | Official Transcript(s)[1] | Cumulative G.P.A.[2] | GRE[3] | National Boards Part I[3] | DAT | TOEFL[4] | Letters of Recommendation |
|---|---|---|---|---|---|---|---|
| Endodontics [10] (27 mo./2 positions) | Required | 3.0 | Not required for certificate program | Required (only U.S.-trained applicants) | Not required | Required (internationally trained) | 3 |
| Implant Dentistry (36 mo./3 positions) | Required | 3.0 | Not required for certificate program | Not required | Not required | Required (internationally trained) | 3 |
| Oral and Maxillofacial Surgery [11] (6 yrs./2 positions) | Required | 3.0 | Not required for certificate program | Required (all applicants) score of 86 or higher | Not Required | Required (internationally trained) | 3 |
| Orthodontics and Dentofacial Orthopedics [6, 7, 9] (27 mo./6 positions) | Required | 3.0 | Required | Required (all applicants) | Required (all applicants) | Required (internationally trained) | 3 |
| Pediatric Dentistry [10, 12] (24 mo./4 positions) | Required | 3.0 | Required for internationally trained applicants | Required (only U.S.-trained applicants) | Not required | Required (internationally trained) | 3 |
| Periodontics [8] (36 mo./3 positions) | Required | 3.0 | Not required for certificate program | Required (only U.S.-trained applicants) | Not required | Required (internationally trained) | 3 |
| Prosthodontics (36 mo./4 positions) | Required | 3.0 | Not required for certificate program | Required (only U.S.-trained applicants) | Not required | Required (internationally trained) | 3 |

## Application and program dates

| Program | LLU Applications Open | LLU Applications Close | Admissions Committee Meets | Pass Applications Open | Pass Applications Close | Advanced Education Programs Start Date | Advanced Education Programs Ending Date |
|---|---|---|---|---|---|---|---|
| ENDN | 1/1/2021 | 8/1/2021 | August | 5/2021 | 7/15/2021 | July 1 | Late September |
| IMPD | 1/1/2021 | 8/31/2021 | December | n/a | n/a | July 1 | June 30 |
| OMFS | 1/1/2021 | 9/15/2021 | January | 5/2021 Match participant | 9/1/2021 | July 1 | June 30 |
| ORDN | 1/1/2021 | 8/1/2021 | November | n/a | n/a | July 1 | Late September |
| PEDN | 1/1/2021 | 11/15/2021 | January | 5/2021 Match participant | 11/15/2021 | July 1 | June 30 |
| PERI | 1/1/2021 | 9/1/2021 (rolling admissions) | September | 5/2021 | 8/15/2021 | July 1 | June 30 |
| PROS | 1/1/2021 | 8/15/2021 | September | 5/2021 | 8/1/2021 | July 1 | June 30 |

1 *Transcripts.* Transcripts from all postsecondary schools from which credit was received, whether or not the work pertains to your LLU degree, are required to complete your application.

2 *Grade Point Average (G.P.A.).* A cumulative G.P.A. of 3.0 (on a 4.0 scale) is required for admission.

3 *National Boards, Part I.* Refers to Part I of the two-part U.S. National Board Examinations. Part II must also be submitted when available. All must be passing grades.

4 *English Language Skills.* Non-U.S. applicants for whom English is not their primary language and whose secondary education has been given outside the U.S. are required to take the TOEFL examination. They must demonstrate satisfactory verbal and written English language skills. A minimum TOEFL score of 550 (paper based) and 80 (internet based) is required. TOEFL scores are valid for two years from the test date.

5 *Dental License.* All applicants for the Advanced Education Program in Oral & Maxillofacial Surgery program must have a Californian Dental License.

6 *International Dentist Program.* All graduates from non-ADA-accredited dental schools who apply to the Advanced Specialty Education Program in Orthodontics and Dentofacial Orthopedics must complete an accredited International Dentist Program.

7 *Orthodontics and Dentofacial Orthopedics.* This program requires applicants to meet the requirements for the certificate program and the Master of Science (M.S.) degree track. To be considered, applicants must take the GRE.

8 *Periodontics.* This program has a rolling admission process between January 1 and September 1, which means it reserves the right to fill some but not all of its entering class prior to the September 1 deadline.

9 *Orthodontics and Dentofacial Orthopedics.* The program reserves the right to admit selected students to the certificate program, which would require submission of a certificate application due by the regular application deadline.

10 *Endodontics and Pediatric Dentistry.* All applicants for the Endodontic and Pediatric Dentistry Program who have received their dental school training outside the U.S. or Canada must have a current dental license from their country and submit a notarized copy with their application.

11 *National Board Medical Examination (NBME) Comprehensive Basic Science Examination.* Applicants for the Oral and Maxillofacial Surgery Program who take the National Board Dental Examination (NBDE) Part I after January 1, 2012--and, therefore, do not have a numerical score--must take the National Board Medical Examination (NBME) Comprehensive Basic Science Examination and have their official test results reported to Loma Linda University by the application deadline.

12 *TOEFL Scores for Pediatric Dentistry.* The Pediatric Dentistry Program requires a minimum paper-based TOEFL score of 590 or an internet-based score of 90. TOEFL scores are valid for two years from the test date.

## Master of Science in Dentistry (M.S.D.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science in Dentistry (M.S.D.) degree, if they fulfill the following requirements.

### Admission process

1. The following minimum requirements have been established for admission to the M.S.D. degree program:
   Admissions requirements
   - Cumulative grade point average (G.P.A.) of 3.0
   - Approval by the program director
   - Academic record of scholastic competence
   - Demonstrated professionalism and integrity
2. A candidate for the M.S.D. degree must complete a Loma Linda University online Application for Admission and a Part I (Application for Admission for the Master of Science in Dentistry [M.S.D.] degree) form. The Part I form can be found in the advanced education section of Canvas. It must be accompanied by a research protocol approved by the candidate's research guidance committee (RGC) and reviewed by the School of Dentistry Research Committee.
3. The Part I form must be signed by the applicant's program director and the research guidance committee (RGC) members.
4. The completed Loma Linda University application, Part I form, and approved protocol are then reviewed for approval by the associate dean for advanced education to ensure all admissions requirements have been met.
5. Accepted applicants will receive a letter of admission from the associate dean for advanced education. They must acknowledge acceptance of their admission electronically to the Office of Advanced Dental Education.

## Master of Science (M.S.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science (M.S.) degree, if they fulfill all of the requirements stated below.

### Admission process

1. The following minimum requirements have been established for admission to the M.S. degree curriculum:
   Admissions requirements
   - Minimum cumulative grade point average (G.P.A.) of 3.0
   - Approval by the program director
   - Academic record of scholastic competence
   - Demonstrated professionalism and integrity
2. An applicant to the M.S. degree must complete a Loma Linda University online Application for Admission, as well as a Form A (Petition for Admission to Candidacy). The online application is open to students already enrolled in a certificate curriculum. Form A is found on Canvas and must be accompanied by a research protocol approved by the applicant's research guidance committee (RGC) and reviewed by the School of Dentistry Research Committee.
3. Form A must be signed by the applicant's program director and research guidance committee (RGC) members.
4. The completed Loma Linda University application, Form A, and the approved protocol are then reviewed for approval by the associate dean for advanced education to ensure that all admissions requirements have been met.
5. Accepted applicants will receive a letter of admission from the associate dean for advanced education. The prospective student must acknowledge acceptance of their admission electronically to the Office of Advanced Dental Education.

# Academic policies

## Grading system for advanced education programs

The following information outlines the grading systems for all postdoctoral students/residents enrolled in advanced education programs in the School of Dentistry. Each course taught in the school has been approved for either a letter grade or an S/U grade, and deviations from this are not allowed other than MS (marginally satisfactory) grades as specified below.

## Grades and grade points for postdoctoral students/residents

| | | |
|---|---|---|
| A | 4.0 | Outstanding performance |
| A- | 3.7 | Very good performance |
| B+ | 3.3 | Good performance. |
| B | 3.0 | Satisfactory performance. |
| B- | 2.7 | Minimum passing grade without remediation; Cumulative G.P.A. must be 3.0 or higher to avoid academic probation. |
| C+ | 2.3 | Remediation required and cumulative G.P.A. must be 3.0 or higher to avoid academic probation. |
| C | 2.0 | Remediation required and cumulative G.P.A. must be 3.0 or higher to avoid academic probation. |

Postdoctoral students/residents who receive one or more of the following grades in any quarter will be placed on academic probation and must retake the course(s) for which these grades were received.

| | | |
|---|---|---|
| C- | 1.7 | Unsatisfactory; Course must be retaken. Cumulative G.P.A must be 3.0 or higher to avoid academic probation. |
| D | 0.0 | Failure; course must be retaken. |
| F | 0.0 | Failure; Course must be retaken; Academic probation required. |
| S | none | Satisfactory performance; Equivalent of a B grade or better. |
| MS | none | Marginally satisfactory; minimum passing grade; equivalent to a B- grade; Multiple MS grades may result in academic probation. |
| U | none | Unsatisfactory; The U grade is not computed in the G.P.A. The Course must be repeated to count toward a certificate and/or degree. |

University policy states that "a student may repeat a course only once, and no more than two courses may be repeated in a student's degree program."

## Academic criteria for academic advancement and program completion

## Process to remediate a course:

1. A detailed written plan must be developed by the course director/program director outlining how deficiencies will be remediated and reassessed.
2. The plan must be approved by the Office of Advanced Dental Education.
3. The postdoctoral student/resident is required to register for Advanced Dental Education Remediation (GRDN 700) with the sub-title of the course that is being remediated.
4. Remediation must be accomplished during the academic quarter immediately following the quarter in which the unsatisfactory grade was received.
5. Successful remediation of a course will not result in a grade change for the course.
6. Failure to successfully remediate a course will result in the need for the postgraduate student/resident to repeat the course while on academic probation.
7. The postdoctoral student/resident may exercise the option to retake the course which may result in a grade change for the course.

## Process to repeat a course:

1. The postdoctoral student/resident will be placed on academic probation.
2. The postdoctoral student/resident must register for the course to be repeated at the earliest opportunity.
3. The postdoctoral student/resident must receive a minimum grade of B- to continue in the advanced dental education program.

## Academic disciplinary policy for advanced education programs:

### Academic probation

Academic probation for postdoctoral students/residents will be for a minimum of one academic quarter following the quarter in which the unsatisfactory performance was noted. Probationary status will be reviewed on a quarterly basis until successful remediation has been recorded. Such action must be confirmed by memorandum to the student.

Under the following conditions, a postdoctoral student/resident will be sent an advisory letter from the Office of Advanced Dental Education regarding the potential for placement on academic probation.

1. Term G.P.A. below 3.0 (B)
2. One or more courses with a grade of C+ or lower
3. More than one course with a grade of MS.

A postdoctoral student/resident will be placed on academic probation if they meet one or more of the following conditions:

1. Cumulative G.P.A below 3.0.
2. One or more courses with a grade of C, or lower.
3. Failing or unsatisfactory grades in any course(s) required for the specialty certificate, Master of Science (M.S.) degree, or Master of Science in Dentistry (M.S.D.) degree programs.
4. Total of three or more MS grades.

**Level of Academic Probation:**
The level of academic probation indicates the seriousness of the cumulative academic deficiency. However, depending on the seriousness or nature of the academic deficiency, a postdoctoral student/resident may be considered for academic leave of absence or discontinuation at any level of probation.

**Level I**
First term on academic probation.

**Level II**
Second term on academic probation, consecutive or nonconsecutive.

**EXCEPTION:** Continued academic probation due to failing grade in a course that cannot be repeated until a later term.

**Level III**
Third term on academic probation, consecutive or nonconsecutive. If a student/resident is unable to remove academic probationary status within the following term, they will be considered for academic discontinuation.

**EXCEPTION:** Continued academic probation due to failing grade in a course that cannot be repeated until a later term.

**Level IV**
If a student/resident meets criteria for academic probation for a fourth term, consecutive or nonconsecutive, they will be considered for academic discontinuation.

**Restrictions for a postdoctoral student/resident on academic probation:**
A student/resident on academic probation:

1. May not serve as an officer for any class, school, or extracurricular organization.
2. May not take elective courses.
3. May not participate in elective off-campus, service learning, or mission activities.
4. Remains on academic probation until all terms of the probation sanctions have been fulfilled, unless the postdoctoral student/resident is discontinued.

**Remedial action (remediation):**
A postdoctoral student/resident who is not performing up to expectations (academic and professional) may receive the following:

1. Restriction of clinical privileges by the program director.
2. Academic probation (Level I to III) – upon recommendation of the Program Director by the Assistant Dean for Advanced Dental Education.
3. Professional Standards (Behavioral) probation (Level I to III) – (See Professional Standards Review Process in *Loma Linda University Student Handbook*).
4. Clinical probation (Level I to III) – upon recommendation of the Program Director by the Assistant Dean for Advanced Dental Education.
5. Discontinuation – upon recommendation of the Program Director to the Assistant Dean for Advanced Dental Education. Discontinuation must be approved by the Dean.

**Probation:**
All recommendations to the Assistant Dean for Advanced Dental Education for probation must be supported by well-documented evidence of repeated counseling and other internal measures designed to point out deficiencies and take corrective action through a detailed remediation program. A remediation program must be specific in design, implemented, and monitored for any postdoctoral student/resident who is not performing up to a program' s stated standards. It is important to have documentary evidence on record by multiple faculty members with detailed accounts of dates, times, explanations or counseling, discussions, and corrective measures. Written statements from support staff should also be included if they have direct contact or knowledge of a matter involving a postdoctoral student/resident.

Postdoctoral students/residents may be placed on academic probation, professional standards (behavioral) probation, and/or clinical probation. Probation begins at Level I and may progress to Level III. Postdoctoral students/residents should be placed on probation for the academic quarter immediately following the quarter in which the unsatisfactory performance was documented. Probationary status will be reviewed on a quarterly basis until successful remediation has been documented. This information will be conveyed to the postdoctoral student/resident verbally and in writing.

**Continuation:**
Postdoctoral students/residents who are not progressing as expected may be continued in their year group for as long as necessary before being promoted to the next year or discontinued. To exercise this option, the Assistant Dean for Advanced Dental Education will inform University Records of the decision to continue a postdoctoral student/resident and state the anticipated length of that continuation. Program directors make the determination to recommend continuing or discontinuing a postdoctoral student/resident and when the postdoctoral student/resident has completed their program. Recommendation for continuation will be submitted to the Assistant Dean for Advanced Dental Education for review and approval.

**Discontinuation:**
Postdoctoral students/residents who do not achieve required measurable improvement by the end of the prescribed remediation and counseling periods may be recommended for discontinuation by their Program Director to the Assistant Dean for Advanced Dental Education for review. Recommendation to discontinue a postdoctoral student/resident will be submitted by the Assistant Dean for Advanced Dental Education, in writing, to the Dean for review and action.

# Programs


- Endodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 226)
- Implant Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 229)
- Oral and Maxillofacial Surgery — post-D.D.S. Certificate (p. 230)
- Orthodontics and Dentofacial Orthopedics — post-D.D.S. Certificate, M.S. (p. 231)
- Pediatric Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 233)
- Periodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 234)
- Prosthodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 235)


# General degree requirements

## Master of Science in Dentistry (M.S.D.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education certificate programs are eligible to apply for and be awarded a Master of Science in Dentistry (M.S.D.) degree, if they fulfill the following requirements.

**Degree requirements**

1. Students must perform scholarly activities as defined by the program director. Programs may differ in how this requirement is met in order to afford directors the opportunity to align such activity with the experience, background, and interest of each student and of the program faculty. Goals must be worthy and achievable. The nature of the scholarly activity will be defined in Part II (Statement of Completion for the Master of Science in Dentistry [M.S.D.] degree) of the degree application form as submission of a formatted, publishable manuscript.
2. Students must successfully complete all the course requirements of the certificate curriculum, with additional units in research for the

master's degree curriculum (see individual program descriptions at <llu.edu/dentistry/gradprograms (http://www.llu.edu/dentistry/gradprograms/)>). Candidates complete sections I and II of Part II form to indicate their anticipated degree completion dates.
3. A publishable paper and public presentation of the research are required. The manuscript must be in a format approved by the respective program director.
4. Students who do not complete the publishable paper while completing the curriculum will have one year from their anticipated program end date to fulfill this requirement.
5. After conducting an internal degree audit, the program director completes and signs the Part III form (Statement of Completion) to verify that all requirements for the M.S.D. degree have been met.
6. The associate dean for advanced education performs a final degree audit before signing the Part III form, signifying approval to award the Master of Science in Dentistry (M.S.D.) degree.

The M.S.D. degree is not offered by the advanced education program in orthodontics and dentofacial orthopedics.

### Master of Science (M.S.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science (M.S.) degree, if they fulfill all of the requirements stated below.

#### Degree requirements

1. Applicants must undertake scholarly activities/research as defined by each program director. Programs may differ on how this requirement is met in order to afford directors the opportunity to align such activity with the experience, background, and interest of each student. Goals must be worthy and achievable.
2. Students must successfully complete all course requirements of the certificate curriculum, with additional units in research for the master's degree (see individual program descriptions online). Also, students must submit a completed Form C, Petition for Graduation, to indicate their anticipated degree completion dates.
3. A thesis and a public thesis defense are required. The thesis must be in a format approved by the thesis editor in the Faculty of Graduate Studies (FGS).
4. Students who do not complete the thesis during their program will have five years from the beginning of the certificate program to fulfill this requirement for the master's degree.
5. After conducting a degree audit, the program director completes and signs Form D, Statement of Completion of Requirements for Degree, verifying that all requirements for the M.S. degree have been met.
6. After a final degree audit, the associate dean for advanced education signs Form D, indicating approval of the award of the Master of Science (M.S.) degree. Form D is then submitted to the Faculty of Graduate Studies (FGS) for final approval and degree issuance.

## Dual majors

**The dual majors are no longer an option at this time.**

Applicants to the programs in implant dentistry, periodontics, and prosthodontics have the option to select an extended program (approximately four-and-a-half years in length) to pursue dual majors in two of these areas of study.

Students must complete all the requirements of each ADA-recognized specialty program— periodontics (p. 235) and implant dentistry (p. 229), comparison (p. 239); or prosthodontics (p. 236) and implant dentistry (p. 229), comparison (p. 240)—to be eligible for board certification. Dual credit—up to 100 units—may be awarded for courses required by the two programs.

Individuals who wish to pursue the dual major option must indicate such interest by completing separate applications to both programs. Applicants in one of the optional dual major programs must not only meet the admissions requirements of each program, but must also be admitted to the advanced education programs they designate.

### Length of program

- Periodontics and Implant Dentistry (approximately 4 1/2 years in length)
- Prosthodontics and Implant Dentistry (approximately 4 1/2 years in length)

# Endodontics — Certificate (post-D.D.S.), M.S.D., M.S.

The mission of the 27-month Endodontics-Advanced Specialty Program is to prepare endodontists who are proficient in the art of treating teeth that require root canal therapy, who possess an in-depth biological knowledge related to the science of endodontics, and who have participated in endodontic research and teaching. The mission of the 36-month Endodontics-Advanced Program is to provide additional care for patients who have failed root canal treatment and require a single tooth implant. The 36-month program consists of the entire 27-month curriculum; as well as additional courses in periodontics, radiology, and implant dentistry (36-month track is currently closed for admission).

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Diagnose and plan treatment for various pulpal and periapical conditions, alone or in concert with other dental and medical practitioners;
2. Demonstrate an advanced level of knowledge of the biomedical sciences related to endodontics and whole patient care;
3. Participate in endodontic research and teaching;
4. Identify and discuss the principles of good practice management;
5. Diagnose and treat patients with failed root canals who would benefit from surgical placement and restoration of a single tooth implant, when such care is needed.*

* Only applies to the 36-month program.

The programs begin in July and require 27 or 36 months in residence, depending on the specialty training pursued.

Following enrollment into the program, students may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application should be submitted at the beginning of the second year and must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study; and the additional time must be in residence.

Graduates in both the certificate and graduate degree curricula are qualified for certification by the American Board of Endodontics.

Program link: https://llu.edu/dentistry/gradprograms (https://llu.edu/dentistry/gradprograms/)

### Program director
Tory Silvestrin

### Faculty
Shelley Aronson

Khalid Al Hezaimi

Rinku Parmar

Tory Silvestrin

### Emeritus faculty
Leif Bakland

# Admissions

## Application process

The Endodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association, which allows applicants to apply to multiple participating institutions.

PASS applicants for the advanced education program in endodontics must also complete and submit a separate online application (<llu.edu/central/apply (http://www.llu.edu/central/apply/)>) directly to Loma Linda University.

This program also will accept direct applications for individuals who are not applying to other institutions through PASS.

## Application deadline

Application for admission should be submitted by August 1 of the year prior to the summer of intended enrollment.

# Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required. A separate fee of $2,600 is charged for GRDN 632 Basic Microsurgery Techniques, taken by students when it is available.

# Program requirements

## 27-month Certificate

| | | |
|---|---|---|
| **Major** | | |
| ENDN 534 | Endodontic Treatment Conference (1-2) | 18 |
| ENDN 601 | Principles of Endodontics (2) | 10 |
| ENDN 604 | Literature Seminar in Endodontics (2) | 16 |
| ENDN 654 | Practice Teaching in Endodontics (1) | 4 |
| ENDN 657 | Written/Oral Board Review Course for the American Board of Endodontics | 2 |
| ENDN 697A | Research | 1 |
| ENDN 697B | Research | 1 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 535 | Clinical Oral Pathology | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| GRDN 622B | Biomedical Science | 2 |
| GRDN 632 | Basic Microsurgery Techniques | 2 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| PERI 608 | Dental Specialty Practice Management | 2 |
| PERI 624 | Moderate Sedation in Periodontics | 4 |
| REL 5 | Gradauate-level Religion | 3 |
| **Total Units** | | **79** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| ENDN 725 | Clinical Practice in Endodontics (1-8) | 72 |
| **Total Units** | | **72** |

[1] Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program
2.3 years (nine [9] academic quarters) — full-time enrollment required

## 36-month Certificate

Closed to admissions for the 2020-2021 academic year.

| | | |
|---|---|---|
| **Major** | | |
| ENDN 534 | Endodontic Treatment Conference (1-2) | 21 |
| ENDN 601 | Principles of Endodontics (2) | 10 |
| ENDN 604 | Literature Seminar in Endodontics (2) | 16 |
| ENDN 654 | Practice Teaching in Endodontics (1) | 4 |
| ENDN 657 | Written/Oral Board Review Course for the American Board of Endodontics | 2 |
| ENDN 697A | Research | 1 |
| ENDN 697B | Research | 1 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 535 | Clinical Oral Pathology | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| GRDN 622B | Biomedical Science | 2 |
| GRDN 632 | Basic Microsurgery Techniques | 2 |
| IMPD 505 | Patient Presentation Seminar (1) | 7 |
| IMPD 601 | Literature Review in Implant Dentistry (2) | 16 |
| IMPD 604 | Current Literature Review in Implant Dentistry (2) | 16 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| IMPD 634 | Diagnosis and Treatment Planning in Implant Dentistry (1) | 7 |
| ORDN 526 | Applied Anatomy | 2 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| PERI 524 | The Periodontium | 2 |
| PERI 608 | Dental Specialty Practice Management | 2 |
| PERI 611 | Introduction to Periodontics | 2 |
| PERI 624 | Moderate Sedation in Periodontics | 4 |
| REL 5 | Graduate-level Religion | 3 |
| **Total Units** | | **134** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| ENDN 725 | Clinical Practice in Endodontics (1-8) | 64.5 |
| ENDN 726 | Clinical Practice of Implant Dentistry in Endodontics (1,2) | 8 |
| **Total Units** | | **72.5** |

[1] Units for clinic practice courses do not count toward minimum number of graduate units required for the degree.

### Normal time to complete the program

Three (3) years (12 academic quarters) — full-time enrollment required

## Comparison

See the comparison (p. 228) of the 27- and 36-month certificates.

## M.S.D.

In addition to completing the requirements for the 27 or 36-month certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

| | | |
|---|---|---|
| ENDN 697C | Research | 1 |

### Normal time to complete the program

2.3 years (nine [9] academic quarters) — full-time enrollment required (includes the time needed to complete the certificate program)

## M.S.

In addition to completing the requirements for the 27- or 36-month certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students have five years from the start of the certificate program to complete the M.S. degree.

| | | |
|---|---|---|
| ENDN 698 | Thesis | 1 |

### Normal time to complete the program

2.3 years (nine [9] academic quarters) — full-time enrollment required (includes the time needed to complete the certificate program)

# Endodontics Certificate — 27-month, 36-month Comparison

| Major | Course Title | 27-month Certificate | 36-month Certificate |
|---|---|---|---|
| ENDN 534 | Endodontic Treatment Conference (1-2) | 18.0 | 21.0 |
| ENDN 601 | Principles of Endodontics (2) | 10.0 | 10.0 |
| ENDN 604 | Literature Seminar in Endodontics (2) | 16.0 | 16.0 |
| ENDN 654 | Practice Teaching in Endodontics (1) | 4.0 | 4.0 |
| ENDN 657 | Written/Oral Board Review Course for the American Board of Endodontics | 2.0 | 2.0 |
| ENDN 697A | Research | 1.0 | 1.0 |
| ENDN 697B | Research | 1.0 | 1.0 |
| **Totals** | | **52.0** | **55.0** |

| Interdisciplinary | Course Title | 27-month Certificate | 36-month Certificate |
|---|---|---|---|
| GRDN 514 | Introduction to Biomedical Research | 4.0 | 4.0 |
| GRDN 535 | Clinical Oral Pathology | 2.0 | 2.0 |
| GRDN 609 | Professional Ethics | 2.0 | 2.0 |
| GRDN 622A | Biomedical Science | 2.0 | 2.0 |
| GRDN 622B | Biomedical Science | 2.0 | 2.0 |
| GRDN 632 | Basic Microsurgery Techniques | 2.0 | 2.0 |
| IMPD 611 | Introduction to Implant Dentistry (2) | 2.0 | 2.0 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2.0 | 2.0 |
| PERI 608 | Dental Specialty Practice Management | 2.0 | 2.0 |
| PERI 624 | Moderate Sedation in Periodontics | 4.0 | 4.0 |
| REL_ 5__ Graduate-level Religion | | 3.0 | |
| IMPD 505 | Patient Presentation Seminar (1) | | 7.0 |
| IMPD 601 | Literature Review in Implant Dentistry (2) | | 16.0 |
| IMPD 604 | Current Literature Review in Implant Dentistry (2) | | 16.0 |
| IMPD 634 | Diagnosis and Treatment Planning in Implant Dentistry (1) | | 7.0 |
| ORDN 526 | Applied Anatomy | | 2.0 |
| PERI 524 | The Periodontium | | 2.0 |
| PERI 611 | Introduction to Periodontics | | 2.0 |

| | | |
|---|---|---|
| REL_ 5__ Graduate-level Religion | | 3.0 |
| **Totals** | **27.0** | **79.0** |
| **Overall Totals** | **79.0** | **134.0** |

| | Course Title | 27-month Certificate | 36-month Certificate |
|---|---|---|---|
| **Clinical** | | | |
| ENDN 725 | Clinical Practice in Endodontics (1-8) [1] | 72.0 | 64.5 |
| ENDN 726 | Clinical Practice of Implant Dentistry in Endodontics (1,2) [1] | | 8.0 |
| **Totals** | | **72.0** | **72.5** |

[1] Multiple registrations required to fulfill total required units

# Implant Dentistry — Certificate (post-D.D.S.), M.S.D., M.S.

The Implant Dentistry-Advanced Specialty Program leads to a certificate. Postdoctoral students may also obtain a Master of Science (M.S.) or a Master of Science in Dentistry (M.S.D.) degree. The program is designed to prepare the student for the practice of implant dentistry, and to provide the foundation for the continued acquisition of knowledge and clinical skills in this demanding area.

Implant dentistry interfaces with the dental specialties of oral and maxillofacial surgery, prosthodontics, and periodontics. The student will be expected to achieve advanced knowledge and skills in certain aspects of all these dental specialties, and to be proficient in implant prosthodontics and implant surgery. Program content is designed to prepare the student for certification by the American Board of Oral Implantology/Implant Dentistry; and, upon application, they may be qualified as an associate fellow of the American Academy of Implant Dentistry.

The program starts July 1. Required residence for the certificate is 36 months.

Following enrollment, students may apply for acceptance to either the M.S. or the M.S.D. degree track, in addition to the specialty certificate. The application should be submitted before the end of the first year and must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study to complete a research project and a thesis or a publishable paper. The additional time must be in residence.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Deliver implant dentistry treatments;
2. Provide in-depth didactic and clinical instruction in problem-based patient situations that require surgical and prosthodontic dental implant solutions;
3. Identify and discuss concepts and guidelines in the implementation of clinical practice;
4. Achieve highest levels of patient treatment satisfaction;
5. Perform research and practice teaching.

### Program director

Jaime L. Lozada

### Faculty

Aladdin J. Al-Ardah

Joseph Y. Kan

Jaime L. Lozada

## Admissions

### Application process

All applicants must meet the admission requirements (p. 23) of Loma Linda University.

### Application deadline

Application for admission should be submitted by August 31 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required. Students should plan on an annual increase consistent with inflation in the education sector.

A separate fee of $2,600.00 is charged for GRDN 632 Basic Microsurgery Techniques, taken by students when it is available.

## Program Requirements

### Certificate

| **Major** | | |
|---|---|---|
| IMPD 505 | Patient Presentation Seminar (1) | 10 |
| IMPD 547 | Implant Dentistry Grand Rounds (1) | 10 |
| IMPD 561 | Dental Bioengineering | 2 |
| IMPD 585 | Implant Prosthodontics (2) | 10 |
| IMPD 601 | Literature Review in Implant Dentistry (2) | 22 |
| IMPD 604 | Current Literature Review in Implant Dentistry (2) | 20 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| IMPD 612 | Advanced Implant Dentistry | 2 |
| IMPD 631 | Oral Implant Surgery (1) | 11 |
| IMPD 634 | Diagnosis and Treatment Planning in Implant Dentistry (1) | 10 |
| IMPD 637 | Peri-Implant Histopathology | 1 |
| IMPD 654 | Practice Teaching in Implant Dentistry | 3 |
| IMPD 696 | Scholarly Activity in Implant Dentistry | 1 |

| | | |
|---|---|---|
| PERI 601 | Periodontal Therapy (2) | 4 |
| PERI 624 | Moderate Sedation in Periodontics | 4 |
| PROS 500 | Prosthodontic Literature Review (2) | 6 |
| PROS 546 | Occlusion and Morphology | 2 |
| PROS 547 | Occlusion: Principles and Instrumentation | 2 |
| PROS 555 | Removable Partial Prosthodontics | 2 |
| PROS 565 | Complete Denture Prosthodontics | 2 |
| PROS 566 | Advanced Complete Denture Prosthodontics | 2 |
| PROS 575 | Fixed Partial Prosthodontics | 2 |
| PROS 576 | Advanced Fixed Partial Prosthodontics I (MC Aesthetics) | 2 |
| PROS 595 | Maxillofacial Prosthetics | 2 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 535 | Clinical Oral Pathology | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| GRDN 622B | Biomedical Science | 2 |
| GRDN 632 | Basic Microsurgery Techniques | 2 |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery (1) | 4 |
| OMFS 606 | Applied Surgical Anatomy | 1 |
| REL_ 5__ | Graduate-level Religion | 3 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| **Total Units** | | **158** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| IMPD 725 | Clinical Practice in Implant Dentistry (4) | 40 |
| IMPD 726 | Clinical Practice in Periodontics in Implant Dentistry (2) | 4 |
| IMPD 727 | Clinical Practice of Prosthodontics in Implant Dentistry (2) | 20 |
| **Total Units** | | **64** |

[1] Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

Three (3) years (36 months) — full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

| | | |
|---|---|---|
| IMPD 697A | Research | 1 |
| IMPD 697B | Research | 1 |
| IMPD 697C | Research | 1 |

### Normal time to complete the program

Three (3) years (36 months) — full-time enrollment required (includes the time needed to complete the certificate program)

### M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students have five years from the start of the certificate program to complete the M.S. degree.

| | | |
|---|---|---|
| IMPD 697A | Research | 1 |
| IMPD 697B | Research | 1 |
| IMPD 698 | Thesis | 1 |

### Normal time to complete the program

Three (3) years (36 months) — full-time enrollment required (includes the time needed to complete the certificate program)

# Oral and Maxillofacial Surgery — Certificate (post-D.D.S.)

The Oral and Maxillofacial Surgery–Advanced Specialty Program is designed to prepare the resident for practice of the specialty and to provide the foundation for the continued acquisition of knowledge and skills. Clinical surgical health-care delivery is emphasized. The resident is introduced to research methodology and teaching to develop an increased awareness of its importance in assessing clinical procedures and patient management. The content of the program conforms to the Standards of the Commission on Dental Accreditation (CODA) and is designed to prepare the surgeon for certification by the American Board of Oral and Maxillofacial Surgery.

Four-year and six-year residency programs are available. Residents in the six-year program will also complete medical school and a transitional year, including general surgery rotations. Residency begins July 1.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Competently deliver health care;
2. Continually acquire skills and knowledge to improve health care;
3. Prepare for certification by the American Board of Oral and Maxillofacial Surgery;
4. Demonstrate a level of academic achievement sufficient to enter into a teaching career, if desired;
5. Use the basic sciences in the practice of oral and maxillofacial surgery in a competent and skillful manner;
6. Integrate oral and maxillofacial surgical care with other medical and dental specialties in the health-care delivery system;
7. Conduct clinical investigation and/or research studies;
8. Practice the specialty based upon the highest moral and ethical standards;
9. Achieve a high degree of clinical proficiency in the specialty;
10. Document a broad and extensive level of surgical experience;
11. Administer inpatient and outpatient general anesthesia, local anesthesia, and sedation techniques;
12. Manage the administration of their practice;
13. Communicate effectively in public speaking, lecturing, and writing;
14. Demonstrate critical thinking—providing a foundation to become an effective student and mentor;

15. Assess and treat problems of the maxillofacial region. This includes dentoalveolar surgery, maxillofacial trauma, reconstructive surgery, pathology, and orthognathic/craniofacial surgery;
16. Demonstrate lifelong learning.

Program link: <https://llu.edu/dentistry/gradprograms> (https://llu.edu/dentistry/gradprograms/)

### Program director
Jayini S. Thakker

### Pre-doctoral program director
Carlos Moretta

### Faculty
Christopher Choi

Andre Guerrero

Jeffrey A. Elo

Alan S. Herford

Murray K. Jacobs

Dale E. Stringer

Chi Viet

Samuel Young

### Pathology
Anupama Grandhi

Susan Richards

Susan Roche

# Admissions

## Application process

The Oral and Maxillofacial Surgery, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

PASS applicants for the advanced education program in oral and maxillofacial surgery must also complete and submit an online application (<llu.edu/central/apply (http://www.llu.edu/central/apply/)>) directly to Loma Linda University.

The advanced education program also participates in the Postdoctoral Dental Matching Program (Match). This program identifies and "matches" the preferences of applicants and the advanced education program, using a rank order list submitted by the applicant and the program. A Match application (https://pass.liaisoncas.com/applicant-ux/#/login) is also required.

## Application deadline

Application for admission should be submitted by September 15 of the year prior to the summer of intended enrollment. Applicants to the six-year program must also apply to the School of Medicine.

Applicants ***are required*** to have their California dental licenses at the time of matriculation into the program.

# Tuition

Fees will be charged but tuition will be waived for 2021-2022 academic year. Residents are paid a stipend during training.

# Program requirements

## Certificate

| | | |
|---|---|---|
| **Major** | | |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery (1) | 12 |
| OMFS 605 | Integrated Orthodontic and Surgical Correction of Dentofacial Deformities (1) | 12 |
| OMFS 606 | Applied Surgical Anatomy | 1 |
| OMFS 607 | Principles of Medical History, Physical Examination, and Clinical Medicine | 2 |
| OMFS 608 | Surgical Oral and Maxillofacial Pathology Conference (0.5) | 6 |
| OMFS 609 | Literature Review in Oral and Maxillofacial Surgery (0.5) | 6 |
| OMFS 616 | Application of Surgical Principles to Orthognathic Surgery | 1 |
| OMFS 617 | Critical Decision Making in Oral and Maxillofacial Surgery (1) | 12 |
| OMFS 618 | Introduction to General Anesthesia | 1 |
| OMFS 696 | Scholarly Activity in Oral and Maxillofacial Surgery | 1 |
| **Interdisciplinary** | | |
| GRDN 601 | Practice Management | 2 |
| IMPD 547 | Implant Dentistry Grand Rounds (1.0) | 4 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| IMPD 612 | Advanced Implant Dentistry | 2 |
| RELE 534 | Ethical Issues in Public Health | 3 |
| **Total Units** | | **67** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| OMFS 614 | Clinical Experience in Oral and Maxillofacial Surgery Practice (7) | 70 |
| OMFS 615 | Current Trends in Medicine and Surgery (2) | 12 |
| **Total Units** | | **82** |

[1] Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program
Certificate—four (4) years (48 months) — full-time enrollment required

Certificate/M.D.—six (6) years — full-time enrollment required

# Orthodontics and Dentofacial Orthopedics — Certificate (post-D.D.S.), M.S.

## Orthodontics and dentofacial orthopedics program goals

1. Students will receive coursework in biomedical sciences intended to provide the knowledge required to practice orthodontics and

dentofacial orthopedics, as defined by the program's proficiency standards.
2. Students will receive a clinical experience that is varied and demanding, and that will prepare them for the clinical practice of orthodontics and dentofacial orthopedics, with emphasis on bioprogressive principles.
3. Students will perform research that provides them with experience involving problem solving, critical thinking, research methodology, and scientific writing.
4. Students will be exposed to and participate in a teaching experience.
5. Students will be exposed to professional venues that encourage continued professional growth.

All of the above goals are designed to prepare the student for a specialty practice in orthodontics or for pursuing a teaching career. The content of the program conforms to the standards developed by the specialty board, and graduates are educationally qualified for certification by the American Board of Orthodontics.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Develop technical competence in orthodontics;
2. Correlate basic natural sciences with the practice of orthodontics;
3. Demonstrate analytical thinking;
4. Perform clinical research;
5. Demonstrate responsibility toward the patient and the community;
6. Contribute to the growth and stature of the profession;
7. Collaborate with individuals in other allied professional disciplines.

The master's degree curriculum requires a minimum of 27 months in residence, beginning in late June. Additional time may be required, depending on the research selected.

Program link: <https://llu.edu/dentistry/gradprograms>. (https://llu.edu/dentistry/gradprograms/)

### Chair
V. Leroy Leggitt

### Program director
Mohammed Jeiroudi

### Faculty
Joseph M. Caruso

James R. Farrage

Gabriela E. Garcia

Roland D. Neufeld

Kitichai Rungcharassaeng

R. David Rynearson

## Admission

Candidates apply for admission to the Master of Science (M.S.) degree program and also have the option of applying later for a certificate.

All applicants must meet the admission requirements (p. 23) of Loma Linda University.

This program does not participate in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions or the MATCH program.

### Application deadline

All applications for admission should be submitted to the school by August 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required.

## Program requirements

| | | |
|---|---|---|
| **Major** | | |
| ORDN 524 | Introduction to Graduate Orthodontics | 12 |
| ORDN 524L | Introduction to Graduate Orthodontics Laboratory | 6 |
| ORDN 525 | Materials Science and Mechanics | 2 |
| ORDN 526 | Applied Anatomy | 2 |
| ORDN 527 | Clinical Photography | 1 |
| ORDN 535 | Advanced Cephalometrics | 2 |
| ORDN 536 | Concepts of Physical Anthropology | 2 |
| ORDN 545 | Growth and Development | 3 |
| ORDN 546 | Fundamentals of Occlusion | 2 |
| ORDN 571 | Diagnosis and Treatment Planning I | 2 |
| ORDN 574 | Diagnosis and Treatment Planning II | 2 |
| ORDN 584 | Current Orthodontics Literature I | 2 |
| ORDN 591 | Current Orthodontics Literature II | 2 |
| ORDN 597 | Orthognathic Surgery Theory and Literature Review | 2 |
| ORDN 604 | Seminar in Orthodontics | 1 |
| ORDN 605 | Advanced Seminar in Orthodontics (1) | 2 |
| ORDN 606 | Craniofacial Genetics | 2 |
| ORDN 608 | Speech, Language, Breathing, and Orofacial Myofunction | 1 |
| ORDN 634 | Orthodontics Clinical Conference | 2 |
| ORDN 635 | Finishing Mechanics I | 2 |
| ORDN 636 | Finishing Mechanics II | 1 |
| ORDN 654 | Practice Teaching in Orthodontics | 4 |
| ORDN 655 | Temporomandibular Function and Dysfunction | 2 |
| ORDN 657 | Orthodontic Board Preparation | 6 |
| ORDN 697A | Research | 1 |
| ORDN 697B | Research | 1 |
| ORDN 698 | Thesis | 3 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 601 | Practice Management | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 623 | Biomedical Science II | 5 |
| OMFS 608 | Surgical Oral and Maxillofacial Pathology Conference (0.5) | 2 |

| | | |
|---|---|---|
| OMFS 616 | Application of Surgical Principles to Orthognathic Surgery | 1 |
| REL 5 | Graduate-level Religion | 3 |
| **Total Units** | | **89** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| ORDN 725 | Clinical Practice in Orthodontics (7) | 56 |
| **Total Units** | | **56** |

[1] Units for clinic practice courses are in addition to the minimum didactic units required for the degree.

### Normal time to complete the program

2.25 years (27 months) — full-time enrollment required

# Pediatric Dentistry — Certificate (post-D.D.S.), M.S.D., M.S.

The Pediatric Dentistry–Advanced Specialty Program is designed to prepare the resident as a specialist in this area of dentistry. The curriculum leads to a certificate in pediatric dentistry. Clinical pediatric dentistry is emphasized; however, this clinical experience is balanced with a didactic curriculum of multidisciplinary courses and seminars. There is also a research component designed to expose the resident to problem solving using the scientific method. The program requires a minimum of 24 months in residence beginning July 1, and fulfills the requirements for initiating the process of certification by the American Board of Pediatric Dentistry.

Following enrollment into the program, residents may also apply for acceptance into either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree program. The application should be submitted before the end of the first year and must be endorsed by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study. The additional time must be in residence.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Proficiently provide comprehensive, preventive, and therapeutic oral health care for infants and children through adolescence, including those with special health-care needs;
2. Meet the standards set forth by the Commission on Dental Accreditation;
3. Practice pediatric dentistry;
4. Participate in pediatric dental research;
5. Participate in teaching pediatric dentistry;
6. Be prepared for certification by the American Board of Pediatric Dentistry.

Program link: <https://llu.edu/dentistry/gradprograms>. (https://llu.edu/dentistry/gradprograms/)

### Program director

Jung-Wei Chen

### Faculty

Jung-Wei Chen

Bonnie A. Nelson

Wesley K. Okumura

Samah I. Omar

Laurita Su

Ke-Chung Wu

## Admissions

### Application process

The Pediatric Dentistry, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions. A PASS application (https://pass.liaisoncas.com/applicant-ux/#/login) is required.

PASS applicants for the advanced education program in pediatric dentistry must also complete and submit an online application (<llu.edu/central/apply (http://www.llu.edu/central/apply/)>) directly to Loma Linda University.

The Pediatric Dentistry, Advanced Program also participates in the Postdoctoral Dental Matching Program (MATCH). This program identifies and "matches" the preferences of applicants and advanced education programs, using a rank order list submitted by the applicant and the program. A Match application (<https://portal.passweb.org/) is also required.

For admission requirements, please refer to the Program's website: <http://www.llu.edu/dentistry/pediatrics/graduateprogram.page? (http://www.llu.edu/dentistry/pediatrics/graduateprogram.page)>.

### Application deadline

Application for admission should be submitted by November 15 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required.

## Program Requirements

### Certificate

| | | |
|---|---|---|
| **Major** | | |
| PEDN 503 | Pediatric Dental Seminar (2) | 16 |
| PEDN 508 | Pediatric Hospital Dentistry Seminar | 2 |
| PEDN 512 | Oral Sedation Seminar | 2 |
| PEDN 521 | Principles of Medicine and Physical Diagnosis | 2 |
| PEDN 524 | Introduction to Orthodontics | 2 |
| PEDN 524L | Introduction to Orthodontics Laboratory | 1 |
| PEDN 604 | Pediatric Dental Literature (2-12) | 12 |
| PEDN 654 | Practice Teaching for Pediatric Dentistry | 5 |
| PEDN 680 | Elective Study for Advanced Education Students of Pediatric Dentistry | 5 |
| PEDN 696 | Scholarly Activity in Pediatric Dentistry | 1 |
| PEDN 697A | Research | 1 |

| | | |
|---|---|---|
| PEDN 697B | Research | 1 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 601 | Practice Management | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| ORDN 526 | Applied Anatomy | 2 |
| ORDN 545 | Growth and Development | 3 |
| ORDN 606 | Craniofacial Genetics | 2 |
| ORDN 608 | Speech, Language, Breathing, and Orofacial Myofunction | 1 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| REL_ 5__ | Graduate-level Religion | 3 |
| **Total Units** | | **73** |

| | | |
|---|---|---|
| **Clinical** [1] | | |
| PEDN 725 | Pediatric Dental Clinic (8) | 64 |

[1] Units for clinic practice courses are in addition to the minimum didactic units required for the degree.

### Normal time to complete the program
Two (2) years (24 months) — full-time enrollment required

### M.S.D.
In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

| | | |
|---|---|---|
| PEDN 697C | Research | 1 |

### Normal time to complete the program
Two (2) years — full-time enrollment required (includes the time needed to complete the certificate program)

### M.S.
In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students have five (5) years from the start of the certificate program to complete the M.S. degree.

| | | |
|---|---|---|
| PEDN 698 | Thesis | 1-3 |

### Normal time to complete the program
Two (2) years — full-time enrollment required (includes the time needed to complete the certificate program)

# Periodontics — Certificate (post-D.D.S.), M.S.D., M.S.

The three-year Periodontics–Advanced Specialty Program leads to a certificate in periodontics with an optional Master of Science (M.S.) or Master of Science in Dentistry (M.S.D.) degree.

The certificate in periodontics prepares the student for a specialty practice and provides the basis for continuing professional development after completion of the curriculum. Specific emphasis is placed on high-level technique procedures, including esthetics- and prosthetics-related mucogingival surgery, root-form implant placement, preparatory augmentation, and repairs. The program includes didactic and clinical training as well as research in a topic selected by the student.

The student is required to complete one or more research projects, and is involved in clinical and didactic predoctoral teaching activities. Optional master's degree tracks are intended for the student who wishes to pursue an academic career or full-time clinical practice.

A minimum of 36 months in residence—beginning July 1 each year—is required.

## Program learning outcomes
By the end of this program, the graduate should have been able to:

1. Use the science of periodontics, the literature, periodontal pathology, and the history and current rationale for performing clinical procedures in periodontics;
2. Perform at the level of proficiency the full range of clinical procedures that are considered essential to establish a specialty practice in the field of periodontics;
3. Design, conduct, and report a periodontal research project;
4. Become a diplomat of the American Board of Periodontology;
5. Teach in didactic and clinical areas of predoctoral periodontics at the level of a junior faculty member, with the intent of enhancing their ability to communicate with peers;
6. Successfully complete the American Board of Periodontology Certification Examination;
7. Achieve successful careers in clinical practice, research, and/or dental education.

Program link: <https://llu.edu/dentistry/gradprograms>. (https://llu.edu/dentistry/gradprograms/)

### Program director
Yoon J. Kim

### Faculty
Mario Flores

Ahmed Khocht

Yoon J. Kim

## Admissions
### Application process
The Periodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

All applicants to the advanced education in periodontics program must complete and submit an online application (<llu.edu/central/apply (http://www.llu.edu/central/apply/)>) directly to Loma Linda University. A PASS application (https://pass.liaisoncas.com/applicant-ux/#/login) is available, but not required.

The program has a rolling admissions policy. Candidates will be selected for admission during the application period until the class is filled. Once the class has been filled, an announcement will be posted on the

program's description on the Loma Linda University School of Dentistry website, and the admissions process will be closed for the year.

### Application deadline

Application for admission should be submitted to the program by September 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required. A separate fee of $2,600 is charged for GRDN 632 Basic Microsurgery Techniques , taken by students during the first quarter.

## Program requirements

### Certificate

| | | |
|---|---|---|
| **Major** | | |
| PERI 524 | The Periodontium | 2 |
| PERI 531 | Periodontal Pathology (2) | 10 |
| PERI 601 | Periodontal Therapy (2) | 12 |
| PERI 604 | Current Periodontal and Implant Literature (2) | 18 |
| PERI 605 | Implant Literature Review (2) | 4 |
| PERI 608 | Dental Specialty Practice Management | 2 |
| PERI 611 | Introduction to Periodontics | 2 |
| PERI 614 | Implant Treatment Planning (2) | 24 |
| PERI 624 | Moderate Sedation in Periodontics | 4 |
| PERI 634 | Clinical Conference (1, 2) | 9 |
| PERI 654 | Practice Teaching in Periodontics (1) | 4 |
| PERI 696 | Scholarly Activity in Periodontics | 1 |
| PERI 706 | Fundamentals of Periodontal Surgery—Techniques and Instrumentation | 2 |
| PERI 697A | Research | 1 |
| PERI 697B | Research | 1 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 535 | Clinical Oral Pathology | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| GRDN 622B | Biomedical Science | 2 |
| GRDN 632 | Basic Microsurgery Techniques | 2 |
| REL_ 5__ | Graduate-level Religion | 3 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| **Total Units** | | **115** |
| **Clinical** [1] | | |
| PERI 725 | Clinical Practice in Periodontics (1-6) | 72 |
| PERI 726 | Clinical Practice in Implant Surgery (2) | 24 |
| **Total Units** | | **96** |

[1] Units for clinic practice courses are in addition to the minimum didactic units required for the degree.

#### Normal time to complete the program

Three (3) years (36 months) — full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

| | | |
|---|---|---|
| PERI 697C | Research | 1 |

#### Normal time to complete the program

Three (3) years — full-time enrollment required (includes the time needed to complete the certificate program)

### M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students have five (5) years from the start of the certificate program to complete the M.S. degree.

| | | |
|---|---|---|
| PERI 698 | Thesis | 1 |

#### Normal time to complete the program

Three (3) years — full-time enrollment required (includes the time needed to complete the certificate program)

# Prosthodontics — Certificate (post-D.D.S.), M.S.D., M.S.

The School of Dentistry's Prosthodontics–Advanced Specialty Program is designed to increase the knowledge base and clinical and laboratory skills of the student in all areas of prosthodontics. In addition to conventional fixed and removable prosthodontics, this program offers considerable experience in implant prosthodontics esthetic dentistry. It also provides an introduction to maxillofacial prosthetics, and the diagnosis and treatment of patients with temporomandibular dysfunction. Comprehensive interdisciplinary treatment-planning seminars with students and faculty members of other advanced dental education programs are designed to prepare the student to interact with and coordinate the treatment of patients requiring advanced prosthodontic care.

The program begins in July and requires 36 months in residence to complete certificate requirements.

Following enrollment into the program, students may also apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree. The application must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study; the additional time must also be in residence.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Proficiently deliver prosthodontic care;
2. Perform at the level of proficiency for the full range of clinical procedures that are considered an integral part of prosthodontics;

3. Utilize experienced, highly competent faculty who are recognized by the specialty;
4. Manage patients' prosthetic needs successfully so they are satisfied, comfortable, and acceptably treated in a timely, efficient manner;
5. Perform research and practice teaching;
6. Participate in prosthodontics dental teaching;
7. Participate in continued professional growth;
8. Act as an emissary for the School of Dentistry, the dental profession, and the specialty of prosthodontics.

Program link: <www.llu.edu/dentistry/gradprograms/>. (http://www.llu.edu/dentistry/gradprograms/)

### Program director
Mathew T. Kattadiyil

### Associate program director
Rami Jekki

### Faculty
Sarah Bukhari

Rami Jekki

Mathew T. Kattadiyil

Montry Suprono

Myron S. Winer

# Admissions

## Application process

The Prosthodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

All applicants to the advanced education in prosthodontics program must complete and submit an online application (<llu.edu/central/apply (http://www.llu.edu/central/apply/)>) directly to Loma Linda University. A PASS application (https://pass.liaisoncas.com/applicant-ux/#/login) is available, but not required.

## Application deadline

Application for admission should be submitted by August 15 of the year prior to the summer of intended enrollment.

# Tuition

Tuition and fees for the 2021-22 academic year (effective July 1, 2021) is approximately $19,839.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required.

# Program requirements

## Certificate

| | | |
|---|---|---|
| **Major** | | |
| IMPD 561 | Dental Bioengineering | 2 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| IMPD 612 | Advanced Implant Dentistry | 2 |
| PROS 500 | Prosthodontic Literature Review (2) | 22 |
| PROS 501 | Removable Partial Prosthodontics Literature Review | 2 |
| PROS 502 | Complete Denture Prosthodontics Literature Review | 2 |
| PROS 505 | Patient Presentation Seminar (Prosthodontics, Implant, Perio) (1) | 9 |
| PROS 515 | Practice Teaching in Prosthodontics | 2 |
| PROS 525 | Dental Materials Science | 2 |
| PROS 527 | Clinical Application of Dental Materials | 2 |
| PROS 546 | Occlusion and Morphology | 2 |
| PROS 547 | Occlusion: Principles and Instrumentation | 2 |
| PROS 555 | Removable Partial Prosthodontics | 2 |
| PROS 556 | TMJ Function and Dysfunction | 1 |
| PROS 557 | Advanced Removable Partial Prosthodontics | 2 |
| PROS 565 | Complete Denture Prosthodontics | 2 |
| PROS 566 | Advanced Complete Denture Prosthodontics | 2 |
| PROS 575 | Fixed Partial Prosthodontics | 2 |
| PROS 576 | Advanced Fixed Partial Prosthodontics I (MC Aesthetics) | 2 |
| PROS 595 | Maxillofacial Prosthetics | 2 |
| PROS 604 | Literature Review in Implant Dentistry for Prosthodontists (2) | 14 |
| PROS 634 | Diagnosis and Treatment Planning (2) | 18 |
| PROS 637 | Geriatric Dentistry | 1 |
| PROS 696 | Scholarly Activity in Prosthodontics | 1 |
| **Interdisciplinary** | | |
| GRDN 514 | Introduction to Biomedical Research | 4 |
| GRDN 535 | Clinical Oral Pathology | 2 |
| GRDN 609 | Professional Ethics | 2 |
| GRDN 622A | Biomedical Science | 2 |
| GRDN 622B | Biomedical Science | 2 |
| REL_ 5__ | Graduate-level Religion | 3 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2 |
| **Total Units** | | **117** |
| **Clinical** [1] | | |
| PERI 608 | Dental Specialty Practice Management | 2 |
| PROS 710 | Clinical Practice of Prosthodontics (6) | 66 |
| **Total Units** | | **68** |

[1] Units for clinic practice courses are in addition to the minimum didactic units required for the degree.

### Normal time to complete the program
Three (3) years (36 months) — full-time enrollment required

## M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

| | | |
|---|---|---|
| PROS 697A | Research | 1 |
| PROS 697B | Research | 1 |
| PROS 697C | Research | 1 |

### Normal time to complete the program

Three (3) years — full-time enrollment required (includes the time needed to complete the certificate program)

## M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 225) for the degree. Students have five (5) years from the start of the certificate program to complete the M.S. degree.

| | | |
|---|---|---|
| PROS 697A | Research | 1 |
| PROS 697B | Research | 1 |
| PROS 698 | Thesis | 2 |

### Normal time to complete the program

Three (3) years — full-time enrollment required (includes the time needed to complete the certificate program)

# Dual Major — Periodontics, Prosthodontics Comparison

Closed to admissions for the 2021-2022 academic year.

| Major | Course Title | Periodontics | Prosthodontics |
|---|---|---|---|
| PERI 524 | The Periodontium | 2.0 | |
| PERI 531 | Periodontal Pathology (2) | 10.0 | |
| PERI 601 | Periodontal Therapy (2) | 12.0 | |
| PERI 604 | Current Periodontal and Implant Literature (2) | 18.0 | |
| PERI 605 | Implant Literature Review (2) | 4.0 | |
| PERI 608 | Dental Specialty Practice Management | 2.0 | 2.0 |
| PERI 611 | Introduction to Periodontics | 2.0 | |
| PERI 614 | Implant Treatment Planning (2) | 24.0 | |
| PERI 624 | Moderate Sedation in Periodontics | 4.0 | |
| PERI 634 | Clinical Conference (1-2) | 9.0 | |
| PERI 654 | Practice Teaching in Periodontics (1) | 4.0 | |
| PERI 696 | Scholarly Activity in Periodontics | 1.0 | |
| PERI 706 | Fundamentals of Periodontal Surgery—Techniques and Instrumentation | 2.0 | |
| IMPD 561 | Dental Bioengineering | | 2.0 |
| IMPD 611 | Introduction to Implant Dentistry | | 2.0 |
| IMPD 612 | Advanced Implant Dentistry | | 2.0 |
| PROS 500 | Prosthodontic Literature Review (2) | | 22.0 |
| PROS 501 | Removable Partial Prosthodontics Literature Review | | 2.0 |
| PROS 502 | Complete Denture Prosthodontics Literature Review | | 2.0 |
| PROS 505 | Patient Presentation Seminar (Prosthodontics, Implant, Perio) (1) | | 9.0 |
| PROS 515 | Practice Teaching in Prosthodontics | | 2.0 |
| PROS 525 | Dental Materials Science | | 2.0 |
| PROS 527 | Clinical Application of Dental Materials | | 2.0 |
| PROS 546 | Occlusion and Morphology | | 2.0 |
| PROS 547 | Occlusion: Principles and Instrumentation | | 2.0 |
| PROS 555 | Removable Partial Prosthodontics | | 2.0 |
| PROS 556 | TMJ Function and Dysfunction | | 1.0 |
| PROS 557 | Advanced Removable Partial Prosthodontics | | 2.0 |
| PROS 565 | Complete Denture Prosthodontics | | 2.0 |
| PROS 566 | Advanced Complete Denture Prosthodontics | | 2.0 |
| PROS 575 | Fixed Partial Prosthodontics | | 2.0 |
| PROS 576 | Advanced Fixed Partial Prosthodontics I (MC Aesthetics) | | 2.0 |
| PROS 595 | Maxillofacial Prosthetics | | 2.0 |
| PROS 604 | Literature Review in Implant Dentistry for Prosthodontists (2) | | 14.0 |
| PROS 634 | Diagnosis and Treatment Planning (2) | | 18.0 |
| PROS 637 | Geriatric Dentistry | | 1.0 |
| PROS 696 | Scholarly Activity in Prosthodontics | | 1.0 |
| **Totals** | | **94.0** | **102.0** |

| Interdisciplinary | Course Title | Periodontics | Prosthodontics |
|---|---|---|---|
| GRDN 632 | Basic Microsurgery Techniques | 2.0 | |
| GRDN 514 | Introduction to Biomedical Research | 4.0 | 4.0 |
| GRDN 535 | Clinical Oral Pathology | 2.0 | 2.0 |
| GRDN 609 | Professional Ethics | 2.0 | 2.0 |
| GRDN 622A | Biomedical Science | 2.0 | 2.0 |
| GRDN 622B | Biomedical Science | 2.0 | 2.0 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2.0 | 2.0 |

| | | |
|---|---|---|
| REL_ 5__ Graduate-level Religion | 3.0 | 3.0 |
| **Totals** | **19.0** | **17.0** |
| **Overall Totals** | **113.0** | **119.0** |

| Clinical | Course Title | Periodontics | Prosthodontics |
|---|---|---|---|
| PERI 725 | Clinical Practice in Periodontics (1-6) | 72.0 | |
| PERI 726 | Clinical Practice in Implant Surgery (2) | 24.0 | |
| PROS 710 | Clinical Practice of Prosthodontics (6) | | 66.0 |
| **Totals** | | **96.0** | **66.0** |

### Normal time to complete the program

Four and one-half (4.5) years; full-time enrollment required

# Dual Major — Periodontics, Implant Dentistry Comparison

Closed to admissions for the 2021-2022 academic year.

| Major | Course Title | Periodontics | Implant Dentistry |
|---|---|---|---|
| PERI 624 | Moderate Sedation in Periodontics | 4.0 | 4.0 |
| PERI 524 | The Periodontium | 2.0 | |
| PERI 531 | Periodontal Pathology (2) | 10.0 | |
| PERI 601 | Periodontal Therapy (2) | 12.0 | 4.0 |
| PERI 604 | Current Periodontal and Implant Literature (2) | 18.0 | |
| PERI 605 | Implant Literature Review (2) | 4.0 | |
| PERI 608 | Dental Specialty Practice Management (2) | 2.0 | |
| PERI 611 | Introduction to Periodontics | 2.0 | |
| PERI 614 | Implant Treatment Planning (2) | 24.0 | |
| PERI 634 | Clinical Conference (1, 2) | 9.0 | |
| PERI 654 | Practice Teaching in Periodontics (1) | 4.0 | |
| PERI 696 | Scholarly Activity in Periodontics | 1.0 | |
| IMPD 505 | Patient Presentation Seminar (1) | | 10.0 |
| IMPD 547 | Implant Dentistry Grand Rounds (1) | | 10.0 |
| IMPD 561 | Dental Bioengineering | | 2.0 |
| IMPD 585 | Implant Prosthodontics (2) | | 10.0 |
| IMPD 601 | Literature Review in Implant Dentistry (2) | | 22.0 |
| IMPD 604 | Current Literature Review in Implant Dentistry (2) | | 20.0 |
| IMPD 611 | Introduction to Implant Dentistry | | 2.0 |
| IMPD 612 | Advanced Implant Dentistry | | 2.0 |
| IMPD 631 | Oral Implant Surgery (1) | | 11.0 |
| IMPD 634 | Diagnosis and Treatment Planning in Implant Dentistry (1) | | 10.0 |
| IMPD 637 | Peri-Implant Histopathology | | 1.0 |
| IMPD 654 | Practice Teaching in Implant Dentistry (1-3) | | 3.0 |
| IMPD 696 | Scholarly Activity in Implant Dentistry | | 1.0 |
| PROS 500 | Prosthodontic Literature Review (2) | | 6.0 |
| PROS 546 | Occlusion and Morphology | | 2.0 |
| PROS 547 | Occlusion: Principles and Instrumentation | | 2.0 |
| PROS 555 | Removable Partial Prosthodontics | | 2.0 |
| PROS 565 | Complete Denture Prosthodontics | | 2.0 |
| PROS 566 | Advanced Complete Denture Prosthodontics | | 2.0 |
| PROS 575 | Fixed Partial Prosthodontics | | 2.0 |
| PROS 576 | Advanced Fixed Partial Prosthodontics I (MC Aesthetics) | | 2.0 |

| | | | |
|---|---|---|---|
| PROS 595 | Maxillofacial Prosthetics | | 2.0 |
| **Totals** | | **92.0** | **134.0** |

| Interdisciplinary | Course Title | Periodontics | Implant Dentistry |
|---|---|---|---|
| GRDN 514 | Introduction to Biomedical Research | 4.0 | 4.0 |
| GRDN 535 | Clinical Oral Pathology | 2.0 | 2.0 |
| GRDN 609 | Professional Ethics | 2.0 | 2.0 |
| GRDN 622A | Biomedical Science | 2.0 | 2.0 |
| GRDN 622B | Biomedical Science | 2.0 | 2.0 |
| GRDN 632 | Basic Microsurgery Techniques | 2.0 | 2.0 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2.0 | 2.0 |
| REL_ 5__ Graduate-level Religion | | 3.0 | 3.0 |
| PERI 706 | Fundamentals of Periodontal Surgery—Techniques and Instrumentation | 2.0 | |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery | | 4.0 |
| OMFS 606 | Applied Surgical Anatomy | | 1.0 |
| **Totals** | | **21.0** | **24.0** |
| **Overall Totals** | | **113.0** | **158.0** |

| Clinical | Course Title | Periodontics | Implant Dentistry |
|---|---|---|---|
| PERI 725 | Clinical Practice in Periodontics (1-6) | 72.0 | |
| PERI 726 | Clinical Practice in Implant Surgery (2) | 24.0 | |
| IMPD 725 | Clinical Practice in Implant Dentistry (4) | | 40.0 |
| IMPD 726 | Clinical Practice in Periodontics in Implant Dentistry (2) | | 4.0 |
| IMPD 727 | Clinical Practice of Prosthodontics in Implant Dentistry (2) | | 20.0 |
| **Totals** | | **96.0** | **64.0** |

### Normal time to complete the program

Four and one-half (4.5 years); full-time enrollment required

# Dual Major — Prosthodontics, Implant Dentistry Comparison

Closed to admissions for the 2021-2022 academic year.

| Major | Course Title | Prosthodontics | Implant Dentistry |
|---|---|---|---|
| IMPD 561 | Dental Bioengineering | 2.0 | 2.0 |
| IMPD 611 | Introduction to Implant Dentistry | 2.0 | 2.0 |
| IMPD 612 | Advanced Implant Dentistry | 2.0 | 2.0 |
| PROS 546 | Occlusion and Morphology | 2.0 | 2.0 |
| PROS 547 | Occlusion: Principles and Instrumentation | 2.0 | 2.0 |
| PROS 555 | Removable Partial Prosthodontics | 2.0 | 2.0 |
| PROS 565 | Complete Denture Prosthodontics | 2.0 | 2.0 |
| PROS 566 | Advanced Complete Denture Prosthodontics | 2.0 | 2.0 |
| PROS 575 | Fixed Partial Prosthodontics | 2.0 | 2.0 |
| PROS 576 | Advanced Fixed Partial Prosthodontics I (MC Aesthetics) | 2.0 | 2.0 |
| PROS 595 | Maxillofacial Prosthetics | 2.0 | 2.0 |
| PERI 608 | Dental Specialty Practice Management | 2.0 | |
| PROS 500 | Prosthodontic Literature Review (2) | 22.0 | 6.0 |
| PROS 501 | Removable Partial Prosthodontics Literature Review | 2.0 | |
| PROS 502 | Complete Denture Prosthodontics Literature Review | 2.0 | |
| PROS 505 | Patient Presentation Seminar (Prosthodontics, Implant, Perio) (1) | 9.0 | |
| PROS 515 | Practice Teaching in Prosthodontics | 2.0 | |
| PROS 525 | Dental Materials Science | 2.0 | |

| | | | |
|---|---|---|---|
| PROS 527 | Clinical Application of Dental Materials | 2.0 | |
| PROS 556 | TMJ Function and Dysfunction | 1.0 | |
| PROS 557 | Advanced Removable Partial Prosthodontics | 2.0 | |
| PROS 604 | Literature Review in Implant Dentistry for Prosthodontists (2) | 14.0 | |
| PROS 634 | Diagnosis and Treatment Planning (2) | 18.0 | |
| PROS 637 | Geriatric Dentistry | 1.0 | |
| PROS 696 | Scholarly Activity in Prosthodontics | 1.0 | |
| IMPD 505 | Patient Presentation Seminar (1) | | 10.0 |
| IMPD 547 | Implant Dentistry Grand Rounds (1) | | 10.0 |
| IMPD 585 | Implant Prosthodontics (2) | | 10.0 |
| IMPD 601 | Literature Review in Implant Dentistry (2) | | 22.0 |
| IMPD 604 | Current Literature Review in Implant Dentistry (2) | | 20.0 |
| IMPD 631 | Oral Implant Surgery (1) | | 11.0 |
| IMPD 634 | Diagnosis and Treatment Planning in Implant Dentistry (1) | | 10.0 |
| IMPD 637 | Peri-Implant Histopathology | | 1.0 |
| IMPD 654 | Practice Teaching in Implant Dentistry | | 3.0 |
| IMPD 696 | Scholarly Activity in Implant Dentistry | | 1.0 |
| PERI 601 | Periodontal Therapy (2) | | 4.0 |
| PERI 624 | Moderate Sedation in Periodontics | | 4.0 |
| **Totals** | | **102.0** | **134.0** |

| | Course Title | Prosthodontics | Implant Dentistry |
|---|---|---|---|
| **Interdisciplinary** | | | |
| GRDN 514 | Introduction to Biomedical Research | 4.0 | 4.0 |
| GRDN 535 | Clinical Oral Pathology | 2.0 | 2.0 |
| GRDN 609 | Professional Ethics | 2.0 | 2.0 |
| GRDN 622A | Biomedical Science | 2.0 | 2.0 |
| GRDN 622B | Biomedical Science | 2.0 | 2.0 |
| REL_ 5__ Graduate-level Religion | | 3.0 | 3.0 |
| ORPA 533 | Radiology Topics for Graduate Dental Programs | 2.0 | 2.0 |
| GRDN 632 | Basic Microsurgery Techniques | | 2.0 |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery (1) | | 4.0 |
| OMFS 606 | Applied Surgical Anatomy | | 1.0 |
| **Totals** | | **17.0** | **24.0** |
| **Overall Totals** | | **119.0** | **158.0** |

| | Course Title | Prosthodontics | Implant Dentistry |
|---|---|---|---|
| **Clinical** | | | |
| PROS 710 | Clinical Practice of Prosthodontics (6) | 66.0 | |
| IMPD 725 | Clinical Practice in Implant Dentistry (4) | | 40.0 |
| IMPD 726 | Clinical Practice in Periodontics in Implant Dentistry (2) | | 4.0 |
| IMPD 727 | Clinical Practice of Prosthodontics in Implant Dentistry (2) | | 20.0 |
| **Totals** | | **66.0** | **64.0** |

## Normal time to complete the program

Four and one-half (4.5 years); full-time enrollment required

# SCHOOL OF MEDICINE

## Dean's welcome

At Loma Linda University School of Medicine, we believe skilled and compassionate physicians heal more than a patient's disease; they mend the mind, body, and spirit of a patient in need. This tenet has been at the core of our mission for more than 100 years, and we strive to educate physicians, researchers, and medical professionals who are committed to whole-person care.

In addition to our medical school program, we offer a broad spectrum of graduate education opportunities, including combined degree programs, postgraduate residencies and fellowships, and continuing medical education for physicians beyond their formal academic years.

Our faculty members have pioneered transplantation, epigenetics, and translational research—among other fields—bringing together clinicians, researchers, and bright young students. Their promise to develop lifelong learners has led our graduates to advance medical care around the world.

In the School of Medicine, you will be immersed in the ever-changing field of medicine and will be entrusted with the gift of improving the lives of others. We welcome your curiosity.

Tamara Thomas, M.D.
Dean, School of Medicine

## School foundations

### History

In 1909, the School of Medicine opened its doors as the College of Medical Evangelists, and in 1910, Seventh-day Adventist pioneer Ellen G. White declared "The medical school at Loma Linda is to be of the highest order." Thus began an endeavor that has lasted for more than a century: to educate physicians dedicated to Christian service.

Between 1913 and the mid-1960s, medical student education was split between the Loma Linda University campus and White Memorial Medical Center in Los Angeles. But in 1967, Loma Linda University Medical Center opened its doors, making way for consolidation of the four years of medical school in Loma Linda.

In 2017, the 11,000th student received her medical degree from the School of Medicine. No other university on the West Coast has graduated more physicians than Loma Linda University, and our graduates have travelled around the world offering care to others and fulfilling the University's motto, "to make man whole."

*"So they set out and went from village to village,*
*preaching the gospel and healing people everywhere."*

Luke 9:6

### Mission

The Loma Linda University School of Medicine is dedicated to continuing the teaching and healing ministry of Jesus Christ.

#### Preparing the physician

Our purpose is the formation of Christian physicians, who will provide whole-person care to individuals, families, and communities.

#### Education

We strive to create an environment in which medical students, graduate students, and residents will acquire the knowledge, skills, values, and attitudes appropriate for Christian health professionals and scholars.

#### Research

Our faculty works to cultivate a supportive atmosphere of inquiry, discovering new routes to wholeness through basic and clinical research.

#### Service

Patients will have timely access to cost-effective, safe, comprehensive, whole-person care without regard for their circumstances or status.

#### Developing the whole person

The Christian view of wholeness asserts that the needs of patients go beyond the healing of the body, and that the development of students involves more than the training of the mind. We are dedicated to promoting physical, intellectual, social, and spiritual growth in our faculty and our students. We believe in the importance of transforming our daily activities into personal ministries.

#### Reaching the world

Students, faculty members, and graduates of Loma Linda University School of Medicine are devoted to providing whole-person care wherever the opportunity arises by participating with the global community in the provision of local medical education, providing international physicians and scientists the opportunities for professional interaction and enrichment, and sharing the good news of a loving God as demonstrated by the life and teachings of Jesus Christ.

## Doctor of Medicine degree/Oral and Maxillofacial Surgery Program requirements

The Doctor of Medicine degree/Oral and Maxillofacial Surgery Program (M.D./OMS) is designed to provide an opportunity for qualified dentists to obtain the Doctor of Medicine degree in a customized, three-year period. Clinical surgical health-care delivery is emphasized. The program content conforms to the standards of the Commission on Accreditation and is designed to prepare the oral surgeon for certification by the American Board of Oral and Maxillofacial Surgery. Oral and maxillofacial surgery residents begin their residency program on the OMS service. They subsequently enter the second year at Loma Linda University School of Medicine with advanced standing. Residents then complete the second, third, and fourth years of medical school. The third year of the M.D./OMS curriculum consists of required clerkships in acute care, emergency medicine, a subinternship in ENT, and whole-person care. An additional 30 units of electives, which include anesthesia and oral and maxillofacial surgery, complete the third year of the medical program. The graduate then enters a one-year general surgery internship, followed by two years of oral and maxillofacial surgery residency.

## Graduate combined degrees programs

Loma Linda University is committed to fostering the investigative skills of its medical students. Those interested in pursuing careers in academic medicine and medical research may wish to enroll in *one of the combined degree programs*.

### Combined degrees (M.D./M.S. or M.D./Ph.D.)—SM/GS

The M.D./Ph.D. combined degree program is available through the School of Medicine. It includes many of the features of the Medical Scientist Program. Students in the combined degree program complete the first two years of the standard medical curriculum. This is followed by three or more years of graduate coursework and research to qualify for a Ph.D. degree, or at least one year for an M.S. degree, before commencing the last two years of the medical school curriculum—the clinical training—for the Doctor of Medicine degree. Majors are offered in anatomy, biochemistry, microbiology and molecular genetics, physiology, and pharmacology.

For the M.D./M.S. and M.D./Ph.D. combined degree programs, the prerequisites and Graduate Record Examination requirements are similar to those described for the Medical Scientist Program, except that biochemistry is not required.

### Medical Scientist Program (M.D./Ph.D.)

Students interested in pursuing careers in academic medicine and medical research may wish to enroll in the Medical Scientist Program.

Tuition assistance for the M.D. portion of the combined degrees program is not given to all students working toward both degrees. Assistance for the M.D. portion will be given only in cases where an applicant has received approval from the School of Medicine M.D./Ph.D. Admissions Committee prior to beginning the M.D. coursework. Assistance will be in the form of an institutional loan that will cover M.D. tuition and fees but will not include living expenses. The School of Medicine makes provision for the loan to be forgiven when a recipient meets the terms described below and in the loan agreement.

Loans for the first two years of the M.D. curriculum may be canceled when a student completes an M.S. or Ph.D. degree within the time schedule described below and according to the terms of the loan agreement. Loans for the third and fourth years of the M.D. curriculum may be canceled when a student completes the Ph.D. degree within the time schedule described below and according to the terms described below and according to the terms of the loan agreement.

The Medical Scientist Program is designed to develop a student's independence and competence as an investigative scientist and clinician. It provides students with a broad educational base for the practice of medicine and medically related research. The program is administered by the School of Medicine in cooperation with the Faculty of Graduate Studies. (See Medical Scientist Program in the Combined Degree Programs after the general information for the School of Medicine.)

## Residency programs

Loma Linda University is affiliated with a variety of accredited residency programs in two sponsoring institutions. The first is Loma Linda University Medical Center, and the second is Loma Linda-Inland Empire Consortium for Healthcare Education. All specialties and a variety of subspecialty programs are offered. Additional nonaccredited fellowships are available.

Graduate physicians wishing to apply for entrance into these programs should contact the director of the program.

Graduate dentists who seek residencies in dental anesthesia, endodontics, oral implantology, orthodontics, pediatric dentistry, periodontics, and prosthodontics should apply directly to the School of Dentistry.

## Research centers

Basic science investigation is advanced, and patient treatment is enhanced through the ground-breaking research conducted in several centers housed within the School of Medicine.

### Center for Health Disparities and Molecular Medicine

The mission of the Center for Health Disparities and Molecular Medicine (CHDMM) is to eliminate health disparities through research, education, and community engagement. Faculty members at the CHDMM use modern molecular genetics and cell biology approaches, community based participatory research, and precision medicine to investigate the causes of health disparities, how they are developed, and promising strategies to address them. Current research efforts at the center examine the influence of the augmented state of cellular oxidative stress and inflammatory pathways on cell death and survival as it pertains to cancer, diabetes, and neurological health disparities. The goal is to define novel molecular determinants and biomarkers associated with these health disparities, leading to the development of innovative clinical and community interventions aimed at eliminating or reducing them. The educational mission of the center is to train a diverse group of graduate students, medical students, and postdoctoral scientists to develop an inclusive biomedical workforce. Further, through partnering with community-based organizations, the CHDMM aims to develop healthy and whole communities through the implementation of evidence based prevention initiatives and programs.

### Center for Perinatal Biology

The primary research focus of the Center for Perinatal Biology is investigation of molecular and epigenetic mechanisms of fetal development and programming of health and disease later in life. The majority of the funding to support this research is derived from

competitive grants awarded by the National Institutes of Health (NIH). Additional funding is provided by the National Science Foundation and other agencies. The biomedical scientists in this internationally renowned research center also teach basic science courses in the School of Medicine and graduate courses in their disciplines. The graduate courses include physiology/pharmacology, gynecology/obstetrics, pathology/human anatomy, biochemistry/microbiology, and pediatrics.

The center is an ideal environment for graduate students, postdoctoral fellows, and beginning investigators who spend from two-to-four years in research and training in fields related to developmental biology and physiology. Visiting scholars from other universities also work in the center during sabbaticals or other interims.

### Neurosurgery Center for Research, Training, and Education

The Neurosurgery Center for Research, Training, and Education has as its primary focus the improvement of patient care by conducting translational research. Its goals are met by the research and development of new biologically and technologically advanced diagnostic procedures, minimally invasive surgical techniques, and innovative hemostatic instrumentation. The center functions in collaboration with many well-known institutions, such as George Mason University, UCLA, and North Carolina State University.

The center has been the recipient of a five-year NIH competitive grant to determine the role of iron perturbations in metabolism in the pathogenesis of Alzheimer's disease, as well as grants for proteomic study of schizophrenia. The center's multidisciplinary work involves collaborations among faculty members within the biochemistry, radiology, cell and molecular biology, radiobiology, psychiatry, geriatric medicine, and biostatistics disciplines. The center is also interested in the development of new hemostatic agents that involve the control of hemorrhage. To this end, it has developed new procoagulants and surgical devices in collaboration with industry. The center works in close collaboration with industrial resources for both testing and development of new surgical instrumentation. The director of the center holds numerous international and United States patents on surgical instruments and other devices.

### Neuroscience Research Center

The major goal of the Center for Neuroscience Research is to conduct translational studies of major neurological disorders, in particular, brain hemorrhages seen in neurosurgery and neurology. These instances of brain hemorrhage include subarachnoid hemorrhage, intracerebral hemorrhage, hemorrhage after ischemic stroke, neonatal brain hemorrhage, and traumatic brain injury caused by brain hemorrhage. A longitudinal combined approach is encouraged, which includes animal models, experimental treatment, neuroimaging, neurological functional evaluations, and neural and cerebral vascular biological studies, to explore the mechanisms and potential treatment options. The Center is funded by a NIH program project grant, as well as additional federal grant support to individual Center members.

### Center for Genomics

The mission of the Center for Genomics is to provide state-of-the-art genomic (e.g., next-generation sequencing), epigenomic, and bioinformatic tools to: 1) better understand the molecular mechanisms of human disease and health disparities from a genome-wide and systems biology approach; 2) identify novel biomarkers of and novel therapeutic targets for human disease while providing single-nucleotide resolution genomic and epigenomic data for precision medicine; and 3) define the health and lifestyle profile of the Loma Linda Blue Zone population at genomic and epigenomic levels. The educational mission of the Center is to teach and train graduate students, medical students, and postdoctoral scientists on systems biology involving genomics, epigenomics, transcriptomics, and bioinformatics in the Loma Linda University School of Medicine.

## General regulations

Students of the university are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

## Student life

The information on student life and student policies contained in this CATALOG is brief. The Loma Linda University *Student Handbook* more comprehensively addresses university and school expectations, regulations, and policies. All students are expected to inform themselves of the contents of the Student Handbook (http://www.llu.edu/student-handbook/), including Sections which contain policies that apply to all LLU students in all of the schools that make up Loma Linda University and to abide by its policies. Additional information regarding policies specific to the School of Medicine are provided by the school at the orientation for each of the academic programs. Students who have questions about the *Student Handbook* should contact the associate dean for student affairs over their program. Students in the School of Medicine's M.D. Program are expected to familiarize themselves with the *Student Handbook*, as well as additional policies posted on Canvas and to abide by those policies. Students in the School of Medicine's Integrated Biomedical Graduate Studies Program are expected to familiarize themselves with the document *Student Guidelines, Policies and Procedures, Integrated Biomedical Graduate Studies* and to abide by those policies. Students in programs associated with the School of Medicine's Earth and Biological Sciences Graduate *Student Handbook* and to abide by those policies. Students in the Pathologists' Assistant Program are expected to familiarize themselves with the document *Student Handbook Pathologists' Assistant Program* and to abide by those policies.

## Awards

**Bernard D. Briggs Award**
The Bernard D. Briggs Award is presented to an outstanding medical student entering the field of anesthesiology who exhibits the dedication, enthusiasm, and commitment of the visionary physician and distinguished mentor for whom it is named.

**Robert F. Chinnock Award**
The Robert F. Chinnock Award is presented annually to a student who has demonstrated outstanding performance in clinical and academic pediatrics.

**Daniel D. Comstock Award**
The Daniel D. Comstock Award is given annually to the senior student with the most distinguished performance in internal medicine. Selection is based on scholarship, interest in science, skill, devotion to patient care, and personal attributes of dependability and integrity--as demonstrated by the physician, Daniel D. Comstock, for whom the award is named.

**The Departmental Advising Award**
The Departmental Advising Award is given annually by the dean's office to the clinical department that has provided outstanding career counseling and extraordinary support to help students achieve their career aspirations.

**Distinguished Student in Radiology Award**
The Distinguished Student in Radiology Award is given to the student who is devoted to the field of radiology as evidenced by their distinguished service, exceptional performance, and commitment to pursuing radiology as a career.

**Donald E. Griggs Award**
The Donald E. Griggs Award is presented annually to a senior student selected for meritorious scholarship and service--the highest grade in the clinical rotations of medicine--reflecting those qualities demonstrated by the physician and teacher for whom the award is named.

**David B. Hinshaw, Sr., Award**
The David B. Hinshaw, Sr., Award is presented annually to a senior student who has demonstrated outstanding qualities of leadership and scholarship and who is entering a categorical surgery residency program with the intention of pursuing a career in general surgery.

**Guy M. Hunt Award**
The Guy M. Hunt Award is presented annually by the Department of Neurology to a senior student who combines outstanding academic achievement and the spirit of gentle caring that was exemplified by Dr. Hunt.

**Harold J. Hoxie Award**
The Harold J. Hoxie Award is presented by the Department of Medicine to a senior medical student whose meritorious scholarship, exceptional performance in medicine with emphasis in research, and service reflect those qualities demonstrated by the physician and teacher for whom the award is named.

**Benjamin Kovitz Award**
The Benjamin Kovitz Award is presented to a senior medical student who has demonstrated qualities of leadership and scholarship in the field of psychiatry.

**Walter P. Ordelheide Award**
The Walter P. Ordelheide Award is given annually by the Department of Family Medicine to a senior student who has demonstrated outstanding scholarship and leadership, and who has fostered the promotion and advancement of family medicine.

**President's Award**
The President's Award, established in 1960, is presented annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. One recipient is selected from each school.

**Society for Academic Emergency Medicine Award**
The Society for Academic Emergency Medicine Award is presented to the senior medical student who has demonstrated excellence in the specialty of emergency medicine.

**Varner J. Johns, Jr., Award**
The Varner J. Johns, Jr., Award is given to a graduating senior who is recognized as an outstanding student with the potential of becoming a future faculty member in the Department of Medicine.

**Alumni Association--Herber Award**
The School of Medicine Alumni Association Award is given annually to students who demonstrate outstanding leadership in furthering the mission of Loma Linda University School of Medicine.

**Wil Alexander Whole Person Care Award**
The Wil Alexander Whole Person Care Award recognizes a senior medical student who, during the clinical years, has demonstrated to their peers and colleagues a growing excellence in the physical, mental, emotional, spiritual, and relational care of their patients as part of the art of medical practice.

**Alpha Omega Alpha Honor Society**
Fourth-year students are recommended for membership in the national honor medical society, Alpha Omega Alpha. Membership is determined based on scholastic, professional, and personal performance. The School of Medicine was granted a charter for establishing the Epsilon Chapter on April 1, 1957.

**Roger W. Barnes Award**
The Roger W. Barnes Award is presented to a senior student who has demonstrated to an unusual degree the qualities of compassion, kindness, and humility--as exhibited by the physician and teacher for whom the award is named.

**Harold F. Ziprick Award**
The Harold F. Ziprick Award is presented annually by the Department of Gynecology and Obstetrics to a senior student in recognition of overall academic achievement and clinical performance in gynecology and obstetrics, as demonstrated by the physician and teacher for whom the award is named.

**Distinguished Student in Emergency Medicine Award**
The Distinguished Student in Emergency Medicine Award is given by the department to a senior student who is devoted to emergency medicine and committed to pursuing it as a career.

**3AM Award**
The 3AM award is presented to the student who most embodies the work ethic, positive attitude, and spirit of collegiality that makes others grateful to be working next to them at all hours in the emergency department.

**Distinguished Student in Preventive Medicine Award**
The Distinguished Student in Preventive Medicine Award is given to a senior student who has demonstrated exceptional performance in preventive medicine and is committed to pursuing it as a career.

**Philip H. Reiswig Award**
The Philip H. Reiswig Award is presented to a senior student entering the field of orthopaedic surgery who exhibits the dedication, enthusiasm, and commitment of the physician-leader for whom it is named.

# Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of financial policies. Any exceptions to published policy regarding reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs regarding these matters is not binding on the school or the university unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid. Therefore, the student should be prepared to make these payments during scheduled registration for each academic year.

There may be adjustments in tuition and fees as economic conditions warrant.

### General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this university must have been settled.

### Veteran's benefits

A student eligible to receive veteran's benefits under the current enactment should contact the Office of University Records within the first week following registration.

Under Title 38 of the U.S. Code, Loma Linda University is approved for the training of veterans and other eligible persons. Information regarding eligibility for any of these programs may be obtained by calling 1-888/GIBILL1.

Application for benefits must be made directly to the VA and may be done via the Web. The Office of University Records serves as the certifying official for Loma Linda University. Students should contact the certifying official prior to their first enrollment certification. For more information, open links to the VA website at <llu.edu/central/students/veterans.page (http://www.llu.edu/central/students/veterans.page)>.

### Schedule of charges

**Tuition**

| | |
|---|---|
| 59,452 | Full time |

**Fees**

| | |
|---|---|
| $3,952* | For years 1 and 2: enrollment fee |
| $4,292* | For years 3 and 4: enrollment fee |

**Supplies and instruments (estimated)**

| | |
|---|---|
| $4,000* | Per school calendar year |
| $1000* | First-year medical equipment |

* Fees subject to change

### Living expenses (estimated)

Students should contact the Office of Financial Aid for current living allowance information <finaid@llu.edu> or 909/558-4509.

**On- and off-campus student housing**

Students may go to <llu.edu/central/housing (http://www.llu.edu/central/housing/)> for housing information and a housing application form.

### Special charges 2021-2022

| | |
|---|---|
| $85 | Supplemental application (nonrefundable), in addition to AMCAS fee |
| $200 | Late payment fee |
| cost | Health-care items not covered by health fee or insurance |
| cost | Library fine or loss, parking fine, property breakage or loss |
| cost | Health coverage for spouse and family |
| $25 | Returned check fee |

# Programs

- Anatomy—M.S., Ph.D (p. 275).
- Biology - M.S. (p. 259), Ph.D. (p. 259)
- Biomedical Sciences - M.M.S. (p. 279)
- Cancer, Developmental and Regenerative Biology — M.S., Ph.D. (p. 248)
- Earth Science - Ph.D. (p. 263)
- Environmental Sciences - B.S. (p. 266)
- Geology - B.S. (p. 269), M.S. (p. 271)
- Infection, Immunity, and Inflammation — M.S., PhD. (p. 251)
- Medical Scientist—M.D. and Ph.D. (p. 283)
- Medicine—M.D. (p. 284)
- Natural Sciences - M.S. (p. 273)
- Neuroscience, Systems Biology, and Bioengineering — M.S., Ph.D. (p. 254)
- Pathologists' Assistant — M.H.S. (p. 278)

# Graduate

## Mission

It is the mission of the Loma Linda University basic sciences programs to further the teaching and healing ministry of Jesus Christ by fostering scholarly excellence leading to the discovery, integration, and dissemination of biomedical knowledge.

## General information

The basic sciences of the School of Medicine offer graduate programs with emphases in anatomy, biochemistry, microbiology, pharmacology, and physiology. The Ph.D. degree curriculum is designed to prepare students for careers in independent research and teaching in academic or biotechnology settings. Students may enter any of these five Ph.D. degree curricula by applying to the Integrated Biomedical Graduate Studies Program. After completing a common first-year core curriculum, students will select a program and a mentor for the completion of their studies, during which advanced courses and laboratory work allow them to fully develop an area of research interest and expertise. Students usually rotate through up to three research laboratories before selecting a research advisor.

The M.S. degree course of study provides education appropriate for technicians involved in biomedical research and for medical technologists seeking career advancement. A pathway to combined M.D./Ph.D. degrees is also offered.

## Combined degrees

Combined degrees (Ph.D./M.D. and M.S./M.D.) options are also available. The combination of an M.S. degree with a professional degree provides additional content and research experience as a background for postgraduate medical or dental education. The combination of a Ph.D. degree with a professional degree prepares the student for a future in academic medicine or dentistry—combining research, teaching, and clinical practice.

The combined degrees are described at the end of Section III in this CATALOG.

# Department of Basic Sciences

The Department of Basic Sciences in the School of Medicine offers graduate programs leading to M.S. and Ph.D. degrees in three areas through the Integrated Biomedical Graduate Studies Program (IBGS). This program includes a common integrated first-year core curriculum that explores the biochemical, molecular, cellular, and physiological functions of living systems in a way that emphasizes analytical thinking and problem solving. During this first year, students also attend seminars and rotate through up to two research laboratories. After completing the first year of study, students select both a program and a laboratory from which they wish to obtain a degree. Advanced, discipline-specific courses are taken during the second year; and research leading to the publication of peer-reviewed articles and doctoral dissertation defense are carried out between the time a research laboratory is selected and the completion of the degree.

### Chair
Penelope J. Duerksen-Hughes

### Primary faculty
Danilyn M. Angeles

Vladimar Bashkirov

Danilo Boskovic

Eileen J. Brantley

John N. Buchholz

Carlos A. Casiano

Daisy D. De Leon

Marino A. De Leon

Charles A. Ducsay

Penelope J. Duerksen-Hughes

Valeri Filippov

Maria Filippova

Hansel M. Fletcher

Ravi Goyal

David A. Hessinger

Salma Khan

William H. Langridge

Xiao W. Mao

Eugenica I. Mata-Greenwood

Gregory A. Nelson

Stephen A. Nyirady

William J. Pearce

Michael J. Pecaut

Christopher C. Perry

Gordon G. Power

Hongyu Qiu

Ubaldo A. Soto-Wegner

Richard S. Sun

Jiping Tang

Julia J. Unternaehrer-Hamm

Roman Vlkolinsky

Nathan R. Wall

Charles Wang

Kylie J. Watts

Christopher G. Wilson

Sean M. Wilson

David L. Wolf

Daliao Xiao

Steven M. Yellon

John H. Zhang

Lubo Zhang

### Adjunct faculty
Daila S. Gridley

Keith E. Schubert

Ihsan Solaroglu

Lawrence C. Sowers

### Emeritus faculty
Anthony J. Zuccarelli

## General regulations

### First-year curriculum (Ph.D. degree)

The first-year curriculum includes a course sequence taught by interdisciplinary faculty that integrates all the disciplines of the biomedical basic science areas—moving from molecules through cellular mechanisms to integrated systems. In addition, a supplemental course covers research-related topics—such as scientific communication and integrity, information handling and statistics, as well as successful grant proposal writing. Students learn of new developments in the biomedical sciences through weekly seminars, and they gain presentation skills of their own in a weekly student presentation seminar series. During subsequent years, formal courses continue to broaden and integrate into a meaningful whole an understanding of clinical consequences of cellular events.

### Religion requirement

Students in the Master of Science (M.S.) degree curricula are required to complete one, three-unit, graduate-level religion course (RELT 617 Seminar in Religion and the Sciences). Students in the Ph.D. degree curriculum are required to complete three graduate-level religion courses

of three or more units each. These must include RELT 617 Seminar in Religion and the Sciences; as well as RELE 525 Ethics for Scientists and RELR 588 Personal and Family Wholeness. A course in biblical studies (RELT 559 New Testament Thought, RELT 560 Jesus the Revealer: The Message of the Gospel of John, RELT 564 Apostle of Hope: The Life, Letters, and Legacy of Paul, or RELT 565 Vision of Healing: The Message of the Book of Revelation) may be substituted for either the ethical or relational course.

### Research units

A student will, at all times, have registration in research units. An IP will be assigned until the student registers for new units. The units should be spread out over the course of time it takes to complete thesis or dissertation research satisfactorily. An IP may not be carried for longer than five quarters.

## Admissions

In addition to Loma Linda University (p. 23) application requirements, the applicant must also complete the following prerequisites:

- A bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- General test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less than the 35th percentile; analytical writing 4.0. GRE scores older than five years from the date of matriculation are not considered.
- A full year of each of the following undergraduate courses:
  - General biology
  - General chemistry
  - Organic chemistry
  - General physics
  - Biochemistry (a minimum of one quarter/semester)

Strongly Recommended:

- Upper-division biology (such as cell and molecular biology)
- A full year of biochemistry with labs
- Research experience
- Calculus
- Computer programming experience (neuroscience, systems biology and bioengineering program)

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science-required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

## Programs


- Cancer, Developmental and Regenerative Biology — M.S., Ph.D. (p. 248)
- Infection, Immunity, and Inflammation — M.S., PhD. (p. 251)
- Neuroscience, Systems Biology, and Bioengineering — M.S. Ph.D. (p. 254)


# Cancer, Developmental and Regenerative Biology — M.S., Ph.D.

**Co-program directors**
Mary Kearns-Jonker
Julia Unternaehrer-Hamm

The School of Medicine offers basic sciences curricula leading to the Master of Science and Doctor of Philosophy degrees. The core curriculum provides a broad background in molecular biology, cell biology, and biochemistry. Advanced courses allow each student to fully develop an area of interest.

Research strengths of the program include: cancer biology (prostate, breast, thyroid, ovarian, cervical, pancreatic, and leukemia), molecular mechanisms controlling normal development and regeneration, stem cell-based cardiovascular repair, oxidative stress in mechanism of anticancer agents, stem cell delivery of gene therapy for regenerative medicine, neuronal injury and axonal regeneration, transcriptional regulation, normal and malignant immune cell development and function, nanoparticles for therapeutic applications, cellular and molecular mechanisms of cardiovascular diseases and aging, plasticity and interconnection between normal and cancer stem cells, miRNA regulation in ovarian cancer and early development, epigenomic/transcriptomic reprogramming and longevity, calcium signaling during lung development, developmental programming of health and disease, stem cell reprogramming, and genome editing.

The thesis or research Master of Science degree provides training for individuals who will become technicians involved in biomedical research in universities or in the biotechnology industry. The non-thesis Master of Science degree provides content appropriate for secondary teachers seeking advanced training in areas such as molecular biology, cancer biology, developmental biology, and regenerative medicine; and for students seeking admission to a professional school, such as medicine or dentistry.

The Doctor of Philosophy degree is designed to prepare students for careers in independent research and teaching in a university, clinical, or biotechnology environment. Doctoral degree students are expected to develop creativity and independence in addition to technical skills.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate a broad knowledge of the biomedical sciences;
2. Demonstrate subject mastery in cancer, developmental, or regenerative biology;
3. Interpret the current literature in the field;
4. Design hypothesis-driven studies to address key questions in the field;
5. Make original contributions to the body of biomedical knowledge;
6. Demonstrate the principles of scientific and professional ethics;
7. Write effective scientific publications and grant proposals.*

*This outcome is not applicable to M.S. degree students.

## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a coursework track,

are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or *Student Guide*. Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Seminars (all requried)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar | 1 |
| **Religion** | | |
| REL_ ____ | Graduate-level religion course (RELE, RELR, or RELT) | 3 |
| **Program specific courses** | | **12** |
| Choose from the following: | | |
| ANAT 507 | Stem Cell Biology and Medicine | |
| ANAT 544 | Human Embryology Lecture | |
| BCHM 544 | Advanced Topics in Biochemistry | |
| BCHM 605 or BCHM 610 | Seminar in Stem Cells and Cancer Cancer Journal Club | |
| CDRB 555 | Biology of Cancer | |
| **Degree completion options** | | **8** |
| Coursework track: | | |
| Electives (8 units) | | |
| Research track: | | |
| BCHM 697 | Research | |
| IBGS 698 | Thesis (1-3 units) | |
| Elective (0-2 units) | | |
| **Total Units** | | **45** |

| | | |
|---|---|---|
| **Available Electives** | | |
| ANAT 548 | Introductory Flow Cytometry | 1 |
| BCHM 530 | Biochemical Basis of Human Disease SM | 2 |
| IBGS 525 | Translational Research Training | 2 |
| MDCJ 520 | Basis of Medical Genetics | 2 |
| MDCJ 560 | Basis of Medical Genetics | 2 |
| MICR 515 | Introduction to Bioinformatics and Genomics | 2 |
| MICR 530 | Immunology | 4 |
| MICR 537 | Selected Topics in Molecular Biology | 1-3 |
| PHSL 541 | Cell and Molecular Biology | 4 |
| PHSL 587 | Physiology of Reproduction | 2 |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

## Service learning requirement

This requirement may be met by taking IBGS 525 Translational Research Training or a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

Coursework track: a comprehensive written examination over the graduate coursework in lieu of preparing a thesis.

Research track: pass an oral examination given by their graduate guidance committee after the thesis has been completed.

## Normal time to complete the program

Two (2) years— based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 250) of the M.S. and Ph.D. degree programs.

# Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 61 units—as detailed in the table below—and must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or *Student Guide*. Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 503 | Biomedical Grant Writing | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Seminars (all required)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar (1) | 2 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| RELE 5__ Must be numbered 500 or above | | 3 |
| RELR 5__ Must be numbered 500 or above | | 3 |
| RELT 5__ Must be numbered 500 or above | | 3 |
| **Program specific courses** | | **6** |
| **Emphasis: Developmental/regenerative biology** | | |
| ANAT 507 | Stem Cell Biology and Medicine | |
| ANAT 544 | Human Embryology Lecture | |
| **Emphasis: Cancer biology** | | |
| BCHM 544 | Advanced Topics in Biochemistry | |
| BCHM 605 or BCHM 610 | Seminar in Stem Cells and Cancer Cancer Journal Club | |
| CDRB 555 | Biology of Cancer | |
| **Electives:** | | **6-12** |

| | | |
|---|---|---|
| Choose from the following and other courses as approved by advisor: | | |
| BCHM 530 | Biochemical Basis of Human Disease SM | |
| CDRB 550 | Clinical Exposure in Oncology | |
| IBGS 525 | Translational Research Training | |
| IBGS 537A | Special Topics in Biomedical Sciences | |
| MDCJ 560 | Basis of Medical Genetics | |
| MICR 515 | Introduction to Bioinformatics and Genomics | |
| MICR 530 | Immunology | |
| NSBB 506 | Fundamentals of Electrophysiology | |
| PHSL 541 | Cell and Molecular Biology | |
| PHSL 587 | Physiology of Reproduction | |
| **Research and dissertation** | | |
| BCHM 697 | Research (1-10) | 12 |
| IBGS 696 | Research Rotations (1) | 2 |
| IBGS 699 | Dissertation (1-5) | 1-5 |
| **Total Units** | | **61** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

## Service learning requirement

This requirement may be met by taking IBGS 525 Translational Research Training or a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

- Pass written and oral comprehensive examinations in order to advance to candidacy.
- Successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

## Normal time to complete the program

Four (4) years — full-time enrollment; part time permitted

## Comparison

See the comparison (p. 250) of the M.S. and Ph.D. degree programs.

# Cancer, Developmental and Regenerative Biology — M.S., Ph.D. Comparison

| | Course Title | MS | PhD |
|---|---|---|---|
| **Basic science core** | | | |
| IBGS 501 | Biomedical Communication and Integrity | 2.0 | 2.0 |
| IBGS 502 | Biomedical Information and Statistics | 2.0 | 2.0 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6.0 | 6.0 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6.0 | 6.0 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2.0 | 2.0 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2.0 | 2.0 |
| IBGS 503 | Biomedical Grant Writing | | 2.0 |
| **Totals** | | **20.0** | **22.0** |
| | **Course Title** | **MS** | **PhD** |
| **Seminars** | | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1.0 | 1.0 |
| IBGS 605 | Integrative Biology Presentation Seminar (1) | 1.0 | 2.0 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar[1] | | 1.0 |
| **Totals** | | **2.0** | **3.0** |
| | **Course Title** | **MS** | **PhD** |
| **Religion** | | | |
| REL_ ___ Graduate-level religion course (RELE, RELR, or RELT) | | | 9.0 |
| REL_ ___ Graduate-level religion course (RELE, RELR, or RELT) | | 3.0 | |
| **Totals** | | **3.0** | **9.0** |
| | **Course Title** | **MS** | **PhD** |
| **Program specific courses** | | | |
| See M.S. and Ph.D. degree programs for choice of courses | | 12.0 | 12.0 |
| **Totals** | | **12.0** | **12.0** |
| | **Course Title** | **MS** | **PhD** |
| **MS degree completion options** | | | |
| Required: | | 8.0 | |
| Coursework track: | | | |
| Electives (8 units) | | | |

| | | | |
|---|---|---|---|
| Research track: | | | |
| BCHM 697 | Research | | |
| IBGS 698 | Thesis (1-3 units) | | |
| Electives (0-2 units) | | | |
| **Totals** | | **8.0** | |
| | **Course Title** | **MS** | **PhD** |
| **PhD research/dissertation** | | | |
| BCHM 697 | Research (1-10) | | 12.0 |
| IBGS 696 | Research Rotations (1) | | 2.0 |
| IBGS 699 | Dissertation (1-5) | | 1.0 |
| **Totals** | | | **15.0** |
| **Overall Totals** | | **45.0** | **61.0** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

[2] May substitute with another graduate religion course with the same prefix and numbered 500 or above.

# Infection, Immunity, and Inflammation — M.S., Ph.D.

**Program director**
Ubaldo Soto

**Associate program director**
Mark Johnson

The core curriculum provides a broad background in molecular biology, immunology, and medical microbiology and infectious diseases. Advanced courses allow each student to fully develop an area of interest. Research strengths of the program include: signal transduction in bacteria, molecular genetics of virulence in bacteria, mechanisms of oxidative stress resistance, mechanisms of cell death, cellular and tumor immunology, normal and malignant immune cell development, autoimmunity, chaperonins and protein folding, mechanisms of posttranslational modification, and DNA restriction modification.

The thesis or research Master of Science degree provides training for individuals who will become technicians involved in biomedical research in universities or in the biotechnology industry, as well as medical technologists seeking specialized research training. The non-thesis Master of Science degree provides content appropriate for medical technologists preparing for the specialist in microbiology certification; for secondary teachers seeking advanced training in areas such as molecular biology, immunology, or microbiology; and for students seeking admission to professional schools, such as medicine or dentistry.

The Doctor of Philosophy degree is designed to prepare students for careers in independent research as well as teaching in a university, clinical, or biotechnology environment. Doctoral degree students are expected to develop creativity and independence in addition to technical skills.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Demonstrate a broad knowledge of the biomedical sciences;
2. Demonstrate subject mastery in molecular, cellular, and integrative aspects of microbiology and immunity/inflammation;
3. Interpret the current literature in microbiology and immunity/inflammation;
4. Make original contributions to the body of biomedical knowledge;
5. Exhibit the principles of scientific and professional ethics;
6. Demonstrate the process of applying for external funding.*

*This learning outcome is not applicable to M.S. degree students.

## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a coursework track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Seminars (all required)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar | 1 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| REL_ ____ | Graduate-level religion course (RELE, RELR, or RELT) | 3 |
| **Program specific courses** | | |
| Choose from the following: | | 9 |
| ANAT 548 | Introductory Flow Cytometry [3] | |
| MICR 515 | Introduction to Bioinformatics and Genomics | |
| MICR 521 | Medical Microbiology [2] | |

| | | |
|---|---|---|
| MICR 530 | Immunology [3] | |
| MICR 540 | Physiology and Molecular Genetics of Microbes [2] | |
| MICR 570 | Mechanisms of Microbial Pathogenesis [2] | |
| MICR 624 | Special Problems in Microbiology | |
| MICR 625 | Independent Study in Microbiology Literature | |
| **Degree completion options** | | **11** |
| Coursework track: | | |
| Electives (Choose 11 additional units from available electives listed below or from program-specific courses above) | | |
| Research track: | | |
| Elective (3) | | |
| MICR 697 | Research (5 units) | |
| IBGS 698 | Thesis (1-3 units) | |
| **Total Units** | | **45** |

| | | |
|---|---|---|
| **Available Electives** | | |
| ANAT 507 | Stem Cell Biology and Medicine | 4 |
| BCHM 515 | Introduction to Bioinformatics | 2 |
| BCHM 544 | Advanced Topics in Biochemistry | 2-4 |
| IBGS 525 | Translational Research Training | 2 |
| MICR 537 | Selected Topics in Molecular Biology [2, 3] | 1-3 |
| PHRM 584 | Drug Metabolism and Biochemical Pharmacology | 4 |

1 Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

2 Must take at least 3 units of coursework with a clear microbiology focus.

3 Must take at least 3 units with a clear immunology focus.

## Service learning requirement

This requirement may be met by taking IBGS 525 Translational Research Training or a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

Coursework track: a comprehensive written examination over the graduate coursework in lieu of preparing a thesis.

Research track: pass an oral examination given by their graduate guidance committee after the thesis has been completed.

## Normal time to complete the program

Two (2) years — based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 253) of the M.S. and Ph.D. degree programs.

# Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 60 units—as detailed in the table below—and must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 503 | Biomedical Grant Writing | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Seminars (all required)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar [1] | 2 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| RELE 5__ Must be numbered 500 or above | | 3 |
| RELR 5__ Must be numbered 500 or above | | 3 |
| RELT 5__ Must be numbered 500 or above | | 3 |
| **Program specific courses** | | |
| Choose from the following: | | 12 |
| ANAT 548 | Introductory Flow Cytometry [3] | |
| MICR 515 | Introduction to Bioinformatics and Genomics | |
| MICR 521 | Medical Microbiology [2] | |
| MICR 530 | Immunology [3] | |
| MICR 540 | Physiology and Molecular Genetics of Microbes [2] | |
| MICR 570 | Mechanisms of Microbial Pathogenesis [2] | |
| MICR 624 | Special Problems in Microbiology | |
| MICR 625 | Independent Study in Microbiology Literature (2-4) | |
| **Research** | | |
| IBGS 696 | Research Rotations (1) | 2 |
| MICR 697 | Research (1-7) | 12 |
| IBGS 699 | Dissertation (1-5) | 2-5 |
| **Total Units** | | **62** |

| | | |
|---|---|---|
| **Available Electives** | | |
| ANAT 507 | Stem Cell Biology and Medicine | 4 |
| BCHM 515 | Introduction to Bioinformatics | 2 |
| BCHM 544 | Advanced Topics in Biochemistry | 2-4 |
| IBGS 525 | Translational Research Training | 2 |
| MICR 537 | Selected Topics in Molecular Biology [2, 3] | 1-3 |
| PHRM 584 | Drug Metabolism and Biochemical Pharmacology | 4 |

1 Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

2 Must take at least 3 units of coursework with a clear microbiology focus.

3 Must take at least 3 units with a clear immunology focus.

## Service learning requirement

This requirement may be met by taking IBGS 525 Translational Research Training or a religion course designated as a service learning course. For more information about this requirement and a list of religion courses

that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

- Pass both written and oral comprehensive examinations in order to advance to candidacy.
- Successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

## Normal time to complete the program

Five (5) years — based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 253) of the M.S. and Ph.D.degree programs.

# Infection, Immunity and Inflammation — M.S., Ph.D. Comparison

| | Course Title | MS | PhD |
|---|---|---|---|
| **Basic science core** | | | |
| IBGS 501 | Biomedical Communication and Integrity | 2.0 | 2.0 |
| IBGS 502 | Biomedical Information and Statistics | 2.0 | 2.0 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6.0 | 6.0 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6.0 | 6.0 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2.0 | 2.0 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2.0 | 2.0 |
| IBGS 503 | Biomedical Grant Writing | | 2.0 |
| **Totals** | | **20.0** | **22.0** |
| | **Course Title** | **MS** | **PhD** |
| **Seminars** | | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1.0 | 1.0 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar[1] | 1.0 | 1.0 |
| IBGS 605 | Integrative Biology Presentation Seminar (1) | 1.0 | 2.0 |
| **Totals** | | **2.0** | **3.0** |
| | **Course Title** | **MS** | **PhD** |
| **Religion** | | | |
| RELE 525 | Ethics for Scientists | | 3.0 |
| RELR 588 | Personal and Family Wholeness | | 3.0 |
| RELT 617 | Seminar in Religion and the Sciences | | 3.0 |
| REL_ ___ Graduate-level religion course (RELE, RELR, or RELT) | | 3.0 | |
| **Totals** | | **3.0** | **9.0** |
| | **Course Title** | **MS** | **PhD** |
| **Program specific courses** | | | |
| ANAT 548 | Introductory Flow Cytometry[3] | | |
| MICR 515 | Introduction to Bioinformatics and Genomics | | |
| MICR 521 | Medical Microbiology[2] | | |
| MICR 530 | Immunology[3] | | |
| MICR 540 | Physiology and Molecular Genetics of Microbes[2] | | |
| MICR 570 | Mechanisms of Microbial Pathogenesis[2] | | |
| MICR 624 | Special Problems in Microbiology | | |
| MICR 625 | Independent Study in Microbiology Literature | | |
| Choose from the above: | | | 12.0 |
| Choose from the above: | | 9.0 | |
| **Totals** | | **9.0** | **12.0** |
| | **Course Title** | **MS** | **PhD** |
| **MS degree completion options** | | | |
| Required: | | 11.0 | |
| Course work track: | | | |
| Electives (choose 8 units from available electives listed below) | | | |
| Research track: | | | |

| | | | |
|---|---|---|---|
| MICR 697 | Research | | |
| IBGS 698 | Thesis | | |
| **Totals** | | **11.0** | |
| | **Course Title** | **MS** | **PhD** |
| **PhD research/dissertation** | | | |
| IBGS 696 | Research Rotations (1) | | 2.0 |
| MICR 697 | Research (1-7) | | 12.0 |
| IBGS 699 | Dissertation (1-5) | | 2.0 |
| **Totals** | | | **16.0** |
| **Overall Totals** | | **45.0** | **62.0** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

[2] Must take at least 3 units of coursework with a clear microbiology focus.

[3] Must take at least 3 units with a clear immunology focus.

# Neuroscience, Systems Biology, and Bioengineering — M.S., Ph.D.

**Program director**
Michael Pecaut

**Associate program director**
Christopher Wilson

The core curriculum provides a broad background in molecular biology, immunology, and medical microbiology and infectious diseases. Advanced courses allow each student to fully develop an area of interest. Research strengths of the program include: cellular and systems neurosciences, bioinformatics, molecular biology, computational modeling, biostatistics and data analytics, radiation physics, functional/structural imaging, *in vivo* and *in vitro* physiology, and biomedical engineering.

The thesis or research option for the Master of Science degree provides training for individuals who will become technicians involved in biomedical research in universities or in the biotechnology industry as well as for medical technologists seeking specialized research training. The non-thesis Master of Science degree option provides content appropriate for secondary school teachers seeking advanced training in areas such as neuroscience, systems biology, bioinformatics, and medical imaging, as well as for for students seeking admission to a professional school such as medicine or dentistry.

The Doctor of Philosophy degree is designed to prepare students for a career in independent research and teaching in a university, clinical, or biotechnology environment. Doctoral degree students are expected to develop creativity and independence in addition to technical skills.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Articulate fundamental concepts in the biomedical sciences;
2. Integrate aspects of neuroscience, systems biology, or bioengineering;
3. Interpret the literature within neuroscience, systems biology, or bioengineering;
4. Demonstrate the principles of scientific and professional ethics;
5. Make original contributions to the body of biomedical knowledge;
6. Explain the process of applying for external funding.*
   *This learning outcome does not apply to M.S. degree students.

## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a coursework track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| **Seminars (all required)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar | 1 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| REL_ ____ | Graduate-level religion course (RELE, RELR, or RELT) | 3 |
| **Program specific courses** | | |
| NSBB 552 | Data Analytics | 3 |
| NSBB 526 | Journal Club (1) [2] | 2 |
| Choose from the following three (3) areas: | | 11 |
| **Neuroscience** | | |
| Required core: (10-15 units) | | |
| ANAT 516 | Neuroscience GS | |
| NSBB 500 | Foundations in Neuroscience | |
| NSBB 504 | Neuroscience Methods | |
| NSBB 506 | Fundamentals of Electrophysiology | |
| NSBB 507 | History of Neuroscience | |
| NSBB 520 | Neuroinflammation: Neuron-Glia Interactions | |
| PHRM 554 | Neuropharmacology | |

| | | |
|---|---|---|
| PSYC 551 | Psychobiological Foundations | |
| Electives: (5-6 units) | | |
| NSBB 510 | Cortical Circuits | |
| NSBB 515 | Contemporary Neuroimaging | |
| **Systems biology** | | |
| Required core: (10-15 units) | | |
| MICR 540 | Physiology and Molecular Genetics of Microbes | |
| NSBB 551 | Systems Biology – A Practical Approach | |
| NSBB 553 | Advanced Bioinformatics — Sequence and Genome Analysis | |
| NSBB 555 | Genomics and Bioinformatics: Tools | |
| NSBB 557 | Integration of Computational and Experimental Biology | |
| STAT 521 | Biostatistics I | |
| STAT 522 | Biostatistics II | |
| Electives: (7-12) [3] | | |
| HLIF 520 | Data Management: Modeling and Development | |
| HLIF 530 | Data Analytics and Decision Support | |
| IBGS 525 | Translational Research Training | |
| MDCJ 560 | Basis of Medical Genetics | |
| STAT 523 | Biostatistics III | |
| **Bioengineering** | | |
| Required core: (10 units) | | |
| NSBB 571 | Engineering Analysis of Physiological Systems | |
| NSBB 572 | Cellular and Molecular Engineering | |
| NSBB 575 | Orthopaedic Regenerative Engineering and Mechanobiology | |
| Electives: (10-18 units) [2] | | |
| NSBB 579 | Bioengineering Fabrication | |
| NSBB 580 | Medical Imaging Physics | |
| NSBB 584 | Medical Image Analysis | |
| NSBB 585 | Radiation Detectors for Medical Applications | |
| NSBB 587 | Radiation Therapy Physics | |
| **Degree completion options** | | **11** |
| Coursework track: | | |
| Electives (Choose 11 units from available electives listed in above areas of specialization)) | | |
| Research track: | | |
| Elective (0-2 units) | | |
| NSBB 697 | Research (8 units) [3] | |
| IBGS 698 | Thesis (1-3 units) | |
| **Total Units** | | **48** |

1 Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

2 Credit toward degree for the first two registrations only.

3 With instructor, mentor and program director approval, students may opt to take classes from another track or program to focus on a specific type of research topic (e.g., neuroscience, immunology, cancer).

## Service learning requirement

This requirement may be met by taking a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

Coursework track: a comprehensive written examination over the graduate course work in lieu of preparing a thesis.

Research track: pass an oral examination given by their graduate guidance committee after the thesis has been completed.

## Normal time to complete the program

Two (2) years — based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 257) of the M.S. and Ph.D. degree programs.

# Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 70 units—as detailed in the table below—and must maintain a G.P.A. of at least 3.0. Based on research dissertation focus, other courses may be required as recommended by the dissertation committee and approved by School of Medicine graduate academic affairs committee. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or *Student Guide*. Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 503 | Biomedical Grant Writing | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Seminars (all required)** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar [1] | 2 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| RELE 5__ | Must be numbered 500 or above | 3 |
| RELR 5__ | Must be numbered 500 or above | 3 |
| RELT 5__ | Must be numbered 500 or above | 3 |
| **Program specific courses** | | |
| NSBB 526 | Journal Club (1) [2] | 2 |
| NSBB 552 | Data Analytics | 3 |
| Choose from the following three (3) areas: | | 18 |
| **Neuroscience** | | |
| Required: (11-18 units) | | |
| ANAT 516 | Neuroscience GS | |
| NSBB 500 | Foundations in Neuroscience | |
| NSBB 504 | Neuroscience Methods | |
| Electives: (2-6 units) | | |
| NSBB 506 | Fundamentals of Electrophysiology | |

| | | |
|---|---|---|
| NSBB 507 | History of Neuroscience | |
| NSBB 510 | Cortical Circuits | |
| NSBB 515 | Contemporary Neuroimaging | |
| NSBB 520 | Neuroinflammation: Neuron-Glia Interactions | |
| PHRM 554 | Neuropharmacology | |
| **Systems biology** | | |
| Required: (10-15 units) | | |
| NSBB 551 | Systems Biology – A Practical Approach | |
| STAT 521 | Biostatistics I | |
| STAT 522 | Biostatistics II | |
| Electives: (2-10 units) | | |
| HLIF 520 | Data Management: Modeling and Development | |
| NSBB 553 | Advanced Bioinformatics — Sequence and Genome Analysis | |
| NSBB 555 | Genomics and Bioinformatics: Tools | |
| NSBB 557 | Integration of Computational and Experimental Biology | |
| STAT 523 | Biostatistics III | |
| **Bioengineering** | | |
| Required: (10 units) | | |
| NSBB 557 | Integration of Computational and Experimental Biology | |
| NSBB 572 | Cellular and Molecular Engineering | |
| NSBB 579 | Bioengineering Fabrication | |
| Electives: (2-10 units) | | |
| NSBB 575 | Orthopaedic Regenerative Engineering and Mechanobiology | |
| NSBB 580 | Medical Imaging Physics | |
| NSBB 584 | Medical Image Analysis | |
| NSBB 585 | Radiation Detectors for Medical Applications | |
| NSBB 587 | Radiation Therapy Physics | |
| **Research** | | |
| IBGS 696 | Research Rotations (1) [2] | 2 |
| NSBB 697 | Research (1-8) [2] | 12 |
| IBGS 699 | Dissertation (1-5) | 2-5 |
| **Total Units** | | **73** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

[2] Credit toward degree for the first two registrations only.

## Service learning requirement

This requirement may be met by taking a religion course designated as a service learning course. For more information about this requirement and a list of religion courses that fulfill it, see section on academic service learning (p. 35) in this CATALOG.

## Noncourse requirements

- Pass both written and oral comprehensive examinations in order to advance to candidacy.
- Successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

## Normal time to complete the program

Five (5) years — based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 257) of the M.S. and Ph.D. degree programs.

# Neuroscience, Systems Biology and BioEngineering — M.S., Ph.D. Comparison

| | Course Title | MS | PhD |
|---|---|---|---|
| **Basic science core** | | | |
| IBGS 501 | Biomedical Communication and Integrity | 2.0 | 2.0 |
| IBGS 502 | Biomedical Information and Statistics | 2.0 | 2.0 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6.0 | 6.0 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6.0 | 6.0 |
| IBGS 503 | Biomedical Grant Writing | | 2.0 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | | 2.0 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | | 2.0 |
| **Totals** | | **16.0** | **22.0** |
| | **Course Title** | **MS** | **PhD** |
| **Seminars** | | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1.0 | 1.0 |
| IBGS 605 | Integrative Biology Presentation Seminar (1) | 1.0 | 2.0 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar (1) | 1.0 | 1.0 |
| **Totals** | | **2.0** | **3.0** |
| | **Course Title** | **MS** | **PhD** |
| **Religion** | | | |
| RELE 5__ Must be numbered 500 or above | | | 3.0 |
| RELR 5__ Must be numbered 500 or above | | | 3.0 |
| RELT 5__ Must be numbered 500 or above | | | 3.0 |
| REL_ 5___ Must be numbered 500 or above with an RELE, RELR, or RELT prefix | | 3.0 | |
| **Totals** | | **3.0** | **9.0** |
| | **Course Title** | **MS** | **PhD** |
| **Program specific courses** | | | |
| See Ph.D. degree program for choice of courses | | | 23.0 |
| See M.S. degree program for choice of courses | | 16.0 | |
| **Totals** | | **16.0** | **23.0** |
| | **Course Title** | **MS** | **PhD** |
| **MS degree completion options** | | | |
| Required: | | 11.0 | |
| Coursework track: | | | |
| Electives (11 units) | | | |
| Research/Thesis track | | | |
| Electives (0-2 units) | | | |
| IBGS 698 | Thesis | | |
| NSBB 697 | Research | | |
| **Totals** | | **11.0** | |
| | **Course Title** | **MS** | **PhD** |
| **PhD research/dissertation** | | | |
| NSBB 697 | Research (1-8) | | 12.0 |
| IBGS 696 | Research Rotations (1) | | 2.0 |
| IBGS 699 | Dissertation (1-5) | | 2.0 |
| **Totals** | | | **16.0** |
| **Overall Totals** | | **48.0** | **73.0** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

[2] At least 2 units must be in a techniques course and 2 units in a didactic literature-based course.

# Department of Earth and Biological Sciences

## Graduate degree programs

### Master of Science and Doctor of Philosophy

The Department of Earth and Biological Sciences (EBS) within the School of Medicine at Loma Linda University offers Master of Science degrees in biology, geology, and natural sciences; Doctor of Philosophy degrees in biology and earth science; and Bachelor of Science degrees in geology and environmental sciences.

The goal of the department is to provide students with the best possible opportunities for graduate study in these areas; with strong preparation for careers in the application of research in or teaching of biology, geology, paleontology, or earth systems science.

## Student life

Information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies, and is available to each registered student, who needs to be familiar with the contents of the *Student Handbook* and the School of Medicine's "Orange Book" of *Student Guidelines, Policies, and Procedures*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

## Financial information

### Schedule of charges (2020-2021)

EBS strives to make it possible for every qualified student to successfully complete his or her degree in a timely manner. For many students, financial arrangements may be key elements in providing opportunity for timely completion. The department therefore makes available to as many qualified students as possible various forms of financial aid within the limits of the departmental budget and circumstances. Such financial aid may take the form of research assistantships (RA) and tuition waivers, or other special awards. It is hoped that these incentives will not only help make a student's graduate career possible, but will also strengthen and expand their opportunities for learning while enrolled in the University. Other financial aid, such as student loans or other scholarships, are available through the Student Financial Aid office in the Student Services building. However, every student is responsible for the enrollment fee each quarter. It is not covered by tuition waivers. If a student is awarded an RA, they will be expected to document at least 30 hours per pay period (two [2] weeks) on departmental and research-related projects. Ph.D. degree students will be expected to document at least 40 hours per pay period on their project in order to continue receiving the RA. Please note that RAs are awarded for a set amount for the year (M.S. degree—$7,500; Ph.D. degree—$17,000). This amount is paid out monthly after the first full month of work.

### Tuition

| | |
|---|---|
| $580 | Per unit, graduate credit |
| $290 | Per unit, undergraduate credit; $3,480 per quarter |
| $350 | Per unit, audit, graduate |

### Special charges*

| | |
|---|---|
| $60 | Application fee |
| $823 | Enrollment fee per quarter |
| $60 | Fee for credit by examination |
| $30 | Per unit fee to have credit earned by examination appear on transcript |

* Programs may have additional fees.

### Chair

Suzanne E. Phillips

### Primary faculty

Leonard R. Brand

Ronald L. Carter

Stephen G. Dunbar

William K. Hayes

George Jackson

Ana María Martínez Ardila

Kevin E. Nick

Suzanne E. Phillips

### Secondary faculty

V. Leroy Leggitt

### Adjunct faculty

Gordon J. Atkins

Stanley M. Awramik

Roberto E. Biaggi

Douglas R. Britton

Benjamin Clausen

Raul Esperante

L. James Gibson, Jr.

H. Thomas Goodwin

Matthew McLain

Ronald Nalin

Ariel Roth

Timothy G. Standish

# Admissions

In addition to Loma Linda University admission requirements (p. 23), the applicant must also complete the following requirements:

### Application procedure

1. The application instructions, available on the Web at <llu.edu/central/apply (http://www.llu.edu/central/apply/)>, allow students to apply online and begin an application, as indicated in the general University section.
2. A personal interview is often desirable and is recommended by the Department of Earth and Biological Sciences. The interview should be arranged with the coordinator of either the Geology Program or the Biology Program.

### Acceptance procedure

1. When the program that the student wishes to enter has evaluated the applications and made its recommendation, the dean of the school in which the program is housed takes official action and notifies the applicant. The applicant must respond affirmatively before becoming eligible to register for programs within the Department of Earth and Biological Sciences
2. As part of registration, accepted students will be asked to file with Student Health Service a medical history with evidence of certain immunizations.
3. New students are required to pass a background check before they register for courses.

## From master's to Ph.D. degree

A graduate student at this University may proceed first to a master's degree. If at the time of application the student wishes to qualify for the Doctor of Philosophy degree, this intention should be declared—even if the first objective is a master's degree.

If after admission to the master's degree program a student wishes to go on to the doctoral degree, an abbreviated application should be completed and submitted—along with appropriate supporting documents—to the school in which the program is housed. If the master's degree is sought, the student will be expected to complete that degree before starting any doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field and are of equivalent quality and scope to their doctoral program.

## Undergraduate programs

### Admission requirements

High school and college subject requirements for each program are outlined in the respective programs. Students are required to provide evidence of completion (official transcript) of high school in order to be granted admission to undergraduate programs in any of the schools of the University. A high school diploma or its equivalent, the GED, is required.

To be eligible for admission, applicants must have completed a minimum of 96 quarter units or 64 semester units at an accredited college or university. A minimum grade of C (2.0) is required for all transfer courses unless otherwise specified in specific program requirements; C- grades are not acceptable for transfer. An overall college G.P.A. of at least 2.5 to 3.0 is expected, depending on the program to which the student applies.

## Graduate degree requirements

### Admission requirements

A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to graduate programs in the Department of Earth and Biological Sciences. Transcripts of the applicant's scholastic record should show appropriate preparation, in grades and content, for the curriculum chosen. Since there is some variation in the pattern of undergraduate courses prescribed by different programs, the applicant should note the specific requirements of the chosen program. Deficiencies may be fulfilled while enrolled; and prerequisites must be completed prior to matriculation.

### Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Depending on program-specific criteria, some students with an overall grade point average between 2.5 and 3.0 may be admitted provisionally to graduate standing, provided the grades during the junior and senior years are superior or there is other evidence of capability for completing the program.

### Graduate Record Examination

Scores on the general test of the Graduate Record Examination (GRE) are required for application for admission to many degree programs. New test scores are needed if it has been more than five years since the last test was taken. Applicants are advised to request information specific to their proposed program of study.

For complete information about the GRE, please visit their website at <http://www.ets.org/gre/>; or write to Educational Testing Service, 1947 Center Street, Berkeley, CA 94701 (for the West); and P.O. Box 6000, Princeton, NJ 08541 (for the East). For GRE publications (including study materials), call 800/537-3160.

# Programs

- Biology — M.S. (p. 259), Ph.D. (p. 259)
- Earth Science — Ph.D. (p. 263)
- Environmental Sciences — B.S. (p. 266)
- Geology — B.S. (p. 269), M.S. (p. 271)
- Natural Sciences — M.S. (p. 273)

# Biology — M.S., Ph.D.

The Biology Program leading to the Master of Science and Doctor of Philosophy degrees is offered by the Department of Earth and Biological Sciences. M.S. and Ph.D. curricula provide a broad and unified approach to the life sciences, as well as specialization—as evidenced by the conduct of significant, original research; and in the selection of courses related to the area of research interest. Study in various areas, from molecular biology to natural history, is available to the student seeking preparation for teaching or for research in modern biology. Some areas of specialization are animal behavior, animal physiology, molecular systematics, ecological physiology, behavioral ecology, conservation biology, marine biology, and paleontology.

## Objectives

The Biology Program strives to:

- Instill in students the values of honesty, scientific integrity, careful research, and critical independent thinking.

- Provide the tools and intellectual environment that will facilitate the biologist's attainment of the highest potential in scholarship, research, teaching, and interdisciplinary service learning.
- Challenge graduate students to consider the relationships among science, faith, and societal responsibility.

## Rosario Beach summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research for students of this program, in consultation with their advisors.

## Programs

- Biology — M.S. (p. 260), Ph.D. (p. 261)

# Biology – M.S.

**Program director**
Stephen G. Dunbar

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Demonstrate critical independent evaluation of published scientific literature;
2. Plan and carry out independent research;
3. Critically evaluate philosophies of science and their relation to issues of public interest;
4. Demonstrate proficient oral and written skills in communicating science topics;
5. Demonstrate professional aptitude and attitudes.

## Student financial aid

Assistantships for research and/or teaching are available in the Department of Earth and Biological Sciences on a competitive basis. Further information can be obtained, including contact information, from the department web page at <http://www.llu.edu/medicine/ebs/index.page? (http://medicine.llu.edu/research/department-earth-and-biological-sciences/)>. Qualified students are also encouraged to seek fellowships from federal and private agencies with the help of their advisors.

## General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the relevant sections of this catalog and of the school in which this program is housed.

### Seminar attendance requirements

All graduate students in residence must register for and attend seminars (BIOL 607) at this university each quarter.

### Research proposal

Students are urged to select a research project early in their programs, in consultation with faculty members and approved by the department. A written research proposal and oral defense of the student's proposed research should be completed early in the third quarter of study. A comprehensive plan for completion of the degree will be approved at that time.

### Registration and tuition after normative time

This program is designed for M.S. degree students to finish within the normative time of two years. In certain circumstances, students may require slightly more time for completion. Students who are past the normative time for completing their degrees must register for two units without a tuition waiver each quarter, until they complete their degrees. After their normative time, students may request a one-year grace period that must be approved by the department faculty.

### Thesis

The written thesis must be a completed significant, original research; and be formatted in the style of an appropriate scientific journal, since the manuscript is likely to be submitted for publication.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following requirements:

- Expected undergraduate preparation includes a bachelor's degree with a biology major or equivalent from an accredited college or university, including the following courses*:

  Required:

  - General biology (one year)
  - General chemistry (one year)
  - Genetics (one course)
  - Organic chemistry (one year)
  - General physics (one year)
  - Precalculus
  - Statistics (one course)

  Recommended:

  - Biochemistry
  - Calculus

*Some of these courses may be taken during residence at this University, with the approval of the EBS admissions committee.

- An undergraduate G.P.A. of at least 3.0 is expected
- an acceptable score on the general Graduate Record Examination (GRE) (the subject GRE is not required)

It is also recommended that applicants contact the department at <ebs@llu.edu>.

### Application time

Applications are accepted at any time, although students are usually admitted for Autumn Quarter. Review of applications begin in February for Autumn Quarter admission. Research assistantships are competitively awarded.

## Program requirements

A total of 48 units of courses and research is required, including at least 36 at or above the 500 level. See below for a list of courses.

All values below are in quarter units

| | | |
|---|---|---|
| **Required** | | |
| Additional courses beyond those listed below will be chosen in consultation with the student's advisor | | |
| BIOL 502 | Orientation to Graduate Biology | 1 |
| BIOL 545 | Genetics and Speciation | 4 |
| BIOL 558 | Philosophy of Science [1] | 4 |
| BIOL 607 | Seminar in Biology [2] | 3 |
| BIOL 616 | Research and Experimental Design | 2 |
| BIOL 617 | Proposal Writing and Grantsmanship | 2 |
| BIOL 664 | Science Communication Outreach [4] | 1 |
| **Select one or more course(s) from any of the following areas for at least 6 units** | | **6** |
| Biological systems | | |
| BIOL 517 | Ecological Physiology | |
| BIOL 555 | Molecular Genetics | |
| MICR 540 | Physiology and Molecular Genetics of Microbes | |
| MICR 570 | Mechanisms of Microbial Pathogenesis | |
| Ecology | | |
| BIOL 444 | Paleobotany | |
| BIOL 505 | Marine Biology | |
| BIOL 515 | Biogeography | |
| BIOL 539 | Behavioral Ecology | |
| BIOL 546 | Techniques in Vertebrate Ecology | |
| BIOL 549 | Biodiversity and Conservation | |
| Organismal | | |
| BIOL 409 | Mammalogy | |
| BIOL 426 | Invertebrate Paleontology | |
| BIOL 427 | Vertebrate Paleontology | |
| BIOL 504 | Biology of Marine Invertebrates | |
| BIOL 539 | Behavioral Ecology | |
| GEOL 444 | Paleobotany | |
| GEOL 545 | Taphonomy | |
| **Religion** | | |
| REL_5__ | Graduate-level Religion | 3 |
| **Electives** | | |
| Additional courses required by the student's guidance committee to complete the total units required for the degree [3] | | 8 |
| ANAT 516 | Neuroscience GS | |
| ANAT 542 | Cell Structure and Function GS | |
| BCHM 515 | Introduction to Bioinformatics | |
| **Research** | | |
| Typically research units will be graded each quarter and can be repeated for additional credit | | |
| BIOL 698 | Thesis Research (1-8) | 15 |
| **Total Units** | | **49** |

1. BIOL 559 Philosophy of Science and Origins required for students who have taken BIOL 475 Philosophy of Science and Origins or equivalent
2. Each quarter in residence; 0.5 unit per quarter (Total units required may very depending on the number of quarters a student is on campus.)
3. In addition to this list, courses may also be chosen from unused courses listed above for biological systems, ecology, and organismal biology. When choosing elective, keep in mind that a minimum of 44 units for the M.S. degree must be numbered 500 or above.
4. Fulfills service learning requirement

## Noncourse requirements

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

- Completing all deficiencies and corequisites.
- Selecting a research committee.
- Completing an approved written research proposal.
- Passing the oral defense of the research proposal.
- Being recommended by the program faculty (should be completed by the end of the third quarter of study).

### Defense of thesis

An oral presentation and defense of the thesis, including final oral examination on the student's field of study, are required.

### Grade requirement for graduation

All courses applied toward a graduate degree must have a grade of B or higher.

## Length of program

Two (2) years — based on full-time enrollment; part time is permitted.

# Biology — Ph.D.

**Program director**
Stephen G. Dunbar

# Program learning outcomes

At the end of this program, the student should be able to:

1. Demonstrate critical independent thinking;
2. Plan and carry out independent research;
3. Critically evaluate links between philosophies of science and societal responsibilities;
4. Effectively communicate professional practice through oral and written skills;
5. Demonstrate a professional aptitude and attitude.

# General requirements

## Seminar attendance requirements

All graduate students in residence must register for and attend Seminars (BIOL 607) each quarter at Loma Linda University.

## Teaching experience

Teaching is recommended for at least one quarter. This experience may be obtained through laboratory teaching, or it may include presenting lectures for a course in consultation with the student's major professor and the course instructor.

### Research proposal

A written research proposal and oral defense of the student's proposed research should be completed early in the Spring Quarter.

### Comprehensive

A written and oral comprehensive is required after the first summer of research. The student is required to provide a written report in the form of a publishable manuscript and to orally defend previous research in front of their research committee by the end of the Winter Quarter following the first summer of research work.

### Dissertation

The written dissertation must demonstrate completion of significant, original research; and must be written in publishable paper format. At least one manuscript from the dissertation must be submitted for publication before the Ph.D. degree is granted.

### Professional development

Ph.D. degree students are expected to publish papers, present papers at scientific meetings, and submit research grant proposals.

### Registration and tuition after normative time

The program is designed for completion in the normative time of four years. In certain circumstances, students may need more time for completion. Students are required to be registered every quarter until the dissertation is completed and defended. For details, see the continuous enrollment and personal leave of absence policies (p. 36) listed in this CATALOG. Students who go beyond the normative time for completing their degree must register for two (2) units without a tuition waiver each quarter until they complete their degree. After their normative time, students may request a one-year grace period that must be approved by the department faculty.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following:

- A bachelor's degree with a biology major (M.S. degree recommended) from an accredited college or university
- An acceptable score on the general GRE examination (the subject GRE is not required)
- Recommended G.P.A. of 3.5 or higher in a M.S. degree program
- Complete the following courses*:

  Required:

  - General biology (one year)
  - General chemistry (one year)
  - General physics (one year)
  - Genetics (one course)
  - Organic chemistry (one year)
  - Precalculus
  - Statistics (one course)

  Recommended:

  - Biochemistry
  - Calculus

*Some courses may be taken during residence at this university, with the approval of the EBS admissions committee.

*Prerequisites may be waived for applicants who enter the program with a masters degree in a biological discipline.

### Application

Applications are accepted at any time. Review of applications begins in February for Autumn Quarter admission. Research assistantships are competitively awarded.

It is also recommended that applicants contact the department at <ebs@llu.edu>.

## Program requirements

A minimum of 65 units of didactic and research coursework is required, including at least 53 at or above the 500 level. See below for a list of courses. The student's advisory committee may require the student to take additional courses as electives

All values below are in quarter units.

| | | |
|---|---|---|
| **Required** | | |
| Additional courses beyond those listed below will be chosen in consultation with the student's advisor | | |
| BIOL 502 | Orientation to Graduate Biology | 1 |
| BIOL 545 | Genetics and Speciation | 4 |
| BIOL 558 | Philosophy of Science [1] | 4 |
| BIOL 607 | Seminar in Biology [2] | 6 |
| BIOL 616 | Research and Experimental Design | 2 |
| BIOL 617 | Proposal Writing and Grantsmanship | 2 |
| BIOL 664 | Science Communication Outreach | 1 |
| **Select course(s) from each of the following areas** | | |
| Biological systems | | 2 |
| BIOL 517 | Ecological Physiology | |
| BIOL 555 | Molecular Genetics | |
| MICR 540 | Physiology and Molecular Genetics of Microbes | |
| MICR 570 | Mechanisms of Microbial Pathogenesis | |
| Ecology | | 2 |
| BIOL 444 | Paleobotany | |
| BIOL 505 | Marine Biology | |
| BIOL 515 | Biogeography | |
| BIOL 539 | Behavioral Ecology | |
| BIOL 546 | Techniques in Vertebrate Ecology | |
| BIOL 549 | Biodiversity and Conservation | |
| Organismal biology | | 2 |
| BIOL 409 | Mammalogy | |
| BIOL 426 | Invertebrate Paleontology | |
| BIOL 427 | Vertebrate Paleontology | |
| BIOL 444 | Paleobotany | |
| BIOL 504 | Biology of Marine Invertebrates | |
| BIOL 539 | Behavioral Ecology | |
| GEOL 545 | Taphonomy | |
| **Religion** | | |
| Select one course with the RELT prefix: | | 3 |
| RELT 527 | The Bible and Ecology | |

| | | |
|---|---|---|
| RELT 558 | Old Testament Thought | |
| RELT 559 | New Testament Thought | |
| RELT 560 | Jesus the Revealer: The Message of the Gospel of John | |
| RELT 564 | Apostle of Hope: The Life, Letters, and Legacy of Paul | |
| RELT 565 | Vision of Healing: The Message of the Book of Revelation | |
| RELE 5__ | Graduate-level Ethics | 3 |
| RELR 5__ | Graduate-level Relational | 3 |
| **Electives** | | |
| Additional courses required by the student's guidance committee to complete the total units required for the degree [3] | | 10 |
| ANAT 516 | Neuroscience GS | |
| ANAT 542 | Cell Structure and Function GS | |
| BCHM 515 | Introduction to Bioinformatics | |
| **Research** | | |
| Typically research units will be graded each quarter and can be repeated for additional credit | | |
| BIOL 699 | Dissertation Research (1-8) | 21 |
| **Total Units** | | **66** |

[1] BIOL 559 Philosophy of Science and Origins required for students who have taken BIOL 475 Philosophy of Science and Origins or equivalent

[2] each quarter in residence; 0.5 unit per quarter (Total units required may very depending on the number of quarters a student is on campus.)

[3] In addition to this list, courses may also be chosen from unused courses listed above for biological systems, ecology, and organismal biology. When choosing elective, keep in mind that a maximum of 12 units below the 500 level may be applied to the 65 units for the Ph.D. degree.

## Noncourse requirements

## Comprehensive examination

An oral comprehensive examination is given in connection with a written and oral presentation of an initial research project approved by the student's guidance committee. Its purpose is to measure the student's knowledge of their field of study, and their ability to find, understand, and synthesize the research literature on a topic, and to conduct original research. The oral examination covers the student's field of study, as well as defending the research. The comprehensive exam will take place during the Autumn Quarter of the second year, after the first summer of research.

### Advancement to candidacy

Students may apply for advancement to candidacy after:

- Completing all deficiencies and corequisites.
- Passing the comprehensive examinations.
- Selecting a research committee.
- Completing an approved written and oral research proposal and budget presentation for the research committee.
- Being recommended by the department faculty.

### Defense of dissertation

An oral dissertation presentation and defense are required.

### Grade requirement for graduation

All courses applied toward a graduate degree must have a grade of B or higher.

## Normal time to complete the program

Four (4) years — based on full-time enrollment; part time permitted.

# Earth Science — Ph.D.

**Program director**
Kevin E. Nick

The Department of Earth and Biological Sciences offers a program leading to the Doctor of Philosophy degree in earth science. Emphasis is on research and coursework in sedimentology, paleontology, igneous petrology, and environmental geology. The student is prepared for understanding

the history of the earth and life, and the scientific approach to deciphering this history. Students are also encouraged to think independently and to consider various approaches to understanding the past. Research in paleontology can also be pursued through the curricula for the Master of Science degree in geology and the Doctor of Philosophy degree in biology.

## Objectives

The Earth Science Program strives to:

1. Instill in students the values of scientific integrity, careful research, and both critical and independent thinking.
2. Provide the tools and intellectual environment that will facilitate the earth scientist's attainment of the highest potential in scholarship, research, and teaching.
3. Challenge graduate students to consider the relationships among science, faith, and societal responsibility.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Pass a standardized national exam in earth science practice;
2. Analyze and synthesize published data and interpretations;
3. Plan and carry out independent research;
4. Apply effective written and oral communication and technological tools to professional practice;
5. Demonstrate a professional aptitude and attitude;
6. Demonstrate critical evaluation skills in relation to philosophy of science and public interest issues.

## Student financial aid

Assistantships for research and/or teaching are available at the Department of Earth and Biological Sciences on a competitive basis. Additional information can be obtained by contacting the department at <ebs@llu.edu>. Qualified students are also encouraged to seek fellowships from federal and private agencies with the help of their advisor.

# General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult relevant sections of this CATALOG, as well as general information pertinent to the school in which this program is housed.

## Registration and tuition after normative time

The program design is for Ph.D. degree students with geology backgrounds to finish in four years. In certain circumstances, students may require more time for completion. Students who are past the normative time for completing their degree may risk their departmental assistantship or incur tuition charges.

## Seminar attendance requirements

All graduate students in residence must register for and attend GEOL 607 Seminar in Geology each quarter while at Loma Linda University.

## Research proposal and comprehensive examination project

Students are urged to select research projects early in their programs, in consultation with a faculty member and approved by the department. Students must complete a comprehensive examination project by the autumn or winter quarter of their second year of residence. A written research proposal and oral defense of the student's proposed research should be completed following the comprehensive examination project. A comprehensive plan for completion of the degree must be approved at this time as required for advancement to candidacy.

## Dissertation

The written dissertation must demonstrate the completion of significant, original research and chapters must be written in the style of an appropriate scientific journal where manuscripts are likely to be submitted for publication. At least one manuscript from the dissertation must be submitted for publication before the Ph.D. degree will be granted.

## Teaching experience

Teaching is recommended during at least one quarter. This experience may be obtained through laboratory teaching or it may include presenting several lectures for a course upon consultation with the student's major professor and the course instructor.

## Professional development

Ph.D. degree students are expected to publish papers, present at scientific meetings, submit research grant proposals, and be involved with the scientific community.

# Admissions

## Academic preparation requirements

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following requirements:

- Hold an undergraduate or graduate degree from an accredited institution.
- Achieve an acceptable score on the general GRE examination (the subject GRE is not required).
- Demonstrate the minimum required G.P.A. of at least 3.0 in the previous degree program.
- Expected undergraduate preparation includes:
  - Two quarters of college mathematics (including calculus)
  - General physics with laboratory (one year)
  - General chemistry with laboratory (one year)
  - Statistics (one course)
  - Undergraduate geology courses (see corequisites listed below)

Some of these courses may be taken during residence at Loma Linda University, with approval of the admissions committee.

Students may also contact the department at <ebs@llu.edu> for advice on admission requirements. Advanced standing toward Ph.D. course requirements may be granted based on coursework taken prior to admission and beyond undergraduate degree requirements.

## Application time

Students should complete their applications by January 31 of the year being considered for admission, for priority consideration. Review of applications begins in February for Autumn Quarter admission. Research assistantships are competitively awarded.

# Program requirements

A minimum of 72 quarter units of academic credit for courses, seminars, and research beyond the master's degree is required (including at least 55 at or above the 500 level); that is, a minimum of 120 units beyond the baccalaureate degree, including the following required courses:

(Advanced standing may be granted toward these requirements)

| | | |
|---|---|---|
| **Corequisites** | | |
| May be taken during the program in addition to the units required for the degree (advanced standing may be granted for equivalent courses) | | |
| GEOL 204 | Physical Geology | |
| GEOL 316 | Mineralogy | |
| GEOL 317 | Igneous and Metamorphic Petrology | |
| GEOL 424 | Structural Geology | |
| **Cognates** | | |
| The following courses are usually taken during the undergraduate program. However, they may be completed during the graduate program and may apply toward the Ph.D. degree. Advanced standing may be granted toward these requirements. | | |
| GEOL 436 | Low Temperature Geochemistry | 4 |
| GEOL 443 | Historical Geology | 4 |
| GEOL 456 | Field Methods of Geologic Mapping | 4 |
| GEOL 516 | Sedimentology and Stratigraphy | 6 |
| **Core** | | |
| GEOL 510 | Orientation to Graduate Geology | 1 |
| GEOL 556 | Paleoenvironments | 3 |
| GEOL 557 | Paleoenvironments Field Trip | 1 |
| GEOL 566 | Clastic Sedimentary Geology | 4 |
| GEOL 607 | Seminar in Geology [1] | -- |
| GEOL 617 | Proposal Writing and Grantsmanship | 2 |
| GEOL 664 | Science Communication Outreach [2] | 1 |
| One course required: GEOL 558 required except for students who have taken GEOL 475 or equivalent | | 4 |
| GEOL 558 | Philosophy of Science | |
| GEOL 559 | Philosophy of Science and Origins | |

| | | |
|---|---|---|
| Select one GIS course of the following: | | 2-3 |
| GEOL 526 | Introduction to GIS for the Natural Sciences | |
| GEOL 535 | GIS Spatial Analysis for the Natural Sciences | |
| HGIS 522 | Principles of Geographic Information Systems and Science | |
| HGIS 524 | GIS Software Applications and Methods | |
| HGIS 535 | Integration of Geospatial Data in GIS | |
| HGIS 536 | Spatial Analytic Techniques and GIS | |
| Select one paleontology course from the following: | | 4 |
| GEOL 512 | Invertebrate Paleontology | |
| GEOL 513 | Vertebrate Paleontology | |
| GEOL 514 | Paleobotany | |
| GEOL 545 | Taphonomy | |
| Select one course to be approved by PhD committee of the following: | | 3-4 |
| STAT 509 | General Statistics | |
| STAT___ | Statistics course related to dissertation topic and approved by dissertation committee | |
| **Religion** | | |
| RELE 5__ | Graduate-level Ethics | 3 |
| RELR 5__ | Graduate-level Relational | 3 |
| Select one course with the RELT prefix of the following: | | 3 |
| RELT 527 | The Bible and Ecology | |
| RELT 558 | Old Testament Thought | |
| RELT 559 | New Testament Thought | |
| RELT 560 | Jesus the Revealer: The Message of the Gospel of John | |
| RELT 564 | Apostle of Hope: The Life, Letters, and Legacy of Paul | |
| RELT 565 | Vision of Healing: The Message of the Book of Revelation | |
| **Electives** | | |
| Additional courses required by the student's guidance committee to complete total required units. All GEOL graduate level courses not counted towards core requirements may count towards elective credit. | | 18-69 |
| **Research** | | |
| 4 units minimum; will be graded each quarter and can be repeated for additional credit | | |
| GEOL 699 | Dissertation Research (1-8) | 4 |
| **Total Units** | | **89** |

[1] Registration is required for each quarter in residence, maximum units counted toward the degree total is 5

[2] Fulfills service learning requirement

## Varied course offerings

In addition to the primary offerings of the department, the student, with committee approval, may take courses in other departments as part of the graduate work—according to special interests and needs.

## Non-course requirements

### Grade requirement for graduation

All courses applied toward the Ph.D. must receive a grade of at least a B.

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

1. Departmental approval of a research advisor and committee.
2. Showing progress in the program while maintaining a satisfactory GPA.
3. Research committee approval of the comprehensive examination requirement as stated in the department student handbook.
4. Research committee approval of the written research proposal, budget, and oral defense of proposed research.
5. Being recommended by the program faculty.

### Research Presentation

Presentation of research findings at a scientific meeting is required.

### Dissertation and defense

The research committee will be presented with the student's written dissertation. An oral presentation and defense of the dissertation, including final oral examination on the student's field of study, are required. Approval of the dissertation and its defense is by the research committee which recommends it to the department and the faculty of graduate studies. This defense is required to complete Form D.

## Normal time to complete the program

Five (5) years — based on full-time enrollment; part time permitted

# Environmental Sciences — B.S.

**Program director**
George D. Jackson

The Department of Earth and Biological Sciences offers a program leading to the Bachelor of Science degree in environmental sciences. This program builds upon a strong interdisciplinary foundation in natural, physical, and earth systems sciences, leading to an understanding of the effects of human activities on environmental sustainability and management. In addition, because understanding the environment has become highly dependent upon advanced technology, students will learn to use marketable geospatial applications such as geographic information systems (GIS), remote sensing, computer systems modeling, and global positioning systems. These tools will help students address environmental problems such as climate change, biodiversity decline, groundwater and soil contamination, use of natural resources, waste management, sustainable development, and air and noise pollution. Students may choose an advanced expertise in conservation biology and biodiversity, or environmental geology. This program will encourage students to develop critical-thinking skills, healthy lifestyles, and service-oriented attitudes necessary for finding effective and ethical solutions to environmental problems on both a local and global scale.

## Program learning outcomes

By the end of this program, the student should be able to:

1. Integrate each of earth's dynamic and interdependent component systems;
2. Critically evaluate the relation of science and faith within an environmental context;
3. Demonstrate written, technical, oral, and problem-solving skills necessary to collect, analyze, and share environmental data with scientific and public communities;
4. Identify professional and academic opportunities in the environmental science field;
5. Discuss concurrent environmental science research;
6. Examine human and natural causes of earth's environmental problems;
7. Address environmental problems as an environmental scientist.

## Employment opportunities

Career options in the field of environmental sciences are diverse and abundant. The Environmental Sciences Program prepares students for entry-level jobs in environmental sciences or GIS fields. Graduates may pursue jobs in the public sector through local, state, and federal agencies such as U.S. Fish and Wildlife Service, U.S. Geological Survey, and Department of Fish and Game. In the private sector, graduates may seek jobs in environmental consulting firms, foundations, and organizations. Some examples of career paths include environmental engineering, science, and social policy; a wide variety of natural resources management fields, such as soil science, forestry, agriculture, watershed science, range management, wildlife conservation, recreation resources, land management, and ecology; landscape architecture, conservation science, GIS, climatology, and diverse health sciences; and public policy, law, or planning careers.

Environmental scientists may also become involved through employment or by volunteering with nonprofit organizations such as Adventist Development and Relief Agency International, as well as help world populations learn how to use the earth's resources to their advantage in a sustainable manner.

## Preparation for teaching

In addition to the environmental sciences major, a student preparing to teach at the elementary or secondary level will need to complete the requirements for a teaching credential. The student should consult the undergraduate program director for further information. General elective units can be used for educational courses.

## Preparation for advanced programs

Because of the strong foundation in the natural and physical sciences acquired in the Environmental Sciences Program, students have the option of applying to a variety of graduate programs as well as medical, dental, and engineering programs. In most cases, these programs require full-year courses in general biology, general chemistry, general physics, and organic chemistry. One or more courses in calculus may also be required. Students are strongly encouraged to contact the pre-health or graduate program of their choice early in their studies to ensure they meet specific course requirements.

## Environmental internship

The Environmental Sciences Program offers students the opportunity to engage in "hands-on" application of fundamentals learned in coursework by enrolling in ENVS 487 Internship in Environmental Sciences. With the supervision of a faculty advisor, students will develop an academic component of the internship and will be permitted to earn up to eight units of general elective credit toward the B.S. degree. All internship appointments are subject to Environmental Sciences Program director approval.

## Undergraduate research

Following approval of an academic advisor and research professor, students interested in field research may gain training and experience in one of the three concentration areas offered by the program. Under the supervision of a research professor, students will develop projects within the context of environmental conservation, health, or sustainability in an effort to find new solutions to environmental problems.

## Honors program

Students who earn a G.P.A. of 3.0 or above, sponsored by a faculty member and with an approved research proposal, may apply to be accepted into the environmental sciences honors program. The honors student must register for at least two units of undergraduate research, conduct original research under a faculty member's direction, submit a written undergraduate thesis, and give a public oral presentation of their research.

## Required units and residence requirement

All unit requirements listed are quarter units. Minimum requirements include one year of full-time residence at Loma Linda University, completing 32 of the final 46 units; or a minimum of 45 total units of coursework for the degree at Loma Linda University. If the student has attended an institution that does not grant bachelor's degrees, a maximum of 105 quarter units of transfer credit from a two-year junior or community college is allowed.

Please note: Grades of C- and below are not accepted for credit.

# Financial aid

The following tuition rate for Geology or Environmental Sciences programs apply: B.S. $290/unit; 12–18 units—$3,480 per quarter.

**Scholarships and discounts**
Scholarships and discounts available to eligible undergraduate students in the Department of Earth and Biological Sciences include:

- Academic scholarships based on test results
  a. American College Test (ACT) score of 30 or above: $1,600 (or 16 percent of tuition)—for a student who maintains a cumulative G.P.A. of at least 3.5, renewable for successive years.
  b. Scholastic Aptitude Test (SAT): a student must maintain a 3.5 cumulative G.P.A., renewable for successive years. If a student qualifies for both an ACT and an SAT scholarship, the scholarship with the largest dollar value will apply.
     - National Merit Finalist Scholarship covers 100 percent of tuition.
     - National Merit Semifinalist Scholarship covers 34 percent of tuition.
     - National Merit Commended Scholarship covers 20 percent of tuition.
- Renewable G.P.A. scholarships (eligibility based on G.P.A. at the end of previous academic year): if a student is eligible for a National Merit Scholarship and/or an ACT scholarship, as well as a G.P.A. scholarship, the scholarship with the largest dollar value will apply.
     - G.P.A. between 3.75 and 4.00: $1,480 per year (or 15 percent of tuition).
     - G.P.A. between 3.50 and 3.74: $1,180 per year (or 12 percent of tuition).
     - G.P.A. between 3.25 and 3.49: $900 per year (or nine percent of tuition).

**Guidelines**
- All scholarships or other financial awards must not exceed costs for tuition and fees.
- If a student qualifies for more than one scholarship or reduced tuition award, the award with the largest dollar value applies.
- Scholarship or tuition reduction will be applied as a credit to the student's tuition account at the rate of one-third of the total per quarter, and is available to full-time students only.
- Loss of scholarship money may result when a student does not maintain the minimum cumulative G.P.A. required by the particular scholarship.
- The last day of final tests for the first quarter that a student is enrolled at LLU is the deadline for verifying with Student Financial Services that the student qualifies for a scholarship for the academic year.
- The scholarships and reduced tuition award listed here apply only to students enrolled in undergraduate programs in the Department of Earth and Biological Sciences.

Note: Determination of the amount of scholarships and awards at Loma Linda University is influenced by FAFSA data. State and federal grants, as well as other grants and subsidies, will be applied before Loma Linda University scholarships and discounts; therefore, some students may be eligible to receive only a portion of their scholarship award.

# Admissions

The student in the B.S. degree in environmental sciences (ENVS) Program will generally take the first two years of required corequisite coursework (96-105 units) at any accredited community college or university, and the last two years of the ENVS curriculum at Loma Linda University. Students may obtain early entrance with the approval of the Earth and Biological Sciences Department after completing at least 48 quarter units of corequisites at a college of their choice. Students accepted early will concurrently take coursework at a nearby community college in order to complete their outstanding corequisite requirements.

In addition to Loma Linda University admissions requirements (p. 23), the applicant must also complete the following requirements:

- Have a 2.5 G.P.A.
- Three letters of recommendation from faculty members at the institutions previously attended.
- Course corequisites listed below.

## Course corequisites

### Domain 1: Religion and Humanities (20 quarter units minimum)

**Humanities (12 quarter units minimum)**
Choose courses from three of the following areas: civilization/history, fine arts (art history and music history), literature, philosophy, and performing/visual arts (not to exceed four quarter units).

**Religion**
An applicant who has attended an Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each year of attendance at an Adventist college or university. Up to eight quarter credits may apply towards the 20 units needed in Domain 1. If the applicant has not attended an Adventist institution, there are no religion units required. In either case, however, the applicant must have completed 20 quarter/14 semester units in Domain 1: Humanities and Religion.

### Domain 2: Scientific Inquiry and Analysis (43 quarter units)

**Natural Sciences (45 units)**
- College algebra (four units)
- Statistics (four units) offered at LLU
- Statistics using R (BIOL 305 Statistics Using the R Software Package offered at LLU)
- General biology with laboratory (12 units)
- General chemistry with laboratory (12 units)
- Another 12 credits of physical or life sciences

**Social Sciences (12 units minimum)**
- One course dealing with human diversity (e.g., cultural anthropology)
- Choose remaining units from the following areas: geography, economics, political science, psychology, sociology, etc.

### Domain 3: Communication (9-13 quarter units)

- English composition (complete sequence)
- Elective areas may include courses in computer information systems, critical thinking, and public speaking

### Domain 4: Health and Wellness (2-6 quarter units)

- Two activity courses in physical education
- Personal health or nutrition

### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units. For total unit requirements for graduation, see LLU General Education Requirements (p. 27).

Please note: Grades of C- and below are not accepted for credit.

# Program requirements

| | | |
|---|---|---|
| **Required core courses** | | |
| BIOL 449 | Biodiversity and Conservation | 3 |
| BIOL 415 | Ecology | 3 |
| BIOL 664 | Science Communication Outreach | 1 |
| ENVS 434 | The Environmental Context of Community Health | 3 |
| ENVS 455 | Environmental Law and Regulation | 4 |
| ENVS 485 | Seminar in Environmental Sciences [1] | 0.5 |
| ENVS 487 | Internship in Environmental Sciences | 4 |
| GEOL 204 | Physical Geology | 4 |
| GEOL 434 | Introduction to GIS for the Natural Sciences (2) | 2 |
| GEOL 435 | GIS Spatial Analysis for the Natural Sciences (3) | 3 |
| GEOL 475 | Philosophy of Science and Origins | 4 |
| **Concentration** | | |
| Select a concentration in Conservation Biology and Biodiversity OR Environmental Geology (see descriptions below) | | 24 |
| **Required environmental sciences electives** | | |
| Select from any of the environmental sciences concentration areas or the approved ENVS electives. A minimum of one course from each non-concentration area is required. | | 8 |
| **Religion** | | |
| REL_ 4__ | Upper-division Religion [2] | 6-10 |
| Select one course of the following: | | 2 |
| RELT 406 | Adventist Beliefs and Life | |
| RELT 423 | Loma Linda Perspectives | |
| RELT 436 | Adventist Heritage and Health | |
| RELT 437 | Current Issues in Adventism | |
| **General electives** | | |
| Any undergraduate courses taught at Loma Linda University, or other regionally accredited college, to meet the 192-unit total requirement | | |

[1] All ENVS students are required to register and attend seminar every quarter while enrolled. Typically seminar units will add up to 3 units at the completion of the ENVS program.

[2] Total units required will be prorated based on total program units completed at LLU and other SDA colleges/universities.

## Concentrations

### Conservation biology and biodiversity

One year each of general biology and general chemistry are required for this concentration.

This concentration is suitable for students wishing to empirically analyze the health of an ecosystem, including population and distribution of plants and animals and environmental degradation and its causes, with the goal of proposing methods of improving the health of the ecosystem. Graduates in this track normally work closely with government, conservation agencies, and industry to develop land and water management plans and educate the public about threats to the health of ecosystems. This concentration is also appropriate as background for graduate study in such disciplines as biology, ecology, forestry, and environmental health. However, one year of organic chemistry and one year of physics is required of most graduate programs listed above.

| | | |
|---|---|---|
| BIOL 406 | Marine Biology | 4 |
| BIOL 407 | Herpetology | 3 |
| BIOL 409 | Mammalogy | 4 |
| BIOL 414 | Biology of Marine Invertebrates | 4 |
| BIOL 415 | Ecology | 3 |
| BIOL 428 | Genetics and Speciation | 4 |
| BIOL 456 | Techniques in Vertebrate Ecology | 3 |
| BIOL 466 | Multivariate Statistics | 3 |
| BIOL 488 | Current Topics in Biology | 1-4 |
| BIOL 495 | Undergraduate Research | 1 |
| BIOL 497 | Special Projects in Biology | 1-4 |
| ENVS 487 | Internship in Environmental Sciences | 4,8 |
| ENVS 488 | Topics in Environmental Sciences | 1-4 |
| ENVS 495 | Special Projects in Environmental Sciences | 1-4 |
| ENVS 497 | Undergraduate Research | 1-4 |

### Environmental geology

One year of general chemistry and general physics is required for this concentration.

This track will prepare students to objectively study geologic information and apply it to contemporary environmental problems such as pollution, waste management, resource extraction, natural hazards, and human health. For example, an environmental geologist might evaluate the risk and damage potential from natural hazards such as floods, landslides, volcanoes, or earthquakes. They might be involved in a land-use planning process that assesses the impact a sanitary landfill would have on groundwater. This concentration is also appropriate as background for graduate study in areas such as geology and earth sciences.

| | | |
|---|---|---|
| GEOL 204 | Physical Geology | 4 |
| GEOL 316 | Mineralogy | 4 |
| GEOL 317 | Igneous and Metamorphic Petrology | 4 |
| GEOL 416 | Sedimentology and Stratigraphy | 6 |
| GEOL 424 | Structural Geology | 4 |
| GEOL 426 | Invertebrate Paleontology | 4 |
| GEOL 427 | Vertebrate Paleontology | 4 |
| GEOL 443 | Historical Geology | 4 |
| GEOL 455 | Modern Carbonate Depositional Systems | 3 |
| GEOL 456 | Field Methods of Geologic Mapping | 4 |
| GEOL 465 | Hydrogeology | 4 |
| GEOL 488 | Topics in Geology | 1-4 |
| GEOL 495 | Special Projects in Geology | 1-4 |
| GEOL 497 | Undergraduate Research | 1 |
| ENVS 487 | Internship in Environmental Sciences | 4,8 |
| ENVS 488 | Topics in Environmental Sciences | 1-4 |
| ENVS 495 | Special Projects in Environmental Sciences | 1-4 |
| ENVS 497 | Undergraduate Research | 1-4 |
| HGIS 424 | Desktop GIS Software Applications | 4 |

### Normal time to complete the program

Four (4) years — two (2) years (seven [7] academic quarters) at LLU — based on full-time enrollment; part time permitted

# Geology — B.S.

**Program director**
Kevin E. Nick

The Department of Earth and Biological Sciences offers a program leading to the Bachelor of Science degree in geology. This program provides the student with a field-oriented education, emphasizing the application of geological principles. Sedimentary geology, paleontology, igneous petrology, and environmental geology are areas of emphasis. The curriculum is designed as a degree-completion program; two years of college-level coursework should be completed before admission. The program aims to maintain affordability through tuition rates and scholarships. Please contact the department at <ebs@llu.edu> for assistance in planning for program entry or with any questions or comments.

## Objectives

The integrated core course (major) sequence of the geology degree provides students with a general background in geology as preparation for careers or graduate studies in geology, paleontology, and environmental geology. An emphasis on fieldwork provides the link to basic geological data beyond the classroom and laboratory. Students apply the scientific method to resolve geologic problems throughout the geology curriculum. Students are encouraged to consider the relationship among science, faith, and societal responsibility during this process.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Pass a standardized national exam in earth science practice;
2. Collect and present field and laboratory data;
3. Apply effective written and oral communication and technological tools to professional practice;
4. Evaluate and synthesize data and conclusions of others;
5. Demonstrate a professional aptitude and attitude;
6. Demonstrate critical evaluation skills in relating faith, science, and public interest issues.

## Curriculum

The Bachelor of Science degree in geology requires a total of 192 quarter units. The total units are divided according to general studies requirements, major requirements, and electives.

The following summarizes the general categories and numbers of credits required for the degree and will help in planning the course schedule. All units are quarter units.

Major requirements—44 units
Major electives—20 units
Minimum general studies in the natural sciences—44 units
Minimum other general studies requirements—38 units
Other electives (this number will decrease if units in above categories are greater)—46 units
Total—192 units

## Residence requirements

Minimum requirements include one year of full-time residence at Loma Linda University, completing at least 32 of the last 48 units; or a minimum of 45 total units of coursework for the degree at Loma Linda University. If the student has attended an institution that does not grant bachelor's degrees, a maximum of 105 quarter units of credit can be transferred from a two-year junior or community college.

## Undergraduate thesis

Students will prepare an undergraduate thesis based on a field or laboratory experience supervised by a faculty advisor. Students must register for at least two units of undergraduate research, conduct research under a faculty member's direction, submit a written undergraduate thesis, and deliver a public oral presentation.

## Geology careers

A baccalaureate degree in geology prepares a student to enter graduate programs in geology, paleontology, or environmental geology and for employment in environmental and energy-related industries, or (with the necessary education courses) for teaching in secondary schools. Most employment opportunities are for those with graduate degrees and may be found in industry, research, or college teaching.

In addition to the geology major, a student preparing to teach at the elementary or secondary level will need to complete the requirements for a teaching credential. The student should consult the Geology Program director for further information. Education courses will count toward general studies requirements.

## Scholarships and discounts for earth and biological sciences undergraduate students

Tuition rate for courses offered by the Geology Program (B.S.): $290/unit; 12-18 units—$3,480 per quarter

- Academic scholarships based on test results
  a. American College Test (ACT) score of 30 or above: $1,600 (or 16 percent of tuition). For a student who maintains a cumulative G.P.A. of at least 3.5, renewable for successive years.
  b. Scholastic Aptitude Test (SAT): Student must maintain a 3.5 cumulative G.P.A., renewable for successive years. If a student qualifies for both an ACT and an SAT scholarship, the scholarship with the largest dollar value will apply.
     - National Merit Finalist Scholarship covers 100 percent of tuition.
     - National Merit Semifinalist Scholarship covers 34 percent of tuition.
     - National Merit Commended Scholarship covers 20 percent of tuition.
- Renewable G.P.A. scholarships (eligibility based on G.P.A. at the end of previous academic year): If a student is eligible for a National Merit Scholarship and/or an ACT scholarship, as well as a G.P.A. scholarship, the scholarship with the largest dollar value will apply.
- G.P.A. between 3.75 and 4.00, $1,480 per year (or 15 percent of tuition).
- G.P.A. between 3.50 and 3.74, $1,180 per year (or 12 percent of tuition).

- G.P.A. between 3.25 and 3.49, $900 per year (or nine percent of tuition).

# Additional scholarship guidelines

- The sum of scholarships and other financial awards should not exceed cost for tuition and fees.
- If a student qualifies for more than one scholarship or reduced tuition award, the award with the largest dollar value applies.
- Scholarship or tuition reduction will be applied as a credit to the student's tuition account at the rate of one-third of the total per quarter and is available to full-time students only.
- Loss of scholarship money may result when a student does not maintain the minimum cumulative G.P.A. required by the particular scholarship.
- The deadline for verifying with Student Financial Services that the student qualifies for a scholarship for the academic year is the last day of final tests for the first quarter.
- The scholarships and reduced tuition awards listed here apply only to students enrolled in undergraduate programs in the Department of Earth and Biological Sciences.

Note: Determining the amount of scholarships and awards at Loma Linda University is influenced by FAFSA data. State and federal grants, as well as other grants and subsidies, will be applied before Loma Linda University scholarships and discounts; therefore, some students may be eligible to receive only a portion of their scholarship awards.

# Admissions

## Applications

Applications are accepted at any time. Review of applications begins in February for Autumn Quarter admission.

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following requirements for admission to the Geology BS program:

- complete two years (minimum of 96 quarter units) of general education and science courses at any accredited institution. This should include the majority of the general studies requirements. Note that this would typically include a year of general chemistry and general physics with associated laboratory sections, and mathematics. Please contact the program director if you have questions about this requirement.
- achieve a minimum of 2.5 G.P.A. during the first two years of course work.
- submit letters of recommendation from two faculty members at institutions previously attended.

## General studies requirements

The information below provides a summary of the University's general education requirements for undergraduate students. For a complete description of Loma Linda University's general education requirements and criteria, the student should refer to the Division of General Studies (p. 27) section in this CATALOG.

### Domain 1: Religion and Humanities

**Humanities (12 quarter units minimum)**

Choose courses from three of the following areas: civilization/history, fine arts (art history and music history), literature, philosophy, and performing/visual arts (not to exceed four quarter units).

**Religion**

An applicant who has attended an Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each year of attendance at an Adventist college or university. Up to eight quarter credits may apply toward the 20 units needed in Domain 1. If the applicant has not attended an Adventist institution, no religion units are required. In either case, however, the applicant must have completed 20 quarter/14 semester units in Domain 1: Humanities and Religion.

### Domain 2: Scientific Inquiry and Analysis

**Natural Sciences (12 units minimum for University requirement; additional units required for the degree count toward Domain 5 and the total general studies requirement)**

- Mathematics, including calculus (eight-12 units)
- Statistics (four units)
- General chemistry with laboratory--one full year, complete sequence
- General physics with laboratory--one full year, complete sequence
- Courses in general biology or ecology with laboratory (eight units)

**Social Sciences (12 units minimum)**

- One course dealing with human diversity (e.g., cultural anthropology)
- Choose remaining units from the following areas: geography, economics, political science, psychology, sociology, other social science)

### Domain 3: Communication (9 units minimum)

- English composition (complete sequence)
- Elective areas may include courses in computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2-6 units)

- Two activity courses in physical education
- Personal health or nutrition

### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units.

Specific general studies requirements are detailed in the Division of General Studies (p. 27) section in this CATALOG. It is recommended that applicants contact the department at <ebs@llu.edu> for a review of their academic plan as early as possible.

Please note: Grades of C- and below are not accepted for credit toward the degree.

# Program requirements

| Major | | |
|---|---|---|
| GEOL 204 | Physical Geology | 4 |
| GEOL 316 | Mineralogy | 4 |
| GEOL 317 | Igneous and Metamorphic Petrology | 4 |
| GEOL 416 | Sedimentology and Stratigraphy | 6 |
| GEOL 424 | Structural Geology | 4 |
| GEOL 436 | Low Temperature Geochemistry | 4 |

| | | |
|---|---|---|
| GEOL 443 | Historical Geology | 4 |
| GEOL 456 | Field Methods of Geologic Mapping | 4 |
| GEOL 464 | Science Communication Outreach [1] | 1 |
| GEOL 475 | Philosophy of Science and Origins | 4 |
| GEOL 485 | Seminar in Geology (0.5) | 3 |
| GEOL 497 | Undergraduate Research (Additional hours may be taken to fulfill Electives) | 2 |
| **Religion** | | |
| Select at least one course from each prefix: | | 6 |
| RELE 4__ | Upper-division ethics | |
| RELR 4__ | Upper-division relational | |
| Select one of the following: | | 2 |
| RELT 406 | Adventist Beliefs and Life | |
| RELT 423 | Loma Linda Perspectives | |
| RELT 436 | Adventist Heritage and Health | |
| RELT 437 | Current Issues in Adventism | |
| **Geology electives** | | |
| Select at least one course from the following: | | 4 |
| GEOL 426 | Invertebrate Paleontology | |
| GEOL 427 | Vertebrate Paleontology | |
| GEOL 444 | Paleobotany | |
| Select 14 units from the following or from the unused elective courses above: | | 14 |
| BIOL 406 | Marine Biology | |
| BIOL 407 | Herpetology | |
| BIOL 409 | Mammalogy | |
| BIOL 414 | Biology of Marine Invertebrates | |
| BIOL 415 | Ecology | |
| BIOL 449 | Biodiversity and Conservation | |
| GEOL 434 | Introduction to GIS for the Natural Sciences (2) | |
| GEOL 435 | GIS Spatial Analysis for the Natural Sciences (3) | |
| GEOL 455 | Modern Carbonate Depositional Systems | |
| GEOL 465 | Hydrogeology | |
| GEOL 486 | Research and Experimental Design | |
| GEOL 487 | Field Geology Studies | |
| GEOL 488 | Topics in Geology | |
| GEOL 489 | Readings in Geology and Paleontology | |
| GEOL 495 | Special Projects in Geology | |
| HGIS 422 | Principles of Geographic Information Systems | |
| HGIS 424 | Desktop GIS Software Applications | |
| **General electives** | | **26** |
| **Total Units** | | **96** |

[1] Fulfills service learning requirement

### Seminar attendance requirements

All students must register for and attend GEOL 485 Seminar in Geology for each quarter of residence at this University.

### Normal time to complete the program

Four (4) years — two (2) years (six [6] quarters) at LLU — based on full-time enrollment; part time permitted

# Geology — M.S.

**Program director**
Kevin E. Nick

The Department of Earth and Biological Sciences offers the Master of Science in geology degree. Research and coursework emphasize field and laboratory studies in sedimentology, paleontology, igneous petrology, and environmental geology. Research in paleontology may also be pursued through the M.S. and Ph.D. degree curricula in biology, and through the Ph.D. degree curriculum in earth science.

## Program objectives

The Geology Program focuses on field-oriented geology. The integrated core course sequence provides students with the tools to conduct research in the subdisciplines of sedimentology, paleontology, igneous petrology, or environmental geology. Fieldwork is emphasized and provides a first-hand experience with geological phenomena that cannot be satisfactorily grasped or understood solely from classroom or laboratory study. Throughout the geology curriculum, students are encouraged to develop an open-minded and investigative approach to the application of the scientific method to the resolution of geologic problems.

The Geology Program aims to instill in students the values of honesty, scientific integrity, careful research, and independent critical thinking; provide the tools and intellectual environment in which geologists can attain their highest potential in scholarship and research; and challenge graduate students to consider the relationships among science, faith, and societal responsibility.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Pass a standardized national exam in earth science practice;
2. Analyze and synthesize published data and interpretations;
3. Plan and carry out independent research;
4. Apply effective written and oral communication and technological tools to professional practice;
5. Demonstrate professional aptitude and attitude;
6. Demonstrate critical evaluation skills in relation to faith, science, and public interest issues.

## Financial aid

Research and teaching assistantships are available at the Department of Earth and Biological Sciences on a competitive basis. Further information can be obtained by contacting the department at <ebs@llu.edu>. Qualified students are also encouraged to seek fellowships and grants from federal and private agencies with the help of their advisors.

## Overview of program requirements

### Two-year track—for students with an undergraduate degree in geology

A minimum of 56 quarter units, including 44 at or above the 500 level, constitutes the curriculum for the Master of Science degree in geology.

### Three-year track—for students without an undergraduate degree in geology

Students with a variety of majors (including science and some nonscience majors) are encouraged to enter the M.S. degree in geology program. The three-year track courses are indicated in the table of program requirements and include: 22 units of undergraduate geology courses that are not part of the M.S. curriculum as well as M.S. degree curriculum courses in geology with a minimum of 56 quarter units, including 44 at or above the 500 level. Total for the three-year track is 78 quarter units. Advanced standing may be granted toward cognate requirements.

# Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following requirements:

- An undergraduate or graduate degree from an accredited institution
- G.P.A. of at least 3.0
- Achieve an acceptable score on the general GRE examination
- Completion of the following courses:
  - General chemistry—full year with laboratory (12 units)
  - Physics—full year with laboratory (12 units)
  - Mathematics, including calculus
  - Statistics
- Organismal or ecological biology biology courses such as zoology, botany, ecology or general biology are recommended, but are not required

Some of the above courses may be taken as corequisites during residence at Loma Linda University, with approval of admission committee.

Applicants should complete their applications by January 31 of the calendar year being considered for admission, for priority consideration. Review of applications begins in February for Autumn Quarter admission. Research assistantships are competitively awarded.

It is recommended that applicants contact the department early in the application process at <ebs@llu.edu>.

# Program requirements

### Three-year Track additional requirements

| | | |
|---|---|---|
| **Corequisites** | | |
| The following courses are required of all students who have not completed a bachelor's degree in geology. Courses do not apply toward graduate credit. | | |
| GEOL 204 | Physical Geology | 4 |
| GEOL 316 | Mineralogy | 4 |
| GEOL 317 | Igneous and Metamorphic Petrology | 4 |
| GEOL 416 | Sedimentology and Stratigraphy | 6 |
| GEOL 424 | Structural Geology | 4 |
| **Total Units** | | **22** |

### M.S. degree requirements for all students—both two-year and three-year tracks

| | | |
|---|---|---|
| **Cognates** | | |
| The following courses are usually taken during the undergraduate program. However, they may be completed during the graduate program and may apply toward the M.S. degree. Advanced standing may be granted toward these requirements. | | |
| GEOL 436 | Low Temperature Geochemistry | 4 |
| GEOL 443 | Historical Geology | 4 |
| GEOL 456 | Field Methods of Geologic Mapping | 4 |
| **Core** | | |
| GEOL 510 | Orientation to Graduate Geology | 1 |
| GEOL 556 | Paleoenvironments | 3 |
| GEOL 557 | Paleoenvironments Field Trip | 1 |
| GEOL 558 | Philosophy of Science [1] | 4 |
| or GEOL 559 | Philosophy of Science and Origins | |
| GEOL 566 | Clastic Sedimentary Geology | 4 |
| GEOL 567 | Stratigraphy and Basin Analysis | 4 |
| GEOL 607 | Seminar in Geology [2] | 4 |
| GEOL 617 | Proposal Writing and Grantsmanship | 2 |
| GEOL 664 | Science Communication Outreach [4] | 1 |
| Select one of the following: | | 4 |
| GEOL 512 | Invertebrate Paleontology | |
| GEOL 513 | Vertebrate Paleontology | |
| GEOL 514 | Paleobotany | |
| GEOL 545 | Taphonomy | |
| **Religion** | | |
| REL_5__ | Graduate-level Religion | 3 |
| **Electives** | | |
| All GEOL graduate level courses not counted towards core requirements may be counted towards elective requirement. | | 9 |
| **Research** | | |
| GEOL 698 | Thesis Research (1-8) [3] | 4 |
| **Total Units** | | **56** |

1. One course required: GEOL 558 Philosophy of Science required except for students who have taken GEOL 475 Philosophy of Science and Origins or equivalent
2. Registration required for each quarter in residence; maximum counted toward the degree total is 4.5
3. 4 units minimum; will be graded each quarter and can be repeated for additional credit
4. Fulfills service learning requirement

### Seminar attendance requirements

All graduate students in residence must register for and attend seminars (GEOL 607 Seminar in Geology) each quarter studying at this University.

### Varied course offerings

In addition to the primary offerings of the department, the student, with committee approval, may take courses in other departments as part of the graduate work, according to special interests and needs.

## Noncourse requirements

### Advancement to candidacy

Students are urged to select a research project early in their program, in consultation with a faculty member approved by the department. Students should apply for advancement to candidacy and develop an approved, comprehensive plan for completion of the degree by the end of the third quarter of study. Advancement to candidacy is petitioned by completing Form A, which requires:

1. Selecting an advisor and research committee.
2. Showing progress in the program while maintaining a satisfactory G.P.A.
3. Receiving approval of the written research proposal.
4. Passing the oral defense of the research proposal.
5. Being recommended by the program faculty.

### Research Presentation

Presentation of research findings at a scientific meeting is required.

### Thesis

The written thesis must demonstrate significant conclusions based on analysis of original data generated by the student. Chapters must be written in the style of an appropriate scientific journal.

### Defense of thesis

An oral presentation and defense of the thesis to the research committee is required. The written thesis and oral defense must both be approved by the students committee. This includes final oral examination on student's field of study.

### Grade requirement for graduation

An overall G.P.A. of 3.0 is required for graduation.

## Normal time to complete the program

27-month track — 2.33 years (seven [7] academic quarters) — based on full-time enrollment; part time permitted

36-month track — three (3) years (nine [9] academic quarters) — based on full-time enrollment; part time permitted

# Natural Sciences — M.S.

**Program director**
Leonard R. Brand

The Natural Sciences Program leads to the Master of Science degree. Coursework is selected from the allied fields of biology, paleontology, geology, earth systems science, and geographic information systems. Areas of curriculum strength include ecology, genetics, systematics, sedimentary geology, paleontology, environmental geology, environmental science, and GIS.

## Program features

The Natural Sciences Program emphasizes ecology-oriented areas of biology and field-oriented geology—particularly sedimentology, stratigraphy, and paleontology. Fieldwork is emphasized because it provides a first-hand experience with biological and geological phenomena that cannot be satisfactorily grasped or understood solely from classroom or laboratory study. Throughout the natural sciences curriculum, students are encouraged to develop an open-minded and investigative approach in the application of the scientific method to the resolution of biological and geologic problems. Multiple working hypotheses are encouraged. The goal is to prepare students for effective careers in teaching or government.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Articulate the fundamental concepts of biology, geology, GIS, and environmental science;
2. Seek endorsement for subject-teaching in secondary education in either biological science or geoscience;
3. Apply effective written and oral communication to professional practice;
4. Apply the scientific method, hypothesis testing, and deductive reasoning;
5. Discuss key issues related to the integration of faith and science;
6. Seek employment in K-12 teaching, or civil or public service.

## Rosario Beach summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research by graduate students in the Department of Earth and Biological Sciences.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also complete the following requirements:

- Bachelor's degree in biology, geology, chemistry, physics, or other degree with typical biology and geology prerequisites.
- Undergraduate G.P.A. of at least 3.0 is expected.
- Achieve an acceptable score on the general Graduate Record Examination (GRE). The subject GRE is not required.
- Completion of prerequisite courses:
  - College mathematics—two quarters (calculus recommended)
  - Biology—one-year
  - General physics with laboratory—one year
  - General chemistry with laboratory—one year
  - General ecology—one course

Some prerequisite courses may be taken during residence at Loma Linda University, with approval of the admissions committee.

## Application

Applications are accepted at any time. Review of applications begins in February for the Autumn Quarter admission. It is highly recommended that the applicant complete the application process by January 31 of the calendar year being considered for admissions, for priority consideration. Research assistantships are competitively awarded. Applicants may contact the department at <ebs@llu.edu>.

## Program requirements

A minimum of 50 quarter units, including 34 at or above the 500 level, constitutes the curriculum for the Master of Science degree program in natural sciences. The following courses are required. Undergraduate courses must be at the 400 level.

| Core | | |
|---|---|---|
| BIOL/GEOL 558 | Philosophy of Science | 4 |

| | | |
|---|---|---|
| GEOL 518 | Earth Structure, Process, and History | 4 |
| BIOL 607 | Seminar in Biology (0.5) [1] | 3 |
| or GEOL 607 | Seminar in Geology | |
| BIOL/GEOL 616 | Research and Experimental Design | 2 |
| BIOL 664 | Science Communication Outreach | 1 |
| Select one course of the following: | | 3-4 |
| BIOL 505 | Marine Biology | |
| BIOL 515 | Biogeography | |
| BIOL 517 | Ecological Physiology | |
| BIOL 539 | Behavioral Ecology | |
| BIOL 546 | Techniques in Vertebrate Ecology | |
| BIOL 549 | Biodiversity and Conservation | |
| Select one course of the following: | | 4 |
| GEOL 512 | Invertebrate Paleontology | |
| GEOL 513 | Vertebrate Paleontology | |
| GEOL 514 | Paleobotany | |
| GEOL 545 | Taphonomy | |
| **Religion** | | |
| REL_ 5__ | Graduate-level Religion | 3 |
| **Electives** | | |
| Selected in consultation with the student's faculty advisor | | 22-23 |
| BIOL 415 | Ecology | |
| BIOL 437 | Animal Behavior | |
| BIOL 504 | Biology of Marine Invertebrates | |
| BIOL 505 | Marine Biology (If not taken to meet a core requirement) | |
| BIOL 507 | Herpetology | |
| BIOL 515 | Biogeography (If not taken to meet a core requirement) | |
| BIOL 517 | Ecological Physiology | |
| BIOL 518 | Readings in Ecology | |
| BIOL 529 | Mammalogy | |
| BIOL 539 | Behavioral Ecology (If not taken to meet a core requirement) | |
| BIOL 545 | Genetics and Speciation | |
| BIOL 546 | Techniques in Vertebrate Ecology (If not taken to meet a core requirement) | |
| BIOL 549 | Biodiversity and Conservation (If not taken to meet a core requirement) | |
| BIOL 555 | Molecular Genetics | |
| BIOL 566 | Multivariate Statistics | |
| BIOL 588 | Current Topics in Biology (If not taken to meet a core requirement) | |
| BIOL 589 | Readings in Biology | |
| BIOL 618 | Writing for Publication | |
| ENVS 434 | The Environmental Context of Community Health | |
| ENVS 495 | Special Projects in Environmental Sciences | |
| GEOL 416 | Sedimentology and Stratigraphy | |
| GEOL 512 | Invertebrate Paleontology (If BIOL 426 not taken to meet a core requirement) | |
| GEOL 513 | Vertebrate Paleontology (If BIOL 427 not taken to meet a core requirement) | |
| GEOL 514 | Paleobotany (If BIOL 444 not taken to meet a core requirement) | |
| GEOL 526 | Introduction to GIS for the Natural Sciences | |
| GEOL 535 | GIS Spatial Analysis for the Natural Sciences | |
| GEOL 545 | Taphonomy (If not taken to meet a core requirement) | |
| HGIS 422 | Principles of Geographic Information Systems | |
| HGIS 424 | Desktop GIS Software Applications | |
| Research/Project | | |
| BIOL 695 | Special Projects in Biology | 4 |
| or BIOL 697 | Research | |
| or GEOL 695 | Special Projects in Geology | |
| or GEOL 697 | Research | |
| **Total Units** | | **51** |

[1] Registration required for each quarter in residence; 0.5 unit per quarter. Maximum counted toward the degree total is 3 (6 quarters of seminar).

## Noncourse requirements

### Seminar attendance requirements

All graduate students in residence must register for and attend Seminars (BIOL 607 Seminar in Biology or GEOL 607 Seminar in Geology) each quarter at Loma Linda University.

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

- Completing all deficiencies and corequisites.
- Completing an approved written project proposal.
- Passing the written comprehensive examination.
- Being recommended by the program faculty (should be completed by the end of the third quarter of study).

### Final examinations

Students are expected to pass a written comprehensive examination during their penultimate quarter in residence.

### Project

As part of the core curriculum, the student will complete a project, in consultation with the advisor, involving four units of registration in research or special projects.

### Grade requirement for graduation

A grade of B (3.0) or better is required in all courses that count toward the degree.

## Normal time to complete the program

Two (2) years — based on full-time enrollment; part time permitted

# Department of Pathology and Human Anatomy

The School of Medicine's Division of Anatomy offers curricula leading to the Master of Science or the Doctor of Philosophy degree. The core curriculum offers a broad biomedical background. Coursework provides opportunities for qualified students not only to study all aspects of human morphology from both didactic and investigative points of view, but also to develop a special area of research interest. Study and research on other species and in other biomedical disciplines may be included in the student's curriculum. While working on a significant research problem, students are introduced to research methods through scientific literature and the laboratory. They acquire experience in scientific communication by participating in seminars, writing critical reviews, and reporting results of research experience either in thesis/dissertation form or as publishable/published papers.

The Doctor of Philosophy degree is designed to prepare the graduate for a career in independent research and teaching in university, clinical, biotechnological, or government environments. In addition to technical skills, doctoral degree students are expected to develop creativity and independence.

The Master of Science degree provides content appropriate for persons preparing to teach at the secondary level or in related professional school areas, or for persons intending to pursue careers as research technicians.

## Program learning outcomes

By the end of the anatomy program, the graduate should be able to:

1. Apply the biomedical sciences to the study of human anatomy;
2. Demonstrate mastery of molecular, cellular, and integrative aspects of anatomy;
3. Interpret current literature in anatomy;
4. Make original contributions to biomedical science;
5. Demonstrate scientific and professional ethics;
6. Explain the process of applying for external funding.*

* This objective is not applicable to M.S. degree students.

## First-year curriculum (Ph.D. degree)

The first-year curriculum includes a course sequence taught by an interdisciplinary faculty that integrates all the disciplines of the biomedical basic science areas—moving from molecules through cellular mechanisms to integrated systems. In addition, a supplemental course covers research-related topics such as scientific communication and integrity, information handling and statistics, and successful grant proposal writing. Students learn of new developments in the biomedical sciences through weekly seminars and gain presentation skills in a weekly student presentation seminar series. During the subsequent years, formal courses continue to broaden and integrate into a meaningful whole an understanding of the clinical consequences of cellular events.

## Religion requirement

Students in the Master of Science (M.S.) degree curriculum are required to complete one, three-unit graduate-level religion course (RELT 617 Seminar in Religion and the Sciences). Students in the Ph.D. degree curriculum are required to complete three graduate-level religion courses of three or more units each. These must include RELT 617 Seminar in Religion and the Sciences; as well as RELE 525 Ethics for Scientists and RELR 588 Personal and Family Wholeness. A course in biblical studies (RELT 559 New Testament Thought, RELT 560 Jesus the Revealer: The Message of the Gospel of John, RELT 564 Apostle of Hope: The Life, Letters, and Legacy of Paul, or RELT 565 Vision of Healing: The Message of the Book of Revelation) may be substituted for either the ethical or relational course.

## Research units

A student will, at all times, enroll for research units. An IP will be assigned until the student registers for new units. The units should be spread over the time it takes to complete the thesis or dissertation research satisfactorily. An IP may not be carried longer than five quarters.

### Chair
Paul C. Herrmann

### Program coordinator
Kenneth R. Wright

### Primary faculty
Denise L. Bellinger

Resa C. Chase

Bertha C. Escobar-Poni

Paul C. Herrmann

Michael A. Kirby

Zhongrong Luo

P. Ben Nava, Jr.

Kirby C. Oberg

Kimberly J. Payne

Kenneth R. Wright

### Secondary faculty
William M. Hooker

### Pathologists' Assistant Program primary faculty
Cheryl Germain

Michael Weitzeil

### Pathologists' Assistant Program clinical faculty
Maria Nieves G. Rabina

## Admissions

In addition to Loma Linda University (p. 23) application requirements, the applicant must also complete the following requirements:

- A bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- General test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less than the 35th percentile; analytical writing 4.0. GRE scores older than five years from the date of matriculation are not considered.
- A full year of each of the following undergraduate courses:

- General biology
- General chemistry
- Organic chemistry
- General physics
- Biochemistry (a minimum of one quarter/semester)

- Strongly recommended:
  - Upper-division biology (such as cell and molecular biology)
  - A full year of biochemistry with labs
  - Research experience
  - Calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

# Programs

Anatomy — M.S. (p. 276), Ph.D. (p. 276) Comparison (p. 277)

Pathologists' Assistant — M.H.S. (p. 278)

# Anatomy — M.S.

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a coursework track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or *Student Guide.* Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| **Major** | | |
| ANAT 516 | Neuroscience GS | 6 |
| ANAT 541 | Gross Anatomy GS | 7 |
| ANAT 542 | Cell Structure and Function GS | 7 |
| ANAT 544 | Human Embryology Lecture | 2 |
| **Seminars** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| RELT 617 | Seminar in Religion and the Sciences | 3 |
| **Degree completion options** | | **15** |
| Coursework track: | | |
| ANAT___ | Anatomy/Embryology electives (15 units) | |
| Research track: | | |
| ANAT 697 | Research (14 units) | |
| IBGS 605 | Integrative Biology Presentation Seminar (1 unit) | |
| **Total Units** | | **45** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

## Noncourse requirements

Coursework option: a comprehensive written examination over the graduate coursework in lieu of writing a thesis.

Research option: pass an oral examination administered by the student's graduate guidance committee after thesis has been completed.

## Normal time to complete the program

Two (2) years — based on full-time enrollment; part time permitted.

# Anatomy — Ph.D.

For the Ph.D. degree, students must complete a minimum of 70 units, as detailed in the table below; and must maintain a G.P.A. of at least 3.0. In addition, doctoral students are required to pass both written and oral comprehensive examinations in order to advance to candidacy. They must successfully defend their dissertations before their guidance committee prior to being awarded the Ph.D. degree. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or *Student Guide.* Policies and requirements are subject to change.

| | | |
|---|---|---|
| **Basic science core** | | |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 502 | Biomedical Information and Statistics | 2 |
| IBGS 503 | Biomedical Grant Writing | 2 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | 6 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | 6 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | 2 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | 2 |
| **Major** | | |
| ANAT 516 | Neuroscience GS | 6 |
| ANAT 541 | Gross Anatomy GS | 7 |
| ANAT 542 | Cell Structure and Function GS | 7 |
| ANAT 544 | Human Embryology Lecture | 2 |
| **Seminars** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| IBGS 605 | Integrative Biology Presentation Seminar (1.0) [2] | 2 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar [1] | 1 |
| **Religion** | | |
| RELE 525 | Ethics for Scientists [2] | 3 |
| RELR 588 | Personal and Family Wholeness [2] | 3 |
| RELT 617 | Seminar in Religion and the Sciences [2] | 3 |
| **Research/Dissertation or Thesis** | | |
| ANAT 697 | Research (1-8) | 12 |
| IBGS 696 | Research Rotations (1) | 2 |
| **Total Units** | | **70** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

[2] May substitute with another graduate religion course with the same prefix and numbered 500 or above.

## Normal time to complete the program

Four (4) years — based on full-time enrollment; part-time permitted

# Anatomy — M.S., Ph.D. Comparison

| | Course Title | MS | PhD |
|---|---|---|---|
| **Basic Science Core** | | | |
| IBGS 501 | Biomedical Communication and Integrity | 2.0 | 2.0 |
| IBGS 502 | Biomedical Information and Statistics | 2.0 | 2.0 |
| IBGS 503 | Biomedical Grant Writing | | 2.0 |
| IBGS 511 | Cellular Mechanisms and Integrated Systems I | | 6.0 |
| IBGS 512 | Cellular Mechanisms and Integrated Systems II | | 6.0 |
| IBGS 522 | Cellular Mechanisms and Integrated Systems II Journal Club | | 2.0 |
| IBGS 523 | Cellular Mechanisms and Integrated Systems III Journal Club | | 2.0 |
| **Totals** | | **4.0** | **22.0** |
| | **Course Title** | **MS** | **PhD** |
| **Major** | | | |
| ANAT 516 | Neuroscience GS | 6.0 | 6.0 |
| ANAT 541 | Gross Anatomy GS | 7.0 | 7.0 |
| ANAT 542 | Cell Structure and Function GS | 7.0 | 7.0 |
| ANAT 544 | Human Embryology Lecture | 2.0 | 2.0 |
| **Totals** | | **22.0** | **22.0** |
| | **Course Title** | **MS** | **PhD** |
| **Seminars** | | | |
| IBGS 605 | Integrative Biology Presentation Seminar (1) | | 2.0 |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1.0 | 1.0 |
| IBGS 607 | Integrated Biomedical Graduate Studies Seminar[1] | 1.0 | 1.0 |
| **Totals** | | **1.0** | **3.0** |
| | **Course Title** | **MS** | **PhD** |
| **Religion** | | | |
| RELE 525 | Ethics for Scientists | | 3.0 |
| RELR 588 | Personal and Family Wholeness | | 3.0 |
| RELT 617 | Seminar in Religion and the Sciences | 3.0 | 3.0 |
| **Totals** | | **3.0** | **9.0** |
| | **Course Title** | **MS** | **PhD** |
| **MS completion options** | | | |
| Required units | | 15.0 | |
| Coursework track: | | | |
| ANAT _____ Anatomy/Embryology electives (15 units) | | | |
| Research track: | | | |
| ANAT 697 | Research ((14 units)) | | |
| IBGS 605 | Integrative Biology Presentation Seminar | | |
| **Totals** | | **15.0** | |
| | **Course Title** | **MS** | **PhD** |
| **PhD research/dissertation** | | | |
| ANAT 697 | Research (1-8) | | 12.0 |
| IBGS 696 | Research Rotations (1) | | 2.0 |
| **Totals** | | | **14.0** |
| **Overall Totals** | | **45.0** | **70.0** |

[1] Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

# Pathologists' Assistant — M.H.S.

**Program director**
Cheryl Germain

**Clinical Coordinator**
Michael Weitzeil

**Medical director**
Jeremy Deisch

Loma Linda University offers a professional course of study leading to the M.H.S. degree in pathologists' assistant. This degree prepares students for a career as mid-level health-care professionals in hospital pathology laboratories, private laboratories, universities, and industry.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Perform appropriate anatomic pathology techniques for the preparation, gross description, and dissection of human surgical tissue specimens;
2. Perform appropriate autopsy pathology techniques for the recovery, preparation, gross description, and dissection of human organs and tissue specimens;
3. Communicate effectively verbally and in writing;
4. Administer a pathology laboratory/autopsy service successfully;
5. Train other clinical health professionals using appropriate pedagogy.

## Accreditation

Loma Linda University is accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; website: <http://www.wscuc.org/contact (https://www.wscuc.org/contact/)>.

### Pathologists' Assistant Program accreditation

In April, 2018, the Pathologists' Assistant Program was granted a five-year accreditation, with no citations or concerns, from the National Accrediting Agency for Clinical Laboratory Science (NAACLS). The next accreditation review is in 2023.

NAACLS is the premier accreditation for pathologists' assistant programs. Strict standards required for this accreditation ensure quality education and preparation for the certification examination and competence in the field as a pathologists' assistant. Loma Linda University School of Medicine's Pathologists' Assistant Program will adhere to required standards to produce high-quality and competent pathologists' assistants. For further information, contact the National Accrediting Agency for Clinical Laboratory Sciences, 5600 North River Road, Suite 720, Rosemont, IL 60018-5119; 847/939-3597 or 773/714-8880; website: <http://www.naacls.org>.

## Admissions

The annual application period is November 1-March 31. Applications and all supporting documents (e.g., transcripts, recommendations) must be received by the March 31 deadline. Dates are strict for acceptance of application materials. The class will include 18 students. Accepted applicants will be notified by May 15 to begin the Autumn Quarter (late September).

In addition to Loma Linda University (p. 23) requirements, the applicant must all fulfill the following requirements:

1. A baccalaureate degree from an accredited institution
2. A preferred cumulative GPA of 3.0 or higher
3. Interview—Only select applicants will be invited for an individual interview (no group interviews).
4. All prerequisite courses must be completed at an accredited college or university in the United States prior to admission; coursework from international institutions is not accepted.
   - Biology with laboratory (12 quarter units/8 semester units)
   - General chemistry with laboratory, complete sequence (12 quarter units/8 semester units)
   - Organic chemistry, complete sequence (12 quarter units/8 semester units)
   - Microbiology with laboratory (4 quarter units)
   - College algebra or higher (3 quarter units)
   - English composition (complete sequence)
   - Strongly recommended: medical terminology and conversational Spanish
5. Three letters of recommendation—Recommendations from family members or friends are NOT acceptable. DO NOT ask the pathologists' assistant (PA) with whom you've shadowed for a recommendation.
   a. Suggestions:
      - A laboratory professional (clinical or research) with whom the applicant has worked
      - An undergraduate professor
      - A work supervisor who can address the applicant's work ethic and dependability
   b. Recommendations:
      - Speak with the persons from whom you are requesting recommendations and be sure they know you well, understand the program to which you're applying and why. Make certain they can speak to your abilities; not just that you are a nice person.
      - Be sure the persons supplying the recommendations understand that NO PAPER RECOMMENDATIONS ARE ACCEPTED! All recommendations must follow electronic procedure. If the recommender does not have an email account, help them create a free email account on yahoo or google
6. Proof of shadowing—During the interview the applicant will be asked to relate what a PA does during a normal working day. While there is no required number of hours to shadow, the applicant must be interactive, asking questions to learn the duties of a PA (ASCP). Contact information of the PA with whom you shadowed must be provided.
7. The GRE, or any other pre-graduate school standardized testing, is not required.

NOTE: There are no transfers of credit into the Pathologist's Assistant program. All courses in the curriculum must be completed at Loma Linda University.

The Pathologist's Assistant program follows the LLU Nondiscrimination Policy (p. 13).

## Program requirements

| | | |
|---|---|---|
| **First Year** | | |
| **Autumn Quarter** | | **Units** |
| ANAT 544 | Human Embryology Lecture | 2 |
| IBGS 501 | Biomedical Communication and Integrity | 2 |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| PATH 501 | Anatomy and Pathology I | 4 |
| PATH 521 | Anatomical Techniques I | 3 |
| **Winter Quarter** | | |
| AHCJ 515 | Curriculum Development in Higher Education | 3 |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| PATH 502 | Anatomy and Pathology II | 4 |
| PATH 522 | Anatomical Techniques II | 3 |
| PHSL 588 | Pathophysiology | 4 |
| **Spring Quarter** | | |
| IBGS 604 | Introduction to Integrative Biology Presentation Seminar | 1 |
| PATH 524 | Clinical Microbiology for Pathologists' Assistants | 3 |
| PATH 551 | Disease Mechanisms I | 3 |
| PATH 581 | Basic Pathologic Microanatomy | 2 |
| RELE 505 | Clinical Ethics | 3 |
| **Summer Quarter** | | |
| PATH 534[1] | Civic Engagement and Poverty: Service Learning | 1 |
| PATH 552 | Disease Mechanisms II | 3 |
| PATH 564 | Biomedical Photography | 1 |
| PATH 582 | Advanced Microanatomy | 2 |
| PATH 598 | Clinical Laboratory Management | 2 |
| PATH 644 | Clinical Pathology Seminar | 2 |
| **Second Year** | | |
| **Autumn Quarter** | | |
| PATH 741 | Pathology Review I | 2 |
| PATH 761 | Pathologists' Assistant Practicum I | 9 |
| **Winter Quarter** | | |
| PATH 742 | Pathology Review II | 2 |
| PATH 762 | Pathologists' Assistant Practicum II | 9 |
| **Spring Quarter** | | |
| PATH 743 | Pathology Review III | 2 |
| PATH 763 | Pathologists' Assistant Practicum III | 9 |
| **Summer Quarter** | | |
| PATH 744 | Pathology Review IV | 2 |
| PATH 764 | Pathologists' Assistant Practicum IV | 9 |
| | **Total Units:** | **94** |

[1] Fulfills service learning requirement

Multiple clinical rotations are assigned by the program director to ensure a varied and comprehensive clinical experience for each student. Rotations will include surgical pathology in academic and community settings, private laboratories, pediatric pathology, medical examiners offices and hospital autopsy services.

### Noncourse Requirements

- Will Alexander Lecture Series: Attendance at the Will Alexander Wholeness Series is mandatory in PGY1. The series extends from Fall to Spring Quarters, once a month, Wednesday evenings for one hour. The lecture series includes topics on wholeness, personal/professional development, care of creation, diversity, and service.

### Normal time to complete the program

Two (2) years (24 months) — full-time enrollment required

# Biomedical Sciences – M.M.S.

**Program Coordinator**
Kenneth R. Wright

Students accepted into the Master of Medical Science (M.M.S.) degree program in biomedical sciences enroll in five of the six blocks taken by first-year medical students, but at a reduced class-load. Faculty members responsible for teaching students in the M.M.S. degree program teach these first-year blocks.

The program enables students to complete their studies in one academic year of full-time commitment. The program is intended to provide experience in the rapidly changing area of biomedical sciences; and prepares students to apply to professional programs in medicine or to pursue other career options—such as high school teaching, patent law, or biotechnology management.

The curriculum includes 3 units of religion and a 7-unit, year-long seminar —including topics such as the science of learning, critical thinking, medical practice management, clinical cases, and writing a thesis paper. The remaining units come from the first-year medical curriculum —which includes the following blocks: foundations, hematology and immunology, musculoskeletal and skin, endocrine and reproductive, and cardiovascular. Although courses share lecture/active learning/laboratory experiences and assessments with the Doctor of Medicine (M.D.) degree program, such courses will not be transferred to the M.D. degree program. A student subsequently admitted to the M.D. degree program should expect to take, and pay for, the normal M.D. degree curriculum.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Demonstrate mastery of foundational knowledge in the basic sciences;
2. Develop skill in critical thinking and appropriate study strategies;
3. Develop a social support network and an attitude of teamwork;
4. Lay the foundation for the concept of whole-person care through spiritual, social, and scientific growth and knowledge;
5. Demonstrate personal ethics in both academic and social settings.

## Admissions

Applicants to the Master of Medical Science must satisfy the same requirements (p. 285) as those applying to the Doctor of Medicine Program at Loma Linda University. They will have completed a

baccalaureate degree (or its equivalent) with a course of study that includes a year each of general biology, general chemistry, organic chemistry, and general physics and a course in biochemistry. Applicants are required to take the Medical College Admission Test (MCAT). Students are accepted into the program on recommendation of the School of Medicine admissions committee only.

# Program requirements

| | | |
|---|---|---|
| BCVS 510 | Cardiovascular Block | 4.5 |
| BENR 510 | Endocrine and Reproductive Block | 7 |
| BFDN 510 | Foundations Block | 14 |
| BHMI 510 | Hematology and Immunology Block | 6 |
| BMSC 510 | Master of Medical Science Seminar | 7 |
| BMSK 510 | Musculoskeletal and Skin Block | 3.5 |
| RELR 540 | Wholeness and Health [1] | 3 |
| **Total Units** | | **45** |

[1] Fulfills service learning requirement

## Noncourse requirement

To be eligible for the M.M.S degree, all required courses must be completed with an overall G.P.A. of 3.0 or above and no grade below a "C."

## Normal time to complete the program

One (1) year (3.5 academic quarters) — full-time enrollment required

# Professional

## Academic information

The information on student life contained in this CATALOG is brief. The Loma Linda University *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies, and is available on the University website as <llu (http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf).edu/student-handbook (http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf)>. All students are expected to familiarize themselves with the contents of the *Student Handbook* —including the section that pertains specifically to the School of Medicine—and to abide by its policies. Additional information regarding policies specific to the School of Medicine are provided by the school at the orientation to each academic year. Students who have questions about the *Student Handbook* should contact the senior associate dean for medical student education.

### USMLE Steps I and II policy

The *Student Handbook* provides conditions and deadlines for taking and passing USMLE examinations.

## Program requirements

We instituted a competency-based curriculum with full implementation in 2018.

### Competencies for medical student education

***Patient Care***—Students must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health in the context of whole person care.

- *History Taking*—Obtain and synthesize relevant and accurate information about the patient.
- P*hysical Examination*—Perform appropriate, complete, and accurate physical examination.
- *Oral Case Presentation*—Provide an oral presentation of a clinical encounter appropriate for the clinical case, context, and audience.
- *Medical Documentation*—Document a clinical encounter in the patient record.
- *Procedures and Skills*—Perform skills and procedures required for patient care.
- Patient Management—Provide patient care that is compassionate, appropriate, and effective.

***Medical Knowledge***—Students must demonstrate the ability to effectively source and validate medical information, possess an adequate foundation of basic scientific knowledge, and apply this knowledge and information to the care of patients using clinical reasoning and problem solving skills in a whole person care approach.

- *Fundamental Medical Knowledge*—Comprehend the established and evolving basic and clinical biomedical sciences, including epidemiological and social/behavioral sciences.
- *Health Promotion and Disease Prevention*—Promote health and prevent disease.
- *Ethics and Spirituality, Culture of Patients*—Employ ethical principles and knowledge of religious beliefs and spirituality and cultural beliefs of patients and their families to enhance patient care.
- *Sourcing and Evaluation of Medical Information*—Use information technology to optimize delivery of patient care.
- *Problem Solving and Clinical Reasoning Skills*—Demonstrate problem solving and clinical reasoning skills

***Professionalism***—Students must demonstrate professional behaviors, attitudes and beliefs that allow patients, colleagues, members of the healthcare team and society to approach each physician encounter with an expectation of trustworthiness.

- *Personal Attributes*—Show ownership for one's choices, attitudes, and behaviors.
- *Relationship Attribute*s—Demonstrate compassion, integrity and respect for others, including sensitivity and responsiveness to a diverse patient population.
- *Societal Responsibilities*—Fulfill obligation to patients, colleagues, and society.

***Systems-Based Practice***—Students must demonstrate an awareness of and responsiveness to the larger context and system of health care, (including health policy, social policy, and advocacy), as well as the ability to call effectively on other resources, including interprofessional teams in the system, to provide optimal health care.

- *Health Care Delivery Systems*—Demonstrate knowledge of health care delivery systems and their potential effects on the health of patients and communities.
- System Resources—Apply system-level approaches to improve quality of healthcare.
- *Interprofessional Education*—Collaborate effectively to improve health outcomes.

***Practice-Based Learning and Improvement***—Students must demonstrate the ability to investigate and evaluate their care of patients, appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

- *Evidence-Based Medicine*—Use principles of evidence-based medicine to optimize patient care.
- *Feedback, Self-assessment and Reflectio*n—Develop lifelong learning skills through seeking feedback, self-assessment, and reflection.
- *Practice-based Quality Improvement*—Engage in improvement of health care systems.

***Interpersonal and Communication Skills***—Students must be able to demonstrate culturally sensitive interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates. Students will recognize the presence of implicit bias.

- *Relationship-Building Skills*—Demonstrate adaptability in relationships with colleagues, patients, and their families.
- *Effective Listening Skills*—Actively engage in the skill of listening in educational and patient care settings.
- *Information Sharing Skills with Patients and their Families*—Communicate effectively within the context of the cultural beliefs, practices, and needs presented by patients and their communities.
- *Information Sharing with Professional Associates*—Present and document patient information to professional associates.
- *Communication with the Medical Team*—Work cooperatively with interprofessional health care teams.

***Whole Person Care***—Through the study and application of whole person care, students will develop an understanding of wholeness/wellness that is applied to their relationship with patients, colleagues, and themselves.

- *Whole Person Care of Patients*—Apply whole person care model to the care of patients.
- *Personal Wholeness of Self/Colleagues*—Apply Whole Person Care/Wellness to care of colleagues, and help support a healthy medical community. Implement wholeness strategies for personal development.

**Doctor of Medicine degree requirements**

The School of Medicine requires that a candidate for a degree or certificate from the school must have met the following requirements for the Doctor of Medicine degree:

- Completed all requirements for admission.
- Attended an accredited medical school for four academic years, the last two of which must have been spent at this school.
- Completed honorably all requirements of the curriculum, including specified attendance, level of scholarship, length of academic residence, and credit units.
- Completed additional special examinations covering any or all subjects of the medical curriculum, as may be required.
- Successfully completed USMLE examinations (Steps I and II), as specified—both clinical skills and knowledge components.
- Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the school.
- Discharged financial obligations to the University.

The candidate is required to participate in graduation exercises upon completion of the academic program. If the candidate is out of sequence with their current class but would like to participate in the commencement exercises, they must have completed a minimum of three months of the required senior clerkships, i.e., medicine, pediatrics, family medicine or surgery sub-internship, preventive medicine and public health, intensive care and emergency medicine by April 1 of the year of graduation. Consent for the student to be absent, granted by the university president, is contingent on the recommendation of the dean to the president.

The families and friends of graduates are invited to be present at the official conferring of degrees service.

# Licensing examinations

### National

The graduate who holds credentials from the USMLE may be granted a license by endorsement of the Federation of State Medical Boards (FSMB). Additional information can be found on the FSMB website at www.fsmb.org

# Postgraduate training

## Graduate specialty medical education residencies

Loma Linda University is affiliated with a variety of accredited residency programs in two sponsoring institutions. The first is Loma Linda University Health and the second Loma Linda-Inland Empire Consortium for Healthcare Education. Additional nonaccredited fellowships are available.

Graduate physicians wishing to apply for entrance into these programs should contact the director of the program.

These programs are sponsored by Loma Linda University Health and Loma Linda Inland Empire Consortium for Healthcare Education.

## Postgraduate training

In harmony with the needs of medicine today, the curriculum leading to the Doctor of Medicine degree is planned with the assumption that all students will take standard postgraduate training in one of the fields of medicine. This means serving as a resident for a minimum of three years in a hospital approved for this training by the Council of Medical Education and Hospitals of the American Medical Association.

The Office of the Senior Associate Dean for Medical Student Education supplies information and assistance for the arrangement of residencies. Because the school participates in the National Residency Matching Program, selection through this means constitutes approval by the School of Medicine.

## Continuing medical education

Recognizing the imperative of lifelong learning for professionals, the School of Medicine supports a program of continuing medical education for physicians beyond their formal postgraduate years. The Office of Continuing Medical Education is accredited by the Accreditation Council for Continuing Medical Education to provide *AMA PRA Category I Credit(s)™* for physicians. Course offerings include weekly, bi-weekly, and monthly School of Medicine departmental grand rounds as well as a large number of one-day and multiday conferences and workshops that are presented locally and nationally for School of Medicine faculty, alumni, and practicing physicians within the geographic area in which the conferences are presented.

For more information please write to:

Dana Gonzalez, Associate Director
Loma Linda University School of Medicine
Continuing Medical Education Office
11175 Campus Street, CP A1116G
Loma Linda, CA 92350
909/558-4963
dmmgonzalez@llu.edu (mmorrell@llu.edu)

# Clinical facilities

Clinical instruction takes place primarily at Loma Linda University Health, which includes the Loma Linda University Children's Hospital, Loma Linda University East Campus Specialty Hospital, Loma Linda University Surgical Hospital, Faculty Medical Offices (FMO), Loma Linda University Behavioral Medicine Center, and Loma Linda University Medical Center—Murrieta. Additional clinical teaching sites include Kettering Medical Center in Dayton, Ohio, Jerry L. Pettis Memorial Veterans Medical Center, Riverside University Health System-Medical Center, and the White Memorial Medical Center. Also utilized are Arrowhead Regional Medical Center, Riverside Community Hospital, Glendale Adventist Medical Center, and Kaiser Permanente.

## The instructional resources

### Loma Linda University Medical Center (LLUMC)

Loma Linda University Medical Center is a major teaching center serving San Bernardino and Riverside counties. In addition to its large population of referred patients, the medical center is also a Level 1 trauma center

for the region, comprehensive stroke center, STEMI receiving center, and a tertiary care center for high-risk obstetrics and neonatal intensive care. An extension houses the Loma Linda Cancer Center and the Proton Treatment Center for cancer therapy. Patients in the medical center are available for medical student, resident, and fellowship training.

### Loma Linda University Children's Hospital

Loma Linda University Children's Hospital provides a single, centralized location where newborns, infants, and children can receive comprehensive and emergent medical care. Being seen at a comprehensive center for children's health care assures parents and their children that all aspects of the child's health will be closely monitored and understood. Loma Linda University Children's Hospital staff—pediatric nurses, physicians, surgeons, anesthesiologists, radiologists, and other professionals—work together to assure that every patient receives the highest possible quality of medical attention.

The organization of a children's hospital also means that the hospital staff is chosen from among people who are specially trained and have a deep interest in children's health care. Every Loma Linda University Children's Hospital employee is highly skilled in dealing with children and has made the care of children a personal priority. The children's hospital is known as "the place for little faces."

### Loma Linda University East Campus Specialty Hospital

East Campus Specialty Hospital (formerly Loma Linda Community Hospital) is a teaching resource for students in family medicine, physical medicine and rehabilitation, orthopaedics, and clinical neuroscience. In addition, it serves as the primary inpatient training site for house staff in family medicine.

### Loma Linda University Surgical Hospital

Loma Linda University Surgical Hospital is a specialty hospital that serves as a teaching resource for various specialties.

### Loma Linda University Behavioral Medicine Center

Loma Linda University Behavioral Medicine Center, a freestanding, full-service psychiatric hospital, opened in 1991. Loma Linda University Behavioral Medicine Center offers adult, child, adolescent, and chemical dependency services, including inpatient and partial hospitalization. Special emphasis is given to services that provide the integration of Christian faith with psychiatric care for patients desiring such.

### Faculty Medical Offices

The Faculty Medical Offices (FMO) include facilities for multiple specialties and an outpatient surgery suite. The FMO is utilized for student outpatient experience.

### Kettering Medical Center

Kettering Medical Center (KMC), part of the Seventh-day Adventist Health care system is a tertiary care, level 2 trauma center delivering whole person care. It is one of the two major teaching centers in the Dayton Metro area which serves a population of greater than 1.5 million. It features cutting edge technology, state of the art clinical services with a cardiovascular division providing high volume interventional cardiology services and all aspects of structural cardiac procedures including the greatest volume of transcatheter aortic valve replacements in the region, a cancer center, and state of the art neurologic services including acute interventions. KMC has a greater than 50-year tradition of medical education, including medical student from both Wright State University and Loma Linda, resident, and fellow education.

### Jerry L. Pettis Memorial Veterans Medical Center

The Jerry L. Pettis Memorial Veterans Medical Center serves a wide geographic area and cares for a large population of veterans. Outpatient facilities, including a new state of the art ambulatory care center and inpatient wards are available for student and resident teaching. The residency programs are integrated with the Loma Linda University Medical Center and are under the supervision of the faculty of the School of Medicine.

### Riverside University Health System—Medical Center

RUHS-MC, located 10 miles southeast of Loma Linda in the city of Moreno Valley, is a regional medical center providing care to all patients in need. Patients are available for student and resident training.

### White Memorial Medical Center

White Memorial Medical Center is located approximately 60 miles west of Loma Linda in Los Angeles. The patient population reflects an inner-city profile with a large concentration of urgent medical and surgical, trauma, obstetrics, and pediatrics cases. Patients are available for student, resident, and fellowship training.

# Medical Scientist — M.D./Ph.D.

**Program director**
Penelope J. Duerksen-Hughes

## Objectives

Loma Linda University is committed to fostering the investigative skills of its medical students. Students interested in pursuing careers in academic medicine and medical research may wish to enroll in one of the combined degree programs.

The Medical Scientist Program develops a student's independence and competence as an investigative scientist and clinician. It provides students with a broad educational base for the practice of medicine and related research. The program is administered by the School of Medicine in cooperation with the Faculty of Graduate Studies.

## Program description

The Medical Scientist Program at Loma Linda University is designed to attract those students who are energized by engaging in biomedical research and wish to contribute substantially to this enterprise. The expectation is that graduates of this program will pursue careers in academic medicine and medical research. Areas of study for the Ph.D. degree include: anatomy; cancer, developmental, and regenerative biology; infection, immunity, and inflammation; and neuroscience, systems biology, and bioengineering. The program integrates graduate and medical education within a Christian environment, and is designed to allow completion of both the Ph.D. and M.D. degrees.

Students typically begin the combined degree program by taking two years of medical school, culminating in successful completion of Step 1 of the USMLE examination. Students then transition to the Ph.D. portion of the curriculum, where they take and pass required courses, successfully pass written and oral qualifying examinations, and complete and successfully defend doctoral dissertations. Students then transition back to the M.D. program, where they finish the final two years of training, completing all of the standard clinical rotations, and take and pass Step 2 of the USMLE. A student must finish all requirements for the Ph.D. degree before being allowed to register for the last year of medical school. In

most cases, the sequence should take approximately eight years to complete.

Combined degree students must complete the full curricula for both the M.D. and the Ph.D. programs, with the exception that during the Ph.D. years, two rather than three, 3-unit religion courses are required, which must include RELT 617 Seminar in Religion and the Sciences and either RELE or RELR 500-level or above classes; and during the M.D. years, complete 12 units of 700-level religion coursework rather than 14 units, with these 12 units to include RELR 775 Whole Person Care, RELE 708 Medicine and Ethics, and RELE 714 Advanced Medical Ethics. Students are encouraged to inquire about the possibility of waiving specific graduate-level classes where equivalent mastery has been demonstrated in the M.D. curriculum.

Students interested in beginning the sequence with Ph.D. training, or who have other special requests, are encouraged to communicate with the program coordinator, since some customization may be possible.

## Admissions

Admission into the Medical Scientist Program is competitive and requires evidence that the student is likely to develop into a successful medical scientist. The student must submit separate applications to the School of Medicine for both the M.D. and the Ph.D. degree programs, and meet the stated admissions requirements for each program. The application package for the Ph.D. degree requires scores for the general test of the Graduate Record Examination. Both programs must accept the candidate in order for the candidate's credentials to be evaluated by the MD/PhD committee for acceptance into the Medical Scientist Program (MD/PhD). Students entering the M.D./Ph.D. combined degrees program who determine that a research career is inappropriate may elect to complete the M.D. degree program independently. Students entering the Ph.D. degree program who desire a career in academic medicine may choose to apply for admission to the M.D./Ph.D. combined degrees program at a point after their entry into the Ph.D. degree program; however, the standard medical school application process will be required at that point.

## Financial assistance

Financial assistance to students in the Medical Scientist Program *may* provide:

1. Cost-of-living stipends during those periods in which students are most directly involved in graduate education. The amount of the stipend is equivalent to that available to Ph.D. degree students in the basic science graduate programs.*
2. Tuition waivers for all graduate program coursework.
3. Tuition deferment for the M.D. curriculum, upon completion of a Ph.D. degree.

Tuition assistance for the M.D. portion of the combined degree program is not given to all students who earn both degrees. Assistance for the M.D. portion will only be given in cases where an applicant has received approval from the School of Medicine MD/PhD Committee prior to beginning the M.D. coursework. Assistance that is received will be in the form of an institutional loan which will cover MD tuition and fees but will not include living expenses. The School of Medicine makes provision for the loan to be forgiven when a recipient meets the terms described below and in the loan agreement.

M.D./Ph.D. degree students are ordinarily expected to complete their Ph.D. degree before beginning the third year of medical school. Students who have not completed the Ph.D. degree may apply for a tuition deferment for their third year of the medical curriculum, and, in unusual cases, for the first term of their fourth year. Applications for tuition deferment beyond the first two years must be approved by the student's dissertation committee and signed by the dissertation advisor, the associate dean for basic sciences, and the dean of the School of Medicine. Under no circumstances will a student be granted a tuition deferment until they have finished the requirements for the Ph.D. degree. If a student withdraws from the Ph.D. degree program their tuition deferments will be converted to a loan. Completion of the M.D. degree terminates the student's participation in the Medical Scientist Program and ends the availability of tuition waiver. Any tuition deferments then in force will convert to loan obligations at that time.

If a student has received acceptances into both the M.D. and the Ph.D. programs, but is not accepted into the MSP, they may elect to complete one or both degrees; however, tuition support for the medical program will not be available to these individuals.

* Stipends from the School of Medicine will be awarded for the first two years of the graduate program, provided that the student makes satisfactory academic process and remains in good and regular standing. Stipends covering study beyond the first two years should ordinarily be obtained from the individual laboratories or departments in which the student conducts research.

# Medicine — M.D.

## Curriculum

The curriculum in medicine consists of four academic years. The foundational basic and clinical sciences are integrated throughout medical school, with an emphasis on the basic sciences in the first half, and the clinical sciences in the second half of the curriculum. Organ system blocks are used to integrate the traditional basic science disciplines and other important topics into a single course covering each system, with six blocks taught sequentially in year one, and four blocks in year two. The educational program makes use of a wide variety of pedagogical methods—including but not limited to traditional and interactive lectures; problem, team, and case-based learning; personalized computer-based instruction; quantitative laboratory experiences; patient-care experiences; and the use of simulation and standardized patients.

Students also begin to develop the skills and professional behaviors that are integral to the safe, competent, compassionate, ethical, and Christian practice of medicine—both now and in the future—through participation in two longitudinal courses, which extend throughout medical school. The Clinical Skills course is designed to sequentially develop skills in patient-care, communication, critical thinking, practice-based learning and improvement, professionalism, and whole-person care. Students will have opportunities to participate in both inpatient and outpatient care experiences throughout each year of medical school, in addition to the use of standardized patients and simulation experiences. The Christian Physician Formation course is taught in LIFE communities, where small groups of students are paired with clinical faculty. This course includes a religion component, which is co-taught by faculty from the School of Religion and clinical faculty, as well as topics including resilience, professionalism, social determinants of health, and lifestyle medicine. Students are provided with a faculty mentor through this course to guide them through their educational journey.

The third year of medical education is organized into two components. The primary care block consists of rotations in internal medicine, pediatrics, and family medicine, and includes a continuity clinic experience. Surgery, obstetrics and gynecology, and neurology/psychiatry are combined in the second component. During these rotations, students obtain a foundation for patient care in ambulatory and hospital-based settings through a process of self-directed learning, guided supervision, and teaching by house staff and faculty members in the clinical setting, along with the use of standardized patients and simulation experiences. Recurring experiences in whole-person care, medical ethics, radiology, lifestyle and preventive medicine, social determinants of health, and patient safety are integrated into these core rotations. Students have the opportunity to explore areas of interest during two elective experiences.

During advanced integration weeks, third and fourth-year students will have the opportunity to explore multiple topics. Students will attend plenary sessions led by visiting speakers each morning and participate in breakout groups in the afternoons. These sessions include topics on religion/spirituality, social determinants of health, cultural humility, resilience, and lifestyle medicine. Themes such as "Whole-Person Care" and "God and Human Suffering" will bring topics together to integrate learning. During the integration weeks, students will also have access to mentoring with regard to career planning, specialty choice, and the residency application process.

The fourth year of medical education requires students to integrate the knowledge and skills gained during the first three years, and apply it more autonomously to patient care. Students participate in supervised patient-care experiences in emergency medicine, intensive care medicine, preventive medicine and public health, a selective in either medicine or surgery, and a subintern-level experience in medicine, surgery, family medicine, or pediatrics. Students have ample opportunity to pursue individual interests during four months of elective rotations. To emphasize the importance of science in medical practice, up to a one-month elective must be completed in the basic science discipline of the student's choosing. Students have adequate flexible time to study for Step II (clinical knowledge and clinical skills) of the USMLE and successfully participate in the residency selection process.

# Departments

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# Admissions

## The Study of Medicine

To prepare for a career in medicine, applicants should pursue a broad understanding in the major areas of knowledge–the natural sciences, the behavioral sciences, and the humanities–which will assist them in learning throughout their lives.

The School of Medicine Admissions Committee selects applicants who are best suited to fulfill the mission of the school and to successfully practice medicine. The committee selects applicants who demonstrate the ability to learn independently, to think critically, and to articulate clearly—both orally and in written form—their ideas and opinions. It is important that applicants to the School of Medicine demonstrate excellent interpersonal skills and show evidence of sensitivity to the needs of humanity.

The Admissions Committee puts forth considerable effort to ensure that an applicant is qualified for medical school. The applicant's academic record and MCAT scores are reviewed to assess the applicant's ability to handle the academic rigors of the medical curriculum. The committee also looks for prerequisite qualities of character and personality, potential for self-direction, good judgment, integrity, and dedication to the ideal of service to humanity.

## Selection Criteria

Applicants are selected based on a holistic review of the academic record, MCAT scores, medical and service experiences, mission fit, recommendations, interpersonal and intrapersonal competencies, and personal interviews. The Admissions Committee seeks individuals who have demonstrated a serious personal commitment to the practice of medicine and have altruistic goals and ideals.

The School of Medicine is owned and operated by the Seventh-day Adventist Church; therefore, preference for admission is given to qualified members of the Church. However, it is a firm policy of the Admissions Committee to admit applicants from other faiths who have demonstrated a commitment to Christian principles and are best suited to meet the educational goals of the School. No candidate is accepted on the basis of religious affiliation alone.

### Required

Required courses must be completed at an accredited institution of higher education in the United States or Canada. The following courses are required for consideration:

General biology (excludes microbiology, anatomy and physiology), one year sequence with lab

General or inorganic chemistry, one year sequence with lab

Organic chemistry, one year sequence with lab

General physics, one year sequence with lab

Biochemistry, one academic term; lab recommended

CLEP and pass/fail performances are not acceptable for the required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing, or pharmacy) do not fulfill requirements for admission to medicine. Advanced Placement (AP) credits for the required science courses generally are not accepted.

### Medical College Admission Test (MCAT)

Applicants must complete the MCAT prior to consideration by the Admissions Committee. The MCAT is based on knowledge gained from required science courses. The test must be taken no later than September of the year prior to matriculation. MCAT scores older than three years from the date of matriculation are not considered.

### Health-care experience

Applicants are required to obtain physician shadowing experience and direct patient care exposure to better inform their decision for a career in medicine.

## Technical Standards

Applicants must meet the Admission and Graduation Standards with or without reasonable accommodations.

Loma Linda University School of Medicine candidates for the M.D. degree must have abilities and skills of five varieties, including: observation; communication; motor function; intellectual-conceptual, integrative, and quantitative abilities; and behavioral and social attributes. Technological compensation can be made for some handicaps in certain areas, but a candidate should be able to perform in a reasonably independent manner without the use of a surrogate.

OBSERVATION: The student must be able to observe demonstrations and experiments in the basic sciences, including but not limited to physiologic and pharmacologic demonstrations in animals, microbiologic cultures, and microscopic studies of microorganisms and tissues in normal and pathologic states. A student must be able to observe a patient accurately at a distance and close at hand. Observation necessitates the functional use of the senses of vision, touch, hearing, and somatic sensation. It is enhanced by the functional use of the sense of smell.

COMMUNICATION: A student must be able to speak, to hear, and to observe patients in order to elicit information; describe changes in mood, activity, and posture; and perceive nonverbal communications. A student must be able to communicate effectively and sensitively with patients, colleagues, and other personnel. Communication includes not only speech but also reading and writing. The student must be able to communicate effectively and efficiently in oral and written form with all members of the health-care team.

MOTOR FUNCTION: Students should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion, and other diagnostic maneuvers. A candidate should be able to conduct basic laboratory tests (urinalysis, CBC); carry out diagnostic procedures (proctoscopy, paracentesis); and read EKGs and X-rays. A candidate should be able to execute motor movements reasonably required to provide general care and emergency treatment of patients. Examples of emergency treatment reasonably required of physicians are cardiopulmonary resuscitation, the administration of intravenous medication, the application of pressure to stop bleeding, the opening of obstructed airways, the suturing of simple wounds, and the performance of simple obstetrical maneuvers. Such actions require coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

INTELLECTUAL, CONCEPTUAL, INTEGRATIVE AND QUANTITATIVE ABILITIES: These abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem solving, the critical skill demanded of physicians, requires all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures.

BEHAVIORAL AND SOCIAL ATTRIBUTES: Medical students must possess the emotional health required for appropriate utilization of their intellectual abilities, the exercise of good judgment, and the timely completion of all responsibilities attendant to their academic work, team work, and patient care. They must demonstrate the ability to develop mature, sensitive and effective professional relationships with peers, faculty, staff, members of the healthcare team, and patients. Medical students must demonstrate empathy, and concern for others while respecting appropriate personal and professional boundaries. Medical students must demonstrate integrity as manifested by truthfulness, acceptance of responsibility for one's actions, accountability for mistakes, and the ability to place the well-being of the patient above their own when necessary. They must be able to tolerate demanding workloads and to function effectively under stress. They must be able to adapt to changing environments, to display flexibility and to learn to function in the face of uncertainties inherent in medical education and clinical practice settings.

### Application

Application to the School of Medicine must be submitted through the American Medical College Application Service (AMCAS). Invitations to submit a secondary application are sent to applicants. Letters of recommendation as specified are required and must be submitted to AMCAS

### Pre-entrance health requirement and health coverage

Medical students are exposed to patients beginning in the first year of medical education. Because of this, it is necessary for students to have immunizations against certain infectious diseases. In order to complete registration for the first academic term, students must give evidence in the form of physician records or college health service records that they have met immunization requirements. Students without proper verification will be required to receive immunizations, and the charges will be billed to the student's account. Pre-entrance requirements may be found online at Student Health Service. Students are also required to have certain injections and immunizations repeated at various intervals during their enrollment, including an annual skin test for tuberculosis.

Medical students are required to have an influenza vaccination on an annual basis in order to meet the requirements of clinical sites where students will be working. These vaccinations will be administered by Student Health Service at the beginning of each flu season.

Incoming students are expected to have routine dental and medical care as well as elective surgery attended to prior to registration.

Medical students are provided with health coverage through the University's Department of Risk Management. The Student Health Plan remains in effect for students who are regularly enrolled, provided they register and pay tuition and fees on time each academic term. Student Health Plan benefit information may be found online at Student Health Service. The plan does not cover optical care and provides only limited dental care. A student who does not have health insurance coverage for their spouse/children may purchase coverage through the University's Department of Risk Management at the time of registration or during specified enrollment periods. The Student Health Plan is available online at Student Health Service. For further information, contact Risk Management at (909) 651-4010.

## Transfer

Loma Linda University School of Medicine accepts transfer applications if transfer positions are available. Opportunities for transfer are rare. If a transfer position should be available, applications are accepted only from students in good standing at LCME-accredited allopathic medical schools in the United States. Among the requirements for transfer consideration, students must have completed all preclinical coursework and passed USMLE Step 1.

# Program requirements

| | | |
|---|---|---|
| **First Year** | | |
| MCPF 510 | Christian Physician Formation | 4 |
| MCSD 510 | Clincal Skills Developement | 5.5 |
| MCVS 510 | Cardiovascular Block | 9 |
| MENR 510 | Endocrine & Reproductive Block | 9 |
| MFDN 510 | Foundations Block | 17.5 |
| MHMI 510 | Hematology & Immunology Block | 6.5 |
| MMSK 510 | Musculoskeletal and Skin Block | 5 |
| MPLM 510 | Pulmonary Block | 6 |
| MSEL 510 | First-Year Selective | 2 |
| RELR 704 | Orientation to Christian Physician Formation | 2 |
| RELT 716 | God and Human Suffering | 2 |
| Select two of the following: [1] | | 4 |
| RELR 749 | Marriage and Family Wholeness | |
| RELT 706 | Adventist Beliefs and Life | |
| RELT 707 | Medicine, Humanity, and God | |
| RELT 740 | World Religions and Human Health | |
| RELT 767 | Apostle of Hope: The Life, Letters, and Legacy of Paul | |
| **Second Year** | | |
| MAIN 610 | Application & Integration Block | 9.5 |
| MCPF 610 | Christian Physician Formation | 2 |
| MCSD 610 | Clinical Skills Development | 3 |
| MGIL 610 | Gastrointestinal and Liver Block | 5.5 |
| MNHB 610 | Neuroscience & Human Behavior Block | 16 |
| MREN 610 | Renal and Urinary Block | 7 |
| MSEL 610 | Second-Year Selective | 2 |
| RELE 708 | Medicine and Ethics | 1 |
| RELR 775 | Whole Person Care | 2 |
| Select one of the following: [1] | | 2 |
| RELR 749 | Marriage and Family Wholeness (If not taken 1st year) | |
| RELT 734 | Foundations for International Health-Care Missions | |
| RELT 740 | World Religions and Human Health (If not taken 1st year) | |
| **Third Year** | | |
| 1.5 units = 1 week of clinical clerkship | | |
| FMDN 701 | Family Medicine Clerkship (6 weeks) | 9 |
| GYOB 701 | Gynecology and Obstetrics Clerkship (6 weeks) | 9 |
| MCPF 710 | Christian Physician Formation | 3 |
| MEDN 701 | Medicine Clerkship (8 weeks) | 12 |
| MNES 791 | Third-year Elective (4 weeks) [2] | 6 |
| NEPS 710 | Neurology/Psychiatry Clerkship (8 weeks) | 12 |
| PEDS 701 | Pediatrics Clerkship (8 weeks) | 12 |
| RELE 714 | Advanced Medical Ethics | 2 |
| SURG 701 | Surgery Clerkship (8 weeks) | 12 |
| **Fourth Year** | | |
| Clinical clerkships | | |
| EMDN 821 | Emergency Medicine Clerkship (2 weeks) | 3 |
| MDCJ 821 | Preventive Medicine and Population Health (4 weeks) [3] | 6 |
| Select one rotation (4 weeks): | | 6 |
| MEDN 822 | Medicine Intensive Care | |
| PEDS 822 | Pediatrics Intensive Care | |
| SURG 822 | Surgery Intensive Care | |
| Subinternship: Select one rotation (4 weeks) | | 6 |
| FMDN 821 | Family Medicine Subinternship | |
| MEDN 821 | Medicine Subinternship | |
| PEDS 821 | Pediatrics Subinternship | |
| SURG 821 | Surgery Subinternship | |
| Selective (4 weeks) | | |
| MEDN 891 | Medicine Elective | 6 |
| or SURG 891 | Surgery Elective | |
| Select 24 units (16 weeks) of the following: | | 24 |
| ANAT 891 | Anatomy Elective | |
| ANES 891 | Anesthesiology Elective | |
| BCHM 891 | Biochemistry Elective | |
| DERM 891 | Dermatology Elective | |
| EMDN 891 | Emergency Medicine Elective | |
| FMDN 891 | Family Medicine Elective (General Family Medicine) | |
| GYOB 891 | Gynecology and Obstetrics Elective | |
| MDCJ 891 | Whole Person Care | |
| MEDN 891 | Medicine Elective | |
| NEUR 891 | Neurology Elective | |
| NEUS 891 | Neurosurgery Elective | |
| OPHM 891 | Ophthalmology Elective | |
| ORTH 891 | Orthopaedic Surgery Elective | |

| | | |
|---|---|---|
| OTOL 891 | Otolaryngology Elective | |
| PATH 891 | Pathology Elective | |
| PEDS 891 | Pediatrics Elective | |
| PHRM 891 | Pharmacology Elective | |
| PHSL 891 | Physiology Elective | |
| PMRH 891 | Physical Medicine and Rehabilitation Elective | |
| PRVM 891 | Preventive Medicine Elective | |
| PSYT 891 | Psychiatry Elective | |
| RADS 891 | Radiology Elective | |
| RDMN 891 | Radiation Medicine Elective | |
| SURG 891 | Surgery Elective | |
| UROL 891 | Urology Elective | |
| **Total Units** | | **250.5** |

[1] Not limited to the courses listed.

[2] Upon permission, students may complete this course as the first elective in the fourth year

[3] Fulfills service learning requirement

## Normal time to complete the program

Four (4) years — full-time enrollment required

# Anesthesiology

The goals of the Department of Anesthesiology are to:

1. Provide necessary anesthesia, analgesia, pain control, and intensive care of the highest caliber with Christian empathy to patients of Loma Linda University Medical Center and its affiliated facilities.
2. Educate medical students, dentists, nurse anesthetists, and anesthesiology residents in the fields of anesthesia, critical care, perioperative medicine, and pain control.
3. Provide increased knowledge on the use of anesthetic and analgesic agents.

### Critical Care Anesthesiology

Robert Martin
Chair

Ihab Dorotta, Head

### Primary faculty

Carolyn Abbasi

Shelley F. Abdel-Sayed

Zulficar Ahmed

Donald L. Anderson

Ronald Atillo

Sherif A. Azer

Kristen R. Bandy

Alexandra Bandy

Brent J. Barker

Michael Benggon

Baher N. Boctor

Stanley D. Brauer

Alba Carpenter

Harmony F. Carter

Michael Carver

Melody Chang

Amanda Chao

Carl E. Collier

Jennifer B. Cristall

Ihab R. Dorotta

Hilcias Duran-Gheorghe

Linninea Ebell

Thomas A. Engel

Sandra Tatiana Fortner

Jordanne Fruits

Jennifer Gastelum

Jason W. Gatling

Elizabeth A. Ghazal

Crystal Gutierrez

Tiffany Hadley

Michelle D. Handal

Mohammad Hassanian

Justin E. Horricks

JulieAnn Hsu

Huayong Hu

Chris Huang

Thomas Hughes

Daniela S. Karagyozyan

Paul Seung-Kook Kim

Uoo Kim

Adeline Kim

Carol A. Lau

Deon Lau

Ryan E. Lauer

Patrick D. Leiter

John Lenart

Donna Lien

Catrissa Lightfoot-Siordia

Nicholas Edward Loper

Simona Lupu

Kristel Jan Magsino

Linda Martin

Robert D. Martin

Carin Mead Mascetti

Linda J. Mason

Melissa Dawn McCabe

Edward McCluskey

Deborah W. McIvor

Ali Mehdizadeh

Samer Melhem

Kimberly G. Menefee

Candy Miranda

Shannon M. Mulder-Michaelson

Nadia Nathan

Kenneth Neff

Carlos Enrique Neumann

Monica M. Neumann

Paul K. Nguyen

David Ninan

Katherine Nurkse

Ioana Pasca

Alexander Santillan Quiroz

Jessiciah M. Rabkin

Davinder Singh Ramsingh

Ronak Raval

Lowell W. Reynolds

David Sanner

Emilie Selleck

Nitin Shah

Gary W. Shih

Melinda Sloan

Leonard Soloniuk

Joseph Soo

Mahathep Srikureja

Gary R. Stier

Whitney Alison Sullivan-Lewis

Shirley Tan

Janice Tham

Tarrah Tokishi

Ryan C. Tone

Samuel E. Torres

Mihn Chau Tran

Michele VandenHoven

Rashmi Vandse

Maria Khristina Vibal-Poaster

Linda I. Wat

Mark Wittman

Michelle Woodfin

### Secondary faculty
Jose Cesar

Gregory Cheek

Rodney McKeever

Shawn Uraine

### Emeritus faculty
Martin Allard

Burton A. Briggs

Maureen Bull

# Basic Science

The objectives of the Department of Basic Sciences are to:

1. Offer relevant coursework for the various professional curricula that will provide essential foundational content, an understanding of the current state of the field, and the skills required to maintain currency.
2. Offer graduate curricula leading to M.S. and Ph.D. degrees designed to provide graduate students with information and tools needed to succeed as independent educators and investigators.
3. Conduct and publish peer-reviewed research that contributes to knowledge in the biomedical sciences.
4. Support Loma Linda University colleagues through collaborations and consultations that will assist in research and instruction.

### Chair
Penelope J. Duerksen-Hughes

### Division of Biochemistry
Penelope J. Duerksen-Hughes, Vice Chair

### Division of Biomedical Engineering Science Division
Michael Pecaut, Vice Chair

### Division of Microbiology
Hansel M. Fletcher, Vice Chair

### Division of Pharmacology
John Buchholz, VIce Chair

### Division of Physiology
John H. Zhang, Vice Chair

### Primary faculty
Frankis Almaguel

Danilyn M. Angeles

Vladimir Bashkirov

Erik Behringer

Danilo Boskovic

Eileen J. Brantley

John N. Buchholz

Carlos A. Casiano

Xin Sean Chen

Desislava Doycheva

Johnny Figueroa

Maria Flippova

Umesh Gangadharmath

Ravi Goyal

Barbara Holhouser

Xiang-Qun Hu

Mark Johnson

Isaac Kremsky

Daisy D. De Leon

Marino A. De Leon

Charles A. Ducsay

Penelope J. Duerksen-Hughes

Valeri Filippov

Hansel M. Fletcher

David A. Hessinger

Salma Khan

William H. Langridge

Bo Li

Qing Yi Ma

Xiao W. Mao

Eugenia I. Mata-Greenwood

Fayth Miles

Gregory A. Nelson

Michael Pecaut

Christopher C. Perry

Gordon G. Power

Michael Samardzija

Reinhard Schulte

Prativa Sherchan

Rui Song

Ubaldo A. Soto-Wegner

Richard S. Sun

Konrad Talbot

Jiping Tang

Abel Torres

Julia J. Unternaehrer-Hamm

Nathan R. Wall

Charles Wang

Kylie J. Watts

Christopher G. Wilson

Sean M. Wilson

Daliao Xiao

Steven M. Yellon

John H. Zhang

Lubo Zhang

## Secondary faculty

Olayemi Adeoye

Nancy J. Anderson

Besh Rhyl Barcega

Samuel Barnes

Brenda L. Bartnik-Olson

David J. Baylink

Abigail Benitez

Arlin Blood

David A. Bush

Cindy X. Cai

Kakarla Chalam

Philip J. Chan

Chien-Shing Chen

Keith K. Colburn

Bradley A. Cole

Khashayar Dashtipour

Daniel DiLorenzo

Ihab Dorotta

Joseph Fan

Ronald Fernando

Kendra Fisher

Ciprian Gheorghe

Susan Hall

Lei Huang

J. Paul Jacobson

Willie L. Davis, Jr.

Carlos A. Garberoglio

Elizabeth A. Ghazal

June-Anne Gold

Christian S. Jackson

Alan K. Jacobson

T. Michael Kashner

Daniel K. Kido

Michael A. Kirby

Wolff M. Kirsch

Steve C. Lee

Xian Luo-Owen

Timothy Martens

Saied Mirshahidi

Subburaman Mohan

Monica Neumann

H. Bryant Nguyen

Thomas A. O'Callaghan

Peter H. Pham

Suzanne Phillips

Xue Zhong Qin

Mark Reeves

E. Ellen Reibling

Lawrence Sandberg

Kristin A. Seiberling

Matilda Sheng

Wei-Xing Shi

Sam Siddighi

Jerry Slater

Dustin D. Smith

Jason C. Smith

Salvador Soriano

Donna D. Strong

Xiaolei Tang

Karen A. Tong

Marcelo Vazquez

Joe E. Wergedal

Leonard S. Werner

N. Dan Wycliffe

Gary Y. Yang

Xiangpeng Yuan

Xiao-Bing Zhang

Zhiwei Zhang

### Emeritus faculty

Daila Gridley

Barry Taylor

Anthony Zuccarelli

# Cardiothoracic Surgery

The Department of Cardiothoracic Surgery is dedicated to providing comprehensive, quality surgical care to patients with heart, vascular, and thoracic disease. The department's clinical services include adult cardiac surgery, congenital cardiac surgery, adult and pediatric heart transplantation, general thoracic surgery, vascular surgery, and trauma.

Other equally important goals of the department are to:

1. Educate medical students through lectures, clinical rotations, research projects, and faculty role modeling.
2. Train the next generation of competent surgeons in the specialty. The department provides opportunities for an ACGME-approved residency in cardiothoracic surgery (three-year program).
3. Partner with the Global Health Institute of Loma Linda University by providing expert surgical help to other countries in need.
4. Provide support for innovation and promotion of clinical research.
5. Promote collaboration with adult cardiology to offer advanced therapies to select patients with complex cardiovascular disease (e.g., transcatheter aortic valve replacement [TAVR], percutaneous mitral valve repair [MitraClip], mechanical circulatory support [LVADs]).
6. Provide clinical support and professional resources as a tertiary care center to community-based cardiac surgery programs in the region.

### Chair

Anees J. Razzouk

### Vice Chair

Joshua Chung

### Head

Ahmed Abou-Zamzam

### Primary faculty

Joshua Chung

Rosario Floridia

Joshua T. Gysbers, PA

Nguyen Le

Timothy Martens

Jennifer Mohr, PA

Nancy Reeves, PA

David G. Rabkin

Anees J. Razzouk

O. Howard Shattuck, PA

Bruce Toporoff

Nicole Wheeler

Salman Zaheer

# Dermatology

### Chair
Harry Dao, Jr.

### Primary faculty
Nancy J. Anderson

Conroy Chow

Betsy Furukawa

Linda Golkar

Harry Dao, Jr.

Shawna K. Langley

Justin D. Love

Jariene D. Luke

Kristin Carter Smith

### Secondary Faculty
Justin Kerstetter

### VA Faculty
Desmond Gibson

Jane Hirokane

Sharon Jacob-Soo
Dermatology Section Chief

Kenneth Dale Macknet

Jack Seeburger

# Emergency Medicine

The philosophy of the Department of Emergency Medicine centers on a commitment to quality in its service, teaching, and research missions. This department functions as a crossroads interface between the community and medical center services—providing a point of access to medical care for many people who are seriously and unexpectedly ill, and whose conditions may be compromised by geographic isolation and socioeconomic disadvantage.

The objectives of the department are to:

1. Provide and coordinate cost-effective, empathetic, compassionate, and excellent pre-hospital, emergency, and trauma services.
2. Support and contribute to the achievement of medical education competency for all categories of emergency-care professionals.
3. Develop initiatives that promote increased understanding of and improved techniques and skills in emergency-care practice, heighten positive perception of this specialty, and contribute to quality research in this area.
4. Promote teamwork skills among the various services and professionals comprising the emergency medical system.

### Division of General Emergency Medicine
E. Lea Walters, Chair

Lance A. Brown, Vice Chair Operations

### Division of Pediatric Emergency Medicine
Lance A. Brown, Head

### Division of Academic Affairs Emergency Medicine
Dustin Smith, Vice Chair

### Primary faculty
Shaher Altoumah

Moosa Matt Azadian

Besh Rhyl Barcega

Emily Barrett

Robert Bassler

Taylor Battaglia

Deena Bengiamin

Lance A. Brown

S. Nohemi Caldwell

Brian Chen

Kevin Chen

Sarah J. Christian-Kopp

Lauren Cooper

Chelsea Cosand

Randall Culler

Lynda Daniel-Underwood

Morgaine Daniels

Andrew Davis

Marque Dietzler

Vi A. Dinh

Radu Dudas
W. Seth Dukes
Nellie Ekmekjian
Stacey Ernest
Molly Estes
Joseph Fargusson
Jessica Fields
Lizveth Fierro
Brian Foster
Shubhangi Gaikwad
Jeff T. Grange
Casey Graves
Steven M. Green
Mindi J. Guptill
Fairuz Despujos Harfouche
Korbin N. Haycock
Danielle Hindi
Sarah Holgren
Paige Ielati
Zan Jafry
Whitney Johnson
Sharmin Kalam
Aqeel S. Khan
Michael Kiemeny
Eugene Kim
Grace J. Kim
Peter Kim
Tommy Y. H. Kim
Sunghee Kim
Patricia Korszyk
Heather Kuntz
Kristina Kyle
Stephen Lin
Chin-Yu Jean Lo
Tasha Lowery
Jyh-I James Lu
Daniel Lymon
Darcy Mainville
Claire L. McArthur III
James A. Moynihan
Steven Tamba, NP
John Michael O'Neal
Ali Ozcan
Jessica Alvarez, PA
Nicole Mansur, PA
Davi Paletz
Karli Parlette
Sarah Peterson
Lisa Ponsford
Alayna Prest
Melanie Randall
Kimber Raswon
E. Ellen Reibling
Jon Boyd Roper
Daniel Rossie
Paul Savino
Mary A. Savory
Paul Schoerner
Jocelyn Seitz-Keough
Geron Sheppard
Thomas S. Sherwin
Karan Singh
Dustin D. Smith
Ernest Stacey
Jennifer Tango
Heather M. Tassone
Rachel Tena
Tamara L. Thomas
Cory Toomasian
Stephanie Tseeng
Nitin Ubhayakar
Kathy Valdeverona

Pablo Vargas

E. Lea Walters

Deborah L. Washke

Maciej Witkos

Brian J. Wolk

Timothy P. Young

Kimberly R. Zimmerman

### Secondary faculty
Sara Johnson

H. Bryant Nguyen

# Family Medicine

The objectives of the Department of Family Medicine are to:

1. Provide medical students and residents with education and training that exemplifies excellence, compassion, and wholeness in the family medicine specialty.
2. Educate students and residents to provide evidence-based, best-practice, chronic-disease care that spans the arc of care—from prevention to management of palliative care.
3. Teach students to evaluate and manage common problems at the primary-care level, providing continuing and comprehensive health care for individuals of all genders and ages.
4. Teach students and residents skills necessary for taking a spiritual history, and for incorporating spiritual and psychosocial dimensions into the biomedical aspects of clinical care.
5. Introduce students and residents to the use of a systems approach and quality-improvement techniques to improve patient safety as well as assure the delivery of best-practice, evidence-based care to a population of patients.
6. Introduce students to family physician role models so that students will be able to make informed choices regarding family medicine as a career option.

### Chair
Roger D. Woodruff

### Vice Chair
Daniel Reichart

### Head, Geriatric Medicine
Wessam Labib

### Head, Palliative Medicine
Gina Mohr

### Primary faculty
Erin Abston

David Ahamba

Rebecca Barnard

Prashath Bhat

Ron Brathwaite

Zachary J. Cash

Jian Chen

David Cherepuschak

Jeffrey Cho

Heidi Choi

Chad Cole

James E. Crounse

Christen Cuevas

Katalin Danji

Jhanelle Dawes

Mary Dubisz

Jack Dubois

Richelin Dye

Lindsey Elsea

N. Margarete Ezinwa

Cindy Gamboa

Rio Gutierrez

Allana Harboldt

Ecler Jaqua

William Jih

Jordan Kattenhorn

Tyler Ladue

Boram Lee

Matthew McCarty

Melissa Monadala

Eduardo Ramirez

Manfred Ramos

Karolis Raudys

Brenda Rea

Armando Lemus-Hernandez

Jessica McClintock

Rami Haddad

Calvin Hagglov

Sara E. Halverson

Mary A. Hanna

Joan E. Haynes-Lee

Jeffrey L. Kim

Richard Kim

Wessam K. Labib

Hobart H. Lee

Allen Liu

Yi Liu

Maria B. Lohr

Kyle Masi

Laurie McNaughton

Gina J. Mohr

Kelly R. Morton

Juan Najarro

Hieu T. M. Nguyen

Van Nguyen

Michelle E. Reeves

Daniel Reichert

Michelle Rhiner

Khaled El Said

Daniel Samano

Karen Shannon

Kevin C. Shannon

Yuliya Shayunussova

Nadia Sheridan

English, Sherri

Julio Silvestre

Lauren M. Simon

Eric Steele

Mark Sutton

Victoria Teppone

Sherilyn Toppenberg

Mai-Linh, Tran

Juna Tsao

Lori Urban

Marcos Uribe

Elizabeth West

Elizabeth Wolpern

Timothy Wong

Roger D. Woodruff

Qi Tong Yu

### Secondary faculty

Wayne Dysinger

Linda Ferry

Mina Rakoski

Mitsuhiko Tsukimoto

# Gynecology and Obstetrics

The purpose of the Department of Gynecology and Obstetrics is to provide an academic environment that encourages learning, teaching, and research.

The objectives of the department are to:

1. Provide medical students with a broad base of knowledge in obstetrics and gynecology for entrance into a primary care specialty.
2. Instill a standard of medical excellence that will lead to a continuing program of medical education reaching through and beyond the residency years.
3. Provide faculty members who function as role models for the students and residents.

### Chair

Kevin Balli

### Primary faculty

Sanaz Amini

Kristen Anderson

Kevin C. Balli

Gihan Bareh

Stewart Barlow

Ashley Beem

James Betoni

Barry S. Block

Hayley Bottino

Marissa Caballes

Irena Cabrera

Emerald Caruso

Philip Chan

Sum C. Cheung

Lenorre Clarke

Tiare Evans

Stephanie Fegale

Heather Figueroa

Juliana Fuller

Ciprian Gheorghe

Rebecca Gonzalez

Shravya Govindappagari

Jeffrey S. Hardesty

Elaine E. Hart

Bryan Hill

Tamara Hobson

Linda Hong

Negar Hosseinfar

Beverly K. Hudson

Yevgeniya Ioffe

Ronald B. Johnson

Lisa A. Kairis

Melissa M. Kidder

Juthamas Kositsawat

Kathleen M. Lau

Peter K. Y. Leung

Courtney Martin

Danielle M. Mason

Lynn McLean

Mazdak Momeni

Bryan Oshiro

Christina Panton

William C. Patton

Crystal Pruitt

Christia Del Rosario

Ivan Rybkin

Elmer Sakala

Andrea Salcedo

Sam Siddighi

Robert J. Wagner, Jr.

Canty Wang

Ai-Mae Watkins

Ruofan Yao

Jane Yun

### Secondary faculty

Arlin Blood

Charles Ducsay

Eugenia Mata-Greenwood

Gordon Power

Julia Unternaehrer

Steven M. Yellon

## Medical Education

### Chair

Tamara Thomas

### Primary faculty

Jessica ChenFeng

Khiet Ngo

Robert Orr

Martie Parsley

Denise Souder

Rebekah Bartos Specht

Nancy J. Heine

Barbara A. Hernandez

Kathy A. Herzberger

Loretta B. Johns

Christiane Schubert

### Secondary faculty

Bradley A. Cole

Lynda Daniel-Underwood

Daniel W. Giang

Peter Landless

Lawrence K. Loo

Allison Ong

Ellen Reibling

Tamara M. Shankel

Tamara L. Thomas

Leonard S. Werner

## Medicine

The goal of the Department of Medicine is to innovate and provide leadership in:

- Healing.
- Education.
- Discovery.
- Integrated health-care delivery.
- Shaping institutional and public policy.

The Department of Medicine supports the mission of Loma Linda University and Loma Linda University Health.

### Vision

- The Department of Medicine seeks to become a greater regional clinical resource.
- The Department of Medicine seeks to foster a spirit of inquiry, expressed in research and teaching. The faculty advances clinical practice and understanding.

### Themes

- Renewal.
- Growth.
- Teamwork.

### Chair

Douglas R. Hegstad

### Executive vice chair

H. Bryant Nguyen

### Vice chairs

Philip Gold

Kenneth Jutzy

Daniel Kim

Lawrence Loo

H. Bryant Nguyen

Philip Roos

### Associate chairs

T. Michael Kashner

Sonny Lee

Leah Tudtud-Hans

Andrew Wright

### Division of Cardiology

Anthony Hilliard, Head

### Division of Endocrinology

Kevin Codorniz, Head

### Division of Gastroenterology and Nutrition

Michael L. Volk, Head

### Division of Hematology and Oncology

Mark E. Reeves, Interim Head

### Division of Hospitalist Medicine

Michael Matus, Head

### Division of Infectious Diseases

Jennifer Veltman, Head

### Division of General Internal Medicine & Geriatric Medicine

Shivani R. Scharf, Head

### Division of Nephrology

Amir Abdipour, Head

### Division of Pulmonary & Critical Care

H. Bryant Nguyen, Head

### Division of Regenerative Medicine

David J. Baylink, Head

### Division of Rheumatology and Immunology

Karina D. Torralba, Head

### Program director, Residency Program

Sonny C. Lee

### Primary faculty

Maisa Abdalla

Amir Abdipour

Dmitry Abramov

Islam Abudayyeh

Endre Agoston

M. Reza Amini

Ramesh C. Bansal

David J. Baylink

Aditya Bharadwaj

Shishira Bharadwaj

Rahul Bhardwaj

Joel Brothers

Huynh Cao

Matthew Cappiello

Kristin Carr

Jayaram Chandrasekar

Kendrick Che

Gregory Cheek

Chien-Shing Chen

Jason T. Cheng

Ara A. Chrissian

Kevin A. Codorniz

Tahmeed A. Contractor

Adrian N. Cotton

Alfred C. Cottrell
James J. Couperus
Audrey Sue Cruz
Patricia P. Dang
Rahel Demisse
Peter Demuth
Angela Do
Hieu Duc Do
Christina Downey
Marvin L. Elias
Parastu Emrani
Amanda Etheridge
John Faraci
Farzin Farajzadeh
David Farchadi
Rosemarie Florian
Steven Forland
Arianne S. Furman
Lakshmi Ganesan
Vinisha Garg
Deepak Garg
Bevan A. Geslani
Silvana Giannelli
Lauren Gigliotti
Paresh C. Giri
Robert Gish
J. Benjamin Gleason
Tricia Guadiz
Richelle Guerrero-Wooley
Saba Hamiduzzaman
Jonathan Harper
Amy C. Hayton
Bruce Hayton
Davi Hecht
Douglas R. Hegstad
Danielle Henkel
Anthony A. Hilliard
Thanh Hoang
Jason Hoff
Mehrnaz Hojjati
Frank D. Howard
Chung-Tsen Hsueh
Thanh X. Hoang
Jason S. Hwang
Emad Ibrahim
Erick Imbertson
Sergio Infante
Dale M. Isaeff
Alexander W. Jahng
Charmaine Jamias
Niranjan Jeganathan
Suchaya Jinamornphongs
Joshua Jordan
Kenneth R. Jutzy
Tejinder M. Kalra
Muhammad Kamal
Matthew Kaptein
Emmanuel P. Katsaros
Hana Kazbour
Asma Kazi
Waseemuddin Kazi
Keerti Khandekwal
Ahmed Kheiwa
Shawn Kim
John Jae-Woo Kim
Ja Eun Koo
Reed Krause
Preetham Kumar
Victor Laluz
Jeremy Lam
Howard Lan
Wilson Lao

Andrea Lee
Sonny Lee
James P. Larsen
Timothy Lee
Brian Lee
Terence D. Lewis
Jennifer N. Li
Jayce Liang
Michael Lin
Jen-Gu Lin
Evelyn Lomarda
Wen Long
Lawrence K. Loo
Kanwaljeet K. Maken
Nirav M. Mamdani
Ravi Mandapati
Neel Mann
Axa I. Martell
J. Todd Martell
Katherine Mattison
Michael Matus
Stephen McDonald
Leonidas Mejia
Hamid R. Mirshahidi
Saied Mirshahidi
Hamid Mirshahidi
Pamela Lobo Moreno
Dafne Moretta
Gayathri Nagaraj
Melin Narayan
Daniel Nash
H. Bryant Nguyen
Mike C. Nguyen
Christopher Nguyen
Sayna Norouzi
Wassim Noureddine
Takahiro Otsuka
Sudha M. Pai
James M. Pappas
Purvi Parwani
Anh Tuan Pham
Dan Pham
Vinoy Prasad
Walter Quan
Gulnara Rackauskas
Samira Rahmanian
Vinutha Rajesh
Mina Rakoski
Rhodes L. Rigsby
Mark Robinson
Daniel K. Rogstad
Giorgio Roveran
Gergette Sacay
Ebrahim Sadeghi-Najafabadi
Leena Sahay
Antoine Sakr
Tisha Salary-Mitchell
Vaneet K. Sandhu
Matheni Sathananthan
Shivani R. Scharf
Brian Schwartz
Lyndetta Schwartz
Ahmed Seliem
Khaled Selim
Steve Serrao
Shivang Shah
Mohammad Sharif
Shant Shirvanian
Geoffrey Shouse
John Shrader
Richard Shu
Danish S. Siddiqui

Raman Sidhar

Lusine Simonyants

Ambika Sivanandam

Wasseem Skef

Robert Smith

Liset N. Stoletniy

Teri Swanson

Thomas Sweeney

Drew Tadiarca

Laren D. Tan

Shahriyar Tavakoli

Siegmund Teichman

Britney Thorney

Karina D. Torralba

James Y. Tsai

Leah A. Tudtud-Hans

Rafael Villicana

Michael L. Volk

John H. Wang

Samiksha Wasnik

Mark A. Welch

Leonard S. Werner

Raymond Y. Wong

John Wong

Jeffrey E. Wonoprabowo

Andrew Wright

Yi David Xu

Xiao-Bing Zhang

Yan S. Zhao

Xin Zheng

## Secondary faculty

Abdullah Alismail

Abigail Benitez

Vince Cacho

Carlos A. Casiano

Francis D. W. Chan

Kay Chea

Camille Clarke

Marc J. Debay

Vi Dinh

Gary E. Fraser

Nancy J. Heine

Kathy A. Herzberger

Sharon Jamie

Selma Khan

Pushpa Nowrangi

Sunitha Nune

Jeffrey Olson

David Puder

Mark Reeves

Joan Sabate

Lawrence Sandberg

Tamara M. Shankel

Rebekah Bartos Specht

Gary R. Stier

Sigve K. Tonstad

Chad J. Vercio

Chi Viet

Andrew Wai

Alan Wei

Sean M. Wilson

Timothy Wong

## Emeritus

David Bland

Ingrid Bloomquist

Charles Brinegar

Stanley Condon

Glenn Foster

Philip Gold

Walter Graf

George Grames

Guen David Jang

Edwin Krick

Irvin Kuhn

Paul Levine

Robert Marsa

Robert Mitchell

J. Lamont Murdoch

Stewart Shankel

# Neurology

The goal of the Department of Neurology is to deliver the highest quality neurological care to patients by integrating academic medicine with whole-person care, research, and education. With the rapid development of technology, it is essential that medical students learn to recognize and treat a variety of neurological disorders. The objective of the department's four-week rotation is to further God's work of restoring wholeness to people by teaching the essentials of clinical neurology through compassionate patient care, bedside teaching, and a focused didactic curriculum.

### Chair
Bryan E. Tsao

### Vice chair
Travis E. Losey

### Associate Chair of of Education
Laura D. Nist

### Associate Chair of Clinical Operations
Jeffrey Rosenfeld

### Residency and Fellowship Program Director
Laura D. Nist

### Primary faculty
Nancy Baker

Firas Bannout

Krystle Bekalo-Quinlan

Karthikeyan Bhavaneswaran

Jeffrey Bounds

Thomas Bravo

Shauna Cheung

Bradley A. Cole

Brian Cravanas Jr.

Khashayar Dashtipour

Mohammad Dastjerdi

Karen Frei

Daniel W. Giang

James Guth

Charles Kamen

Ruby Koshy

Theresa LaBarte

Travis Losey

Kasra Maasumi

Ali Makki

Laura D. Nist

Farzin Pedouim

Gordon W, Peterson

Bridgett Quinonez

Jeffrey Rosenfeld

A. Dean Sherzai

Ayesha Sherzai

Vincent Truong

Bryan E. Tsao

Philip Tseng

Douglas Will

Stephen Yeung

### Secondary faculty
Gregory Aaen

Stephen Ashwall

Sarah Humbert

Jessica Koch

David Michelson

Joanna Yang

### Emeritus Professor
Donald Peterson

# Neurosurgery

### Chair
Warren W. Boling

### Primary faculty
Nisrin Abdelsamie

Achal Achrol

Warren Boling

Liming Bu

Belinda Delatorre

Kenneth DeLosReyes

Daniel DiLorenzo

Clifford Douglas

Justin Dye

Marina Gonzalez

Brian Hanak

Lei Huang

Namath Hussain

Vance Johnson

Esther J. Kim

Wolff Kirsch

Miguel Lopez-Gonzalez

Tanya Minasian

Ying Nie

Nicole Perez

Ramachandran Promod Pillai

Hayley Pekarcik

Ashley Quitugua

Richard Robinson

Venkatraman Sadanand

Nikhil Sahasrabudhe

### Secondary faculty
Olumide Danisa

Paul Jacobson

Walter Johnson

### Research faculty
Lei Huang

Ying Nie

Konrad Talbot

John H. Zhang

# Ophthalmology

The Department of Ophthalmology is committed to:

1. Providing an academic environment that will foster an in-depth understanding of the specialty of ophthalmology.
2. Providing education for students, residents, and fellows that prepares them for an academic, community, or mission practice.
3. Encouraging and supporting clinical research.
4. Inspiring students and residents to promote preventive ophthalmology.

### Chair
Michael E. Rauser

### Vice chair
Ernest S. Zane

### Vice chair, Academic Affairs
Kakarla Chalam

### Vice chair, Clinical Affairs
Jennifer A. Dunbar

### Director
Kakarla Chalam
Retina Fellowship

Kakarla Chalam
Retina Service

Fatema Esmail
Pediatric Opthalmology Service

Howard Guan
Medical Student Education

Frank Hwang
Cornea Fellowship

Frank Hwang
Cornea External Disease & Refractive Surgery Service

Jeffrey Ing
Global Eye Care

### Program director
Samantha Perea
Residency Program

### Association program director
Leila Khazaeni
Residency Program

### Primary faculty
John C. Affeldt

Dianne Barrett

Larry Bowes

Kakarla Chalam

Kimberly Chan

Jennifer Dunbar

Moses Enghelberg

Fatema Esmail

Joseph T. Fan

Neil Finnen

Howard V. Gimbel

Howard Guan

Eman Hawy

Martha Henao

Jennifer I, Hui

Frank Hwang

Wayne B. Isaeff

Leila M. Khazaeni

William H. Kiernan

Samuel Kim

Rosalynn H. Nguyen-Stongin

Abraham Park

Samantha E. Perea

Michael E. Rauser

Jewel Sandy

Mark Sherman

David Sierpina

Mukesh B. Suthar

Richard R. Tamesis

Donald G. Tohm

Craig White

Timothy Winter

Tiffany Yanase

Ernest S. Zane

### Secondary faculty
Kelly Keefe

### Research
Balamurali Ambati

Sangheetha Ravi Kumar

Hironori Uehara

Xiaohui Zhang

# Orthopaedic Surgery

The Department of Orthopaedic Surgery provides a lecture series to junior medical students. Series objectives are to:

1. Introduce the specialty of orthopaedic surgery.
2. Teach physical diagnosis of the musculoskeletal system.
3. Review care of common orthopaedic conditions.
4. Survey orthopaedic subspecialties and orthoapedic surgery.
5. Stimulate students to consider careers in orthopaedic surgery.
6. Stimulate interactive discussion of various orthopaedic conditions.
7. Communicate high-yield orthopaedic board topics for future self-study.

### Chair
Thomas Donaldson

### Assistant Chair
Olumide Danisa

### Director
Joseph Liu

### Division of Hand Surgery
M. Daniel Wongworawat, Head

### Division of Spine Service
Olummide Danisa, Head

### Primary faculty
Richard Bima

William Bunnell

John Chrisler

Olumide Danisa

Thomas Donaldson

Corey Fuller

Jessica Guillen

Christopher Jobe

Joseph Liu

Martin Morrison

Scott Nelson

Wesley Phipatanakul

Judy Racine

Rebecca Rajfer

Barth Riedel

Ronald Roiz

Erik Schnaser

Arthur Thiel

Mark Weber

Nadine Williams

M. Daniel Wongworawat

Siamak Yasmeh

### Secondary faculty
Allie Blackburn

Wayne Cheng

Subburaman Mohan

Robin Pueschel

# Otolaryngology and Head and Neck Surgery

### Chair
Alfred A. Simental

### Vice chair
Steve Lee

### Primary faculty
Benjamin Bradford

Julee Brice

Nadia Chan

Baishakhi Choudhury

Christopher A. Church

Luamy Cornejo

Brianna Crawley

Jodi Datema

Cory Ferguson

Pedro A. deAndrade

Jenifer Fuller

Jared C. Inman

Stephanie Kidd

Stephanie Kidd

Priya D. Krishna

Garth LeClair

Steve C. Lee

Christina Liem

Yuan Liu

Whitney Mast

Lauren Matsumoto

Allie Maus

Thomas Murry

Khanh Nguyen

Tsungju O-Lee

Ashley Page

Nathaniel Peterson

Alexis Ronney

Kristin A. Seiberling

Alfred A. Simental, Jr.

Charles E. Stewart III

Sisi Tian

Jill Tubbs

Christopher Vuong

Paul Walker

Helen X. Xu

Xiangpeng Yuan

### Secondary and adjunct faculty
Kenneth De Los Reyes

Salma Khan

Mia C. Nepomuceno-Perez

# Pathology and Human Anatomy

The primary goal of the Department of Pathology and Human Anatomy is to educate capable, compassionate, scientifically minded physicians dedicated to the mission and objectives of Loma Linda University School of Medicine. Courses offered by the department provide a bridge to the clinical sciences, spanning the two years of the preclinical curriculum—from foundational principles of gross, microscopic, and developmental anatomy to modern pathophysiologic concepts. Progressive emphasis is placed on cultivating the student's ability to integrate basic knowledge of structure, function, and dysfunction of the human body with analytical skills in solving clinical problems.

The department is strongly committed to facilitating the development of both teaching and investigative skills on the part of faculty members, graduate students, medical students, and residents.

### Chair
Paul C. Herrmann

### Division of Anatomy
P. Benigno Nava, Jr., Head

Kerby Oberg, Vice Chair

### Division of Pathology
Darryl G. Heustis, Vice Chair

### Division of Laboratory Medicine
James Pappas, Head

### Division of Pediatric Pathology
Craig W. Zuppan, Head

### Pathology primary faculty
Fouad Abdelhalim

Faramarz Azizi

Brian S. Bull

Jeffrey D. Cao

Cody Carter

Shobha L. Castelino-Prabhu

Resa L. Chase

Evelyn B. Choo

Camilla J. Cobb

Jeremy K. Deisch

Laura Denham

Cheryl Germain

Ronaldo Gnass

Paul C. Herrmann

Darryl G. Heustis

Kelly S. Keefe

Justin C. Kerstetter

Ralph A. Korpman

Yan Liu

Roland E. Lonser

Yamil Lopez

Mia Nepomuceno-Perez

Maria Rabina

Ravi Raghavan

Anwar Raza

Bonnie Rohweller

Heather L. Rojas

Cindy Romero-Gonzalez

G. William Saukel

Wesley T. Stevens

Manisha Sutariya

Kevin S. Thompson

Jun Wang

Bing Wang

Pamela J. Wat

Michael Weitzeil

David Yau

Craig W. Zuppan

**Pathology secondary and adjunct faculty**
Lee Berk

Robin Clark

Anupama Grandhi

Edward Rowsell

Konrad Talbot

**Anatomy primary faculty**
John Banks

Denise L. Bellinger

Molly Best

Salvador Soriano Castell

Bertha C. Escobar-Poni

Mary K. Kearns-Jonker

Michael A. Kirby

Zhongrong Luo

Pedro B. Nava

Kerby C. Oberg

Kenneth R. Wright

**Anatomy Secondary Faculty**
Olivia Francis-Boyle

**Emeritus**
Mildred Stilson
Pathology

# Pediatrics

The mission of the Department of Pediatrics is to provide patient services, educational programs, research endeavors, child advocacy, and community service in a manner consistent not only with state-of-the-art science, but also with Judeo-Christian values.

**Chair**
Richard E. Chinnock

**Executive vice chair**
Francis Chan

**Critical Care Division**
Shamel A. Abd-Allah, Head

**Division of Adolescent Medicine and Child Abuse**
Amy D. Young-Snodgrass, Head

**Division of Pediatric Allergy and Immunology**
Yvonne Fanous, Head

**Division of Pediatric Cardiology**
Michael A. Kuhn, Head

**Division of Pediatric Endocrinology**
Eba Hathout, Head

**Division of Pediatric Gastroenterology**
Manoj C. Shah, Head

**Division of Pediatric Hematology/Oncology**
Albert Kheradpour, MD, Head

**Division of Pediatric Infectious Disease**
William Kennedy, Head

**Division of Pediatric Neonatology**
Elba E. Simon-Fayard, Head

**Division of Pediatric Nephrology**
Shobha Sahney, Head

**Division of Pediatric Neurology**
David Michelson, Head

**Division of General Pediatrics**
Alexandra Clark, Head

**Primary faculty**
Gregory Aaen

Shamel Abd-Allah

Vikash Agrawal

Borhaan Ahmad

Rambod Amirnovin

Maha Amr

Michael Andaya

Marquelle Anderson

Barbara Ariue

Huy Au

Michael Avesar

Thomas Bahk

Gabrielle Balan

Anamika Banerji

Babu Bangaru

James Bartley

Marti Baum

Arlin Blood

Matthew Bock

Diane Broome

Bradley Cacho

Daniel Calaguas

Jose Camacho

Michael Cao

Bronwyn Carlson

Francis Chan

Albert Chan

Harsha Chandnani

Rishikesh Chavan

Kay Chea

Priscilla Chee

Miryah Chen

Timothy Chinnock

Richard Chinnock

Fu-Sheng Chou

Shelly Choudhury

Albert Chow

Alexandra Clark

Robin Clark

Cori Clumpner

Ekua Cobbina

Mallory Cohen

Chelsea Collins

Drew Cutler

Althea Daniel

Rachel Davidge

Shirin DeGiorgio

Douglas Deming

Elaine Eakin

Melissa Egge

Jimmy Eguchi

Yvonne Fanous

Nahla Farghalli

Shadi Gohar Farzin

Elba Fayard-Simon

Aprille Dawn Febre

Nancy Fernando

Matthew Fong

Mary-Catherin Randall Freier

Gamil Fteeh

Maria Garberoglio
Michael Giang
June-Anne Gold
Mitchell Goldstein
Brent Gordon
Tracy Gould
Katherine Gregersen
Euntaik Ha
William Hamra
Ashley Han
Benjamin Harding
Eba Hathout
Allison Hensley
Phuong Thao Hoang
Michelle Hong
Andrew Hopper
Amanda Hyatt
Alexandra Iacob
Akshat Jain
Janessa James
Kelly Jeu
Upinder Jodhka
Rachel Jones
Biswas Joshi
Peter Jung
Gregory Jutzy
Sebiha Kanchwala
William Kennedy
Albert Kheradpour
Soo Kim
Wonha Kim
Young-Min Kim
Nicole Kraus
Vidhya Krishnamurthy
Michael Kuhn
Daniel Lamb
Ranae Larsen
Adrian Lavery
Ahn Vu Le
Leanna Lee
Leanna Lee
Vallent Lee
Gail Levine
Kathleen Lima
Richard Lion
Taiming Liu
Taryn Liu
Jennifer Lo
Shaina Lodhi
Joshua Loeb
Michelle Loh
Merrick Lopez
John Mace
Melissa Mahabee
Gilbert Martin
Juan Martinez
Lily Martorell-Bendezu
Mudit Mathur
Chalmer McClure
Jessica Medina
Khyati Mehta
David Michelson
Alexander Min
Farrukh Mirza
Houchang Modanlou
Ryan Mooradian
Anthony Moretti
Neda Mulla
Lanelle Nakamura
Grace Nam
Cinda Nauretz
Larry Ngo

Joy Nichols

Yona Nicolau

Pushpa Nowrangi

Sunitha Nune

Oluwafisay Nwachukwu

Desiree Nycholat

Clark Ochikubo

Grace Oei

Jeffrey Olson

Lauren Orona

Sena Cantas Orsdemir

Kimberly Otsuka

Kalyan Parashette

Shaun Park

Hee Chan Park

Shaun Park

Anita Patel

Wendy De La Pena

Ricardo Peverini

Raylene Phillips

Pilar Pichon

Robert Piecuch

Jamie Pivonka-Jones

Nicole Pope

Latika Puri

Sonea Qureshi

Nivedita Rajakumar

Subhadra Ramanathan

Ravindra Rao

Asma Razavi

Veronica Regueiro

Lorraine Reverson

Alice Rhee

Sharon Riesen

Sarah Roddy

Raul Rodriguez

Sharis Rostamian

Shobha Sahney

Delphin Sallowm

Cheryl Sanchez-Kazi

Manojkumar Shah

Jui Shah

Tamara Shankel

Rita Sheth

Sinora Joshi Shrestha

Stanford Shu

Melissa Siccama

Ciondy Sihotang

Jonathan Smits

Maulin Soneji

Andrew Song

Shrinkhala Srivastava

Samantha Stephenson

Daved van Stralen

Catherine Tan

Gordon Tan

Richard Tang-Wai

John Thanasukarn

Wilson Thomas

Linh Tieu

Cynthia Tinsley

Larry Tinsley

Jade Tran

Diana Trupp

Janice Tsai

Mitsuhiko Tsukimoto

Chad Vercio

Diana Villarreal

Farha Vora

Bach-Mai Vu

Andrew Wai

Hua Wang

Xiao Ben Wang

Alan Wei

Emily Wong

Sidney Wu

Linda Yang

Abel Yarrozu

Andrew Yoo

Amy Young-Snodgrass

Quan Zhao

### Secondary faculty

Patricia Acharya

Danilyn M. Angeles

Stephan Ashwall

Joanne E. Baerg

Besh Barcega

Lance E. Brown

David A. Chamberlin

Tricia Gaudiz

Aqeel Khan

Aqeel Khan

Faraz Khan

Ahmed Kheiwa

Paggie Kim

Grace Kim

Tommy Kim

Shannon Kirk

Heather Kuntz

Sonny Lee

Carlo Manalo

Ravi Mandapati

Jon Miller

Donald C. Moores

James Moynihan

Aarti Nair

Andrei Radulescu

Anees Y. Razzouk

Amita Sapra

Jaspreet Singh

Drew Tadiarca

Tamara L. Thomas

Deborah Washke

Christopher G. Wilson

Yen-Ying Wu

Timothy Young

Kimberly R. Zimmerman

### Emeritus

B. Lyn Behrens

Chul Cha

## Physical Medicine and Rehabilitation

The Department of Physical Medicine and Rehabilitation was established to develop clinical services in rehabilitation medicine, and to offer resources for teaching and research in the field of rehabilitation. These clinical and academic activities cover a wide spectrum of clinical medicine. They have as a central basis the idea that rehabilitation is a complex process involving not only multiple disciplines, but also consideration of the patient in the broader context of the family and community. Psycho-social-spiritual aspects of rehabilitation complete the whole-person focus, thus providing an opportunity for faculty members and students to observe and experience patient care, while meeting the goals and objectives of the School of Medicine.

### Chair

Justin T. Hata

### Vice chair

Vacant

### Primary faculty

Krystle Barrera

Jose Cesar

Travis Fogel

Michael J. Gilewski

Justin Hata

Mary I. Kim

Samuel Lee

Eugene Pak

Scott R. Strum

Christopher Tarver

Duc Tran

Thaddeus Wilson

### Emeritus
Murray Brandstater

## Plastic and Reconstructive Surgery

### Chair
Subhas C Gupta

### Primary faculty
Subhas C. Gupta

Michael E. Hill

Hahns Y. Kim

Mark C. Martin

Andrea Ray

## Preventive Medicine

The Department of Preventive Medicine is involved in preventive medicine clinical care, education, and research for the School of Medicine. The department provides a comprehensive, four-year preventive medicine curriculum to all medical students. Graduate medical education training is available in a general preventive medicine residency, an occupational medicine residency, an addiction medicine fellowship, and a combined family and preventive medicine residency.

The department works with and supports the School of Public Health, as well as other Loma Linda programs in health promotion and epidemiology research projects—the most prominent of which is the Adventist Health Study. Preventive medicine faculty members direct clinical services at the Center for Health Promotion, the Occupational Medicine Center, the Social Action Community (SAC) Health System clinics, and five separate Inland Empire university health services. A diverse faculty focuses primary activities through the School of Medicine, the School of Public Health, the Jerry L. Pettis Memorial Veterans Medical Center, the San Bernardino County and Riverside County health departments, and other regional and community entities.

### Chair
April Wilson

### Primary faculty
Peter Bastian

Leslie Cadet

Bonnie I. Chi-Lum

Sylvia Cramer

T. Allan Darnell

Adley Dason

Gary Fraser

Kenneth W. Hart

Leah Humann

Sara Johnson

Haitham Juma

Ariane Marie-Mitchell

Claire Nelson

Michael J. Orlich

Alma M. Palisoc

Warren R. Peters

Amy Reese

Akbar Sharip

Karen Studer

April Wilson

### Secondary and adjunct faculty
Mihran H. Ask

James Crounse

N. Margarete Ezinwa

Patricia Flynn

Gary Fraser

Herbert Giebel

Richard H. Hart

Sharon Jamie

Lori Karan

Wonha Kim

Jason Lohr

Fayth Miles

Susan B. Montgomery

Olivia Moses

Tricia Y. Penniecook

Brenda Rea

Kevin Shannon

Serena Tonstad

Loretta Joy Wilber

Wesley S. Youngberg

## Psychiatry

The Department of Psychiatry provides educational programs that include clinical training and research for medical students, psychiatry residents, and psychiatry fellows.

During the first and second years, the Department of Psychiatry directs the teaching of the behavioral sciences courses. In these interdisciplinary courses, lectures and demonstrations cover a broad range of human behavioral determinants—including the biology, psychology, sociology,

and psychopathology of behavior. It also deals with a holistic concept of behavior and its spiritual components.

The third-year, six-week psychiatry clerkship includes five weeks divided between two psychiatry treatment sites and one week at an addiction treatment site. These clerkship experiences offer broad and varied training in the treatment of psychiatric problems of adults and children. Students also participate in an interactive, case-based seminar series.

Fourth-year medical students have the opportunity to take electives with psychiatry faculty members in child and adult settings, as well as an intensive reading/discussion course in religion and psychiatry.

### Chair
William G. Murdoch, Jr.

### Vice chair
William H. McGhee

### Primary faculty
Ara Anspikian

Stephanie Bolton

William Britt

Kelsey Bullock

Claudia Carmona

Antonia Ciovica

Carlos Fayard

Teresa Frausto

Cheryl Green

Zachary Herzfeldt

Cameron Johnson

Serafin Lalas

Henry Lamberton

Timothy Lee

William McGhee

Jennifer Minami

William Murdoch

Carolina Osorio

Melissa Pereau

David Puder

Pharez Rolle

William Roth

Katia Stoletniy

Monica Tone

Darcy Trenkle

### Emeritus
George Harding

Mark Haviland

### Secondary faculty
Bosun Chung

Mark Welch

# Radiation Medicine

The fundamental goal of the Department of Radiation Medicine is to provide optimal care to patients by means of ionizing radiation—much of it using proton therapy, the hospital-based application which was pioneered by the department. This care rests upon the foundation of basic, translational, and clinical research which, when combined with patient education, ensures that patients and their families receive state-of-the-art treatment planning and delivery, follow-up and posttreatment care, and support.

### Chair
Jerry D. Slater

### Vice chair, Clinical Affairs
David A. Bush

### Primary faculty
David A. Bush

Dongrak Choi

Abiel Ghebremedhin

B. Rodney Jabola

Joseph I. Kang

Lilia N. Loredo

Grant McAuley

Ivan C. Namihas, Jr.

Daniel Miller

Prashanth Nookala

Baldev Patyal

William Preston

Jerry D. Slater

Marcelo Vazquez

Ning Wang

Andrew Wroe

Gary Y. Yang

### Secondary and adjunct faculty
Xiao Mao

Gregory Nelson

Michael Pecaut

Richard Sun

Roman Vlkolinsky

Nathan Wall

# Radiology

The purpose of the Department of Radiology is to provide:

1. Excellent patient services through imaging studies, special diagnostic procedures, and interventional procedures;
2. Educational programs that include research and clinical training for technologists, physicists, medical students, postdoctoral fellows, radiology residents, and fellows;
3. Research support through laboratory and clinical facilities;
4. Support for the local, national, and international interests and programs of Loma Linda University.

### Chair
J. Paul Jacobson
Interim Chair

### Division of General Diagnostic Radiology
Won-Chul Bae
Chief, Women's Imaging Section

Allie Blackburn
Chief, Musculoskeletal Radiology Section

Kendra Fisher
Co-Chief, Chest and Cardiac Raciology Section

Thomas Kelly
Chief, Abdominal Radiology Section

Shannon R. Kirk
Chief, Chest and Cardiac Radiology Section

Glann Rouse
Chief, Diagnostic Ultrasound Section

Michael A. Stanton
Director

### Division of Interventional Radiology
Jason Smith
Head

### Division of Magnetic Resonance Imaging
David B. Hinshaw
Head

### Division of Neuroradiology
Adina F. Achiriloaie
Acting Director

J. Paul Jacobson
Chief, Interventional Neuroradiology Section

Paggie P.C. Kim
Chief, Pediatric Neuroradiology Section

N. Dan Wycliffe
Chief, Head & Neck Radiology Section

### Division of Nuclear Radiology
Gerald A. Kirk
Head

### Division of Pediatric Radiology
Yen-Ying Wu
Director

### Director of Medical Student Education
Sheri Harder

### Primary faculty
Adina Achiriloaie

Frankis Almaguel

Won-Chul Bae

Juan Baez

Samuel Barnes

Brenda Bartnik-Olson

Allie K. Blackburn

Ronnie Chen

Alexander J. Chien

Kyle Cooper

Cherie A. Cora

Sonia G. Dhaliwal

Kendra L. Fisher

Scott Fujimoto

David W. Gentry

Mark Girguis

Sheri L. Harder

Daniel Jin

David B. Hinshaw, Jr.

J. Paul Jacobson

Thomas J. Kelly

Daniel Kido

Paggie Kim

Erica Kinne

Gerald A. Kirk

Shannon R. Kirk

Eric Liu

Irwin Maier

Andrew Malit

Carlo Manalo

Milon J. H. Miller

Jon Miller

Jeremy Moretz

Eric Peters

Peter H. Pham

Samuel Randolph

Glenn A. Rouse

Hans P. Saaty

Amita Sapra

James Shi

Jaspreet Singh

Jason C. Smith

Michael Staton

Roger Tomihama

Karen A. Tong

Richard J. Tully

Yen-Ying Wu

N. Dan Wycliffe

### Secondary faculty
Udochukwu Oyoyo

Huma Samar

### Adjunct faculty
Samuel Achilefu

E. Mark Haacke

Son Phan

James Slater

Smyrna Tuburan

### Emeritus faculty
Phiroze Billimoria

Jerome Burstein

Richard Dunbar

Geoffrey Gardiner

Barbara Holshouser

Douglas Smith

# Surgery

The following goals of the Department of Surgery are in harmony with the stated purposes and philosophy of Loma Linda University School of Medicine:

1. Provide the highest standard of surgical patient care.
2. Maintain educational programs in the surgical disciplines for medical students, residents, and fellows.
3. Provide facilities for laboratory and clinical research in the areas of surgical interest.

### Chair
Sharon S Lum

### Vice chair
Naveenraj Solomon

### Division of Acute Care Surgery
Kaushik Mukherjee, Head

### Division of Colorectal Surgery
Fabrizio Luca, Head

### Division of General Surgery
Marcos Michelotti, Head

### Division of Pediatric Surgery
Donald C. Moores, Head

### Division of Surgical Oncology
Carlos Garberoglio

### Division of Transplant Surgery
Michael de Vera, Head

### Division of Vascular Surgery
Ahmed Abou-Zamzam

### Primary faculty
Ahmed Abou-Zamzam

Allison Aka

Sigrid Burruss

Richard D. Catalano

Megan Cochran-Yu

Carlos Garberoglio

Nephtali Gomez

Ryan Hayton

Aarthy Kannappan

Faraz Khan

Arputharaj Kore

Fabrizio Luca

Sharon Lum

Kristyn Mannoia

Marcos Michelotti

Lester Mohr

David Caba Molina

Donald Moores

Kaushik Mukherjee

Allen Murga

Jukes Namm

Sheela Patel

Alexis Plasencia

Jeffrey Quigley

Andrei Radulescu

Mark Reeves

Jorge Rivera

Martin Rosenthal

Keith Scharf

Matthew Selleck

Naveenraj Solomon

Daniel Srikureja

Maryam Bita Tabrizi

Michael E. de Vera

Edward P. Tagge

Philip Wai

Jakub Woloszyn

Esther Yung

### Secondary faculty
Ihab Dorotta

Alan Herford

Padma Uppala

Nathan Wall

### Emeritus faculty
Lloyd Dayes

Jerrold Longerbeam

Robert Rowe

Louis Smith

Ralph J. Thompson, Jr.

Edwin E. Vyhmeister

## Urology

### Chair
Herbert C. Ruckle

### Pediatric Urology
David A. Chamberlin

Minh-Hang Chau

### Primary faculty
Dalton Baldwin

Gary Barker

Joshua Chamberlin

Minh-Hang Chau

Catherine Chen

Mark Dickinson

Dean Hadley

Roger Hadley

Mohamma Hajiha

Brian Hu

Cristina Ibarra

Forrest Jellison

Samantha Johnson

Manju kaur

Edmund Ko

Paul Lui

Herbert Ruckle

Andrea Staack

Karen Uyemura

Humberto Villarreal

Hillary Wagner

Janchan Yune

Jami Zelaya

### Adjunct
David Hadley

# SCHOOL OF NURSING

## Dean's welcome

Welcome to the School of Nursing. The nursing education offered will prepare you for a life of Christian service in the nursing profession. This section of the University CATALOG will introduce you to the programs of the School as well as give you information on academic progression and services available to help you reach your goal.

For more than 115 years, the school has educated nurses to serve the needs of humanity. We look forward to working with you on your academic journey here at the school.

Our purpose is to provide an environment where you can gain the knowledge, skills, and attitude to become a caring, competent, professional nurse. The faculty, staff, and administration are committed to ensuring that those who study here will develop to the fullest potential and become nurses capable of fulfilling, with God's help, the University's mission "To make man whole."

Elizabeth Bossert, Ph.D., RN
Dean, School of Nursing

# School foundations

## History

The School of Nursing, established in 1905, was the first in a group of schools that became Loma Linda University in 1961. In 1907, the first class to graduate included seven students—five women and two men. As the school developed and became a college-based program rather than a hospital diploma program, the baccalaureate degree commenced in 1949. The Master of Science degree was granted in 1957. The Doctor of Philosophy degree was added to the existing programs of the school, with the first class starting in 2002. The Doctor of Nursing Practice degree began in 2010.

## Accreditation

The School of Nursing received initial accreditation by the National League for Nursing (NLN) (61 Broadway, New York, NY 10006) in 1951. In 2000, initial accreditation was received from the Commission on Collegiate Nursing Education (CCNE). The Bachelor of Science (B.S.) in nursing, Master of Science (M.S.) in nursing, and Doctor of Nursing Practice (D.N.P.) at Loma Linda University School of Nursing are accredited by the CCNE ( 655 K Street, NW, Suite 750, Washington DC 20001, 202/887-6791). The B.S., M.S. and D.N.P. degree curricula are accredited by the CCNE through 2027. The nurse anesthesia area received initial accreditation from the Council on Accreditation of Nurse Anesthesia Education Programs (COA) in 2011 (222 South Prospect Avenue, Park Ridge, IL 60068-4001) and is currently accredited through 2027. The California Board of Registered Nursing (BRN) (P. O. Box 944210, Sacramento, CA 94244-2100) granted continuing approval in 2019. Consumers are encouraged to contact CCNE, COA, or BRN with comments about the program.

# Agency membership

The School of Nursing holds agency membership and actively participates in the following major professional organizations: American Association of Colleges of Nursing, National League for Nursing, Council on Accreditation of Nurse Anesthesia Education Programs, and Western Institute of Nursing.

# Vision

Transforming lives through nursing education, professional practice, and research.

# Mission

The education of nurses dedicated to professional excellence and compassion in clinical practice, education, and research. Loma Linda University-educated nurses will further the healing and teaching ministry of Jesus Christ through commitment to whole-person care and Christian values.

# Programs of study

The School of Nursing prepares professional nurses to practice with a Christian perspective through the following programs:

1. The baccalaureate degree curriculum—designed to prepare competent, beginning-level professional nurses who are committed to excellence in practice.
2. The master's degree in nursing program—designed to prepare nurses for leadership as nurse educators or nurse administrators.
3. The Doctor of Nursing Practice degree—designed to prepare nurses for leadership as advanced practice registered nurses, clinical nurse specialists and nurse practitioners, nurse anesthetists, and other advanced nursing roles in the clinical setting.
4. The Doctor of Philosophy degree program—designed to prepare nurse scholars for leadership in education, administration, and research.

# Philosophy

Loma Linda University School of Nursing is founded upon a legacy of global Christian service. We seek to touch lives in the context of a world in need.

Loma Linda University nursing education centers on whole-person care. Our spiritual core and vibrant faith experience are expressed in authentic connections and genuine caring for humanity in all its diversity. Through research and scholarship-informed practice, we aim to promote healing, empowerment, and transformation across the life span in individual lives, families, and communities.

We strive to create an environment in which all learners reach their highest potential, achieve academic excellence, and experience personal and spiritual growth.

We see the development of intellect and character as preparation for lifelong learning and ministry through the nursing profession.

### Primary full-time faculty

Megan Anderson

Angelika Ashburn

Caroline Baek

Brandon Balandran

Michelle Ballou

Chelsea Bartlett

Brenda Boyle

Nancy Brashear

Joanna Brogdon

Jenna-Marie Crowe

Ellen D'Errico

Lena Dailey

Safiya Daley

Salem Dehom

Tony Dharmaraj

Janet Donnelly

Sabine Dunbar

Laura Gil

Amy Gow

Joseph Hacinas

Luchia Hansen

Lisa Hanson

Erin Heim

Lisa Highton

Gloria Huerta

Vanessa Jones-Oyefeso

Lana McLouth Kanacki

Mattison Lake Kattenhorn

Lydia Larsen

Sara Larsen

Claire Loden

Iris Mamier

Kirsten Manalo

Kelly McHan

Keri Medina

Enrique (Eric) Molina

Darren Moon

Jan Marie Nick

Jacqueline Paik

Gemma Pangan

Sheryl Pena

Judy Peters

Anne Berit Petersen

Mindy Potter

Robin Pueschel

Laura Raty

Rachel Reidinger

Karen Ripley

Lisa Roberts

Nancy Sarpy

MaryJo Schaarschmidt

Patty Schwab

Pamela Shaltz

Joanna Shedd

Selam Stephanos

Beth Johnston Taylor

Rachel Tohm

Nicholas Topoleski

Courtney Tran

Myrna Trippon

Fayette Nguyen Truax

Cecilia Ulltjaern

Kathy Valdeverona

James Watson

Nancy Wolfe

Whitney Woodard

Tadele Worku

Dolores Wright

Joanna Yang

Zelne Zamora

## Secondary faculty

Danilyn Angeles

Ihab Dorotta

Wessam Labib

John Lenart

Robert Martin

John Zhang

## Emeritus faculty

Margaret (Peggy) Burns

Vaneta Condon

Patricia Foster

Katty Joy French

Dynnette E. Hart
Emerita Associate Dean

Marilyn H. Herrmann
Emerita Dean

Patricia Jones
Distinguished Emerita Professor

Christine Neish

Patricia Pothier

Edelweiss R. Ramal

Lois H. Van Cleve

Ruth S. Weber

Betty Winslow

### Voluntary faculty

Betty Ferrell

Janet Kroetz

Sabah Langston

Jennifer Mundall

John Nagelhout

Sofia Puerto

Michael Scofield

Harpreet Singh

### Hospital-based faculty

Norie Bencito-Acaac

Shayne Bigelow-Price

Jennifer Brown

Kurt Cao

Ja-Yee Chu

Invest Joy Cocjin

Carolyn Davidson

Marie Hodgkins

Susan Krider

Maria Letts

Jean Newbold

Jennifer Newcombe

Jennifer Olson

Allison Ong

Patricia Radovich

Helen Staples-Evans

Thomas Sweeney

Janelle Warren

Joseph Wilkinson

Gwendolyn Wysocki

# General regulations

## Student policies

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. This section gives the general setting for each school's programs and outlines subject and unit requirements for admission to individual professional options. It is important to review the requirements of specific options within the context of general requirements applicable to all programs.

School of Nursing students are expected to adhere to the policies of the University and School of Nursing as presented in the Loma Linda University *Student Handbook*.

## Application and admissions

The purpose of the University's programs admissions committees is to ensure that applicants are qualified for the proposed curricula and are capable of profiting from the educational experience offered by this University. School admissions committees accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

### Application

Applications are invited from those interested in attending a Christian school of nursing and whose beliefs are consistent with the mission of Loma Linda University and the School of Nursing. Priority may be given to those coming from within the Seventh-day Adventist Church and educational system.

Admission application information is located at <nursing.llu.edu (http://nursing.llu.edu)>.

### Admission requirements

Students entering the School of Nursing must complete Loma Linda University background check requirements, as well as health requirements--including immunizations and annual TB clearance. In addition, all School of Nursing students are required to have valid cardiopulmonary resuscitation (CPR) certificates approved by the American Heart Association in order to take clinical nursing courses. Students are responsible for the annual renewal of their immunizations, TB clearances, and CPR certifications. New undergraduate students are required to show evidence of completion of a first aid course.

#### Essential skills

Loma Linda University School of Nursing candidates for the B.S., M.S., D.N.P. or Ph.D. degree must have abilities, skills and professional attitudes that ensure the School educates students of the highest qualifications for the practice of nursing. These technical standards are requirements for admission to, promotion within, and graduation from the Loma Linda University School of Nursing. Technological compensation can be made for some disabilities in certain areas but a candidate should be able to perform in an independent manner without the use of a surrogate. Abilities, skills and professional attitudes in the following areas are required:

#### Psychomotor (physical) skills

- Stand, walk, carry, sit, lift up to fifty pounds, push, pull, climb, balance, stoop, crouch, kneel, turn, twist, crawl, and reach--within a clinical setting.
- Assess and intervene in the care of patients, using the physical senses--sight, including ability to distinguish colors, touch, taste, smell, and hearing.
- Utilize patient care equipment and perform technical patient care activities.

#### Cognitive (thinking) skills

- Work with intangible data, such as numbers, symbols, ideas, and concepts.
- Perform mental cognition tasks, including problem solving, prioritizing, and accurate measuring; follow instructions; and use

cognitive skills to synthesize, coordinate, analyze, compile, compute, copy, and compare.
- Communicate with others, using verbal and nonverbal skills. Recall written and verbal instructions, read and comprehend, and write clearly. Negotiate, instruct, explain, persuade, and supervise.

#### Affective (human relations) skills
- Interact positively with individuals and groups of people directly and indirectly.
- Control emotions appropriately and cope with stressful situations.
- Respond appropriately to criticism and take responsibility for personal actions, behaviors, and learning.
- Evaluate issues and make decisions without immediate supervision.

#### Task (work function) skills
- Function independently on work tasks.
- Demonstrate safety awareness.
- Recognize potential hazards.
- Respond appropriately to changes in work conditions.
- Maintain attention and concentration for necessary periods.
- Perform tasks that require set limits.
- Ask questions and request assistance appropriately.
- Perform within a schedule requiring attendance.
- Carry a normal work load.

#### Accommodations for disability
School of Nursing students requesting accommodations for a disability (p. 13), should consult the Office of the Associate Dean who administers the undergraduate or graduate programs.

# Student life

Students should refer to the *Student Handbook* for a more comprehensive discussion of University and school expectations, regulations, and policies. Students need to familiarize themselves with the contents of the online *Student Handbook*.

## Student involvement

Students are encouraged to become actively involved in the Associated Students of Nursing. Student representatives are invited to attend the Undergraduate Faculty Council, Master's and Doctor of Nursing Practice Faculty Council, Doctor of Philosophy Faculty Council, Spiritual Life and Wholeness Committee, and Diversity Committee, where they may contribute to the decision-making process.

## Student organizations

The following student organizations enable students to participate in cultural, social, professional, and citizenship aspects of University life.

#### Associated Students of Nursing (ASN)
The ASN is a School of Nursing student organization. This association includes all students of nursing and is administered by elected students, two faculty sponsors, and one sponsor from Student and Alumni Relations (StAR). The objectives of this organization are to serve as a channel for communication between students and the faculty, and to facilitate personal and professional growth by meaningful participation in all aspects of student life.

#### Loma Linda University Student Association (LLUSA)
The LLUSA has three purposes: to promote communication among students, to present students' views to the administration, and to assist in the programming of social and religious activities. The LLUSA provides opportunities to develop and refine a wide range of professional leadership and fellowship skills.

#### Class organizations
The members of the junior and senior classes elect officers and promote such projects and activities as constitute their major interests and concerns.

# Financial information

## School of Nursing Finances

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees for the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic term. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

Before the beginning of each school year, the student is expected to arrange for financial resources to cover all expenses. Previous accounts with other schools or with the University must have been settled.

## Schedule of charges 2021-2022

The charges that follow are subject to change without notice.

#### Tuition
**Tuition charge—undergraduate nonclinical, special, certificate, and part-time students**

| | |
|---|---|
| $680 | B.S. per unit |
| $355 | RN to B.S. per unit |
| $560 | Clinical course fees per clinical course |
| $919 | Enrolllment fee per quarter |

**Tuition charge—graduate**

| | |
|---|---|
| $850 | Graduate Programs |
| $425 | Clinical course fees per clinical course (excludes CRNA courses) |
| $605 | CRNA clinic course fees per clinical course |
| $150 | CRNA Program fee per quarter |
| $919 | Enrollment fee per quarter |
| $50 | Change clinical start fee |

#### Other academic charges
(All charges in this section are nonrefundable.)

| | |
|---|---|
| $80 | Teas testing fee (undergraduate only) |
| $70 | Application fee (except CRNA) |
| $120 | CRNA Application fee |
| $200 | Deposit to hold place in class (B.S., excludes RN to BS) |
| $250 | Deposit to hold place in class (M.S.) |
| $250 | Deposit to hold place in class (BS - D.N.P. / Ph.D.) |

| | |
|---|---|
| $2,500 | Deposit to hold place in class (CRNA) |
| $120 | CRNA Application Fee |

**Credit by Examination (one half cost of tuition by unit)**

| | |
|---|---|
| $340 | Undergraduate per unit credit (challenge, equivalency) |
| $425 | Graduate per unit credit (challenge, equivalency) |
| $50 | Early examination |
| $50 | Application to change concentration or degree program |

**Licensing examinations**

Registration and certification examinations and license fees are set by the state.

**Other charges**

| | |
|---|---|
| $200 | Clinical Laboratory make-up fee |

# Awards honoring excellence

Awards for excellence in nursing, scholastic attainment, and leadership ability are made available to students whose performance and attitudes reflect well the ideals and purposes of the school. Selection of students is based on the recommendation of the faculty to the dean. Selected awards are presented below. Other clinical awards may be given based on qualifications and funding

**President's Award**

The President's Award is presented annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. One recipient is selected from each school.

**Dean's Award**

The Dean's Award is presented to an outstanding student in each program on the basis of the student's demonstrated commitment to academic excellence and to the objectives of the school.

**Helen Emori King Professional Leadership Award**

The Helen Emori King Professional Leadership Award is presented to a graduate student who demonstrates outstanding leadership ability in nursing.

# Scholarships

The School of Nursing has a variety of scholarships that have been endowed by alumni and friends. Most of the scholarships are awarded on the basis of academic/clinical performance, financial need, and citizenship. The Office of the Dean can provide students with more information.

# Undergraduate

## Curricula overview

The following sections describe the undergraduate curricula offered by the School of Nursing and list the courses each student must complete. Students are expected to follow the general policies of the University, the school, and specific policies of their degree curriculum. The school reserves the right to update and modify curricula content to stay current with trends in health care.

### Bachelor of Science (B.S.) degree

The purpose of the School of Nursing's baccalaureate degree is to prepare competent clinicians who are committed to excellence in practice and to Christian principles. The faculty believes that baccalaureate education in nursing is the basis for professional practice. The curriculum leading to the Bachelor of Science (B.S.) degree is consistent with the faculty's belief that students should be broadly educated. The focus is on the synthesis of nursing knowledge and skills with those from the humanities and sciences. Preparation for practice includes experiences in primary and acute care—with clients from various ages, cultural groups, and socioeconomic strata.

### Undergraduate curriculum sequence

The undergraduate curriculum begins with four quarters of pre-clinical work—which forms the general education and science base for nursing. These quarters may be completed at any regionally accredited college or university. After completion of an additional eight quarters at Loma Linda University, the student is eligible to receive the B.S. degree and is prepared for professional nursing practice at the baccalaureate level. Clinical experience develops a student's technical and theoretical capabilities in a progressive manner and within the context of the nursing process. Most baccalaureate nursing major courses are in the upper division, where clinical experience is gained in a broad variety of settings. Integral components of upper-division courses include leadership concepts and skills, research, public health, and activities that foster collaboration in planning health care with the family and all members of the health-care team.

#### Learning outcomes for baccalaureate nursing

Learning outcomes of the baccalaureate nursing program are designed to prepare competent nursing professionals. By the end of the program, graduates should be able to:

1. Apply the nursing process to individuals, families, groups, communities, and populations across the life span from diverse backgrounds in a variety of settings to ensure that it is wholeness-focused and compassionate as well as age and culturally appropriate;
2. Collaborate with members of the interprofessional health-care team to manage and coordinate the provision of safe, quality care for individuals, families, and groups;
3. Integrate scientific information and best current evidence with clinical expertise and patient preferences when promoting health and making clinical judgments in the management of patient-centered care;
4. Use quality improvement measures to evaluate the effect of change on the delivery of patient-centered care and patient outcomes;
5. Evaluate effectiveness of strategies used to reduce the risk of harm to individuals, self, and others in health-care, home, and community settings;
6. Use empirical and evidence-based information and patient care technology to communicate relevant patient information, manage care, and mitigate error in the provision of safe, quality, patient-centered care;
7. Model integrity and accountability in practices that uphold established regulatory, legal, and ethical principles while providing standard-based nursing care;
8. Integrate leadership and management theories and principles into practice when managing a caseload of patients and making clinical judgments about their care;
9. Use verbal, nonverbal, and written communication strategies that promote an effective exchange of information; development of therapeutic relationships; and shared decision-making with patients, families, groups, communities, and populations from diverse backgrounds.

### Professional registration

Satisfactory completion of the California Board of Registered Nursing-required content prepares the student to sit for the NCLEX-RN examination. All states require that a nurse pass the NCLEX-RN examination for licensure to practice. California application forms and fees are submitted to the California Board of Registered Nursing, P.O. Box 944210, Sacramento, CA 94244-2100; website: <http://www.rn.ca.gov/>.

## Bachelor of Science (B.S.) degree options

For all B.S. degree options, students must complete all prerequisite courses two months prior to starting the nursing program. Occasional exceptions for certain prerequisites can be made. For more specifics, consult with the admissions department staff.

1. Standard B.S. degree curriculum.

Individuals who have met the required prerequisites may complete a baccalaureate degree in eight quarters of full-time coursework. Part-time study is not an option. Courses are designed in the face-to-face learning method and require the student to be on campus multiple days each week. Instructional learning includes a combination of theory and clinical application.

Individuals who have been licensed vocational nurses, have held military health-care occupations, or have transferred from other nursing programs may qualify for advanced placement.

2. RN to B.S. curriculum.

An RN with an associate's degree in nursing or equivalent may complete a baccalaureate degree in four quarters of full-time coursework. Part-time study is an option. Courses are taught in the online format, with weekly discussions and assignments designed to focus on the working environment of the RN. The returning RN must have completed the majority of the prerequisite courses prior to acceptance into the program and must hold a current RN license.

If the student is attending a nursing program that has a concurrent agreement with Loma Linda University, coursework in the RN-to-B.S. program may begin before completing the A.S. degree and before RN licensure.

## Nondegree option

#### The 45-quarter unit RN licensure option

Licensed LVNs who have been admitted and are currently in the nursing program have the option of requesting the 45-quarter-unit option

for LVNs. Because the LVN choosing this option does not meet the requirements for a degree as outlined by the school, neither a degree nor a certificate will be issued—nor will a graduation exercise be included. In addition, the student will not be eligible to wear the school pin, cap, or other insignia. An RN license obtained through this option is valid in California and may not be transferable to other states.

**Prerequisite per BRN**
High school diploma.
Current LVN license in California (skills will need to be validated).
Completion of anatomy, physiology, and microbiology with a grade of C or higher.
G.P.A. of at least 2.0.

**Academic plan**
**Required courses**

| | | |
|---|---|---|
| **Basic science prerequisites** | | |
| See above for details | | 9 |
| **Required courses** | | |
| NRSG 217 | Psychiatric Mental Health Nursing | 6 |
| NRSG 233 | Health Assessment | 3 |
| NRSG 302 | Adult Health Nursing II | 8 |
| NRSG 303 | Adult Health Nursing III | 7 |
| NRSG 315 | Child Health Nursing | 6 |
| NRSG 419 | Capstone Nursing Leadership | 6 |
| **Total Units** | | **45** |

NOTE: The student in this 45-unit RN option must maintain a G.P.A. of at least 2.0 and earn a grade of at least a C in each course throughout enrollment at Loma Linda University. A grade below a C will cause the student to be dropped from the LLU School of Nursing.

# Academic policies and practices

## Academic residence

To qualify for an undergraduate degree from Loma Linda University, the student must take a minimum of 45 units at Loma Linda University; 32 of the units must be upper division courses. At least three clinical nursing courses are required as part of these units.

## Nursing courses

**Nursing course grades**
Most nursing courses in the undergraduate curriculum are divided into approximately equal components of theory and clinical laboratory practice. Grades for nursing courses represent a combination of theory and clinical laboratory grades. In order to pass a nursing course, a student must receive a grade equivalent to a C or above in the theory and must receive either a C or a satisfactory in the clinical laboratory sections of the course. To receive a passing grade in theory, the student must obtain a cumulative score of at least 76 percent on examinations. A grade of C- or below places the student on provisional status and requires that the student repeat the course. The student will be allowed to repeat the course based on space availability in the clinical setting. Enrollment in the School of Nursing will be terminated if a student receives two grades of C- or below in nursing courses.

### Percentage breakdown for grading

The undergraduate division of the School of Nursing uses the following percentages for computing grades:

| | |
|---|---|
| 95-100% | A |
| 92-94% | A- |
| 88-91% | B+ |
| 85-87% | B |
| 82-84% | B- |
| 79-81% | C+ |
| 76-78% | C |
| 71-75% | C- |
| 68-70% | D+ |
| 63-67% | D |
| Below 62% | F |

### Clinical experiences

Clinical experiences are under the direction of the course coordinator. The student has supervised experience under a clinical instructor in the care of patients. The student must meet LLUSN professional dress standards for clinical assignments and adhere to any additional dress policies of a particular clinical agency or setting. Failure to meet standards will result in being sent home from clinical lab. Unexcused tardiness or absences from class or clinical laboratory is cause for failure. Three times of being tardy to class or laboratory is equal to one absence. Absences in excess of 10 percent of course appointments (class, seminar, or clinical) may be cause for failure. Students must make up for absences from clinical experiences due to extenuating circumstances (e.g., personal illness or death in the family). A fee of $200 will be charged for make-up of clinical laboratory during non-clinical time.

Nursing students are required to practice in client care settings under the supervision of a registered nurse during assigned clinical laboratory time. Each student will be expected to apply basic theoretical concepts to clinical practice by assessing, planning, and implementing nursing procedures; and evaluating the care of individuals, families, and communities. Students will function within the policies of the clinical agency and demonstrate the professional behavior outlined in the University CATALOG and the University *Student Handbook* while performing routine nursing care.

Students are expected to be knowledgeable about clients and their problems and about the plans for care prior to actually giving care. They must come prepared for the clinical experience and must adequately assess a client. Students are expected to perform skills safely. Students whose performance is deemed unsafe may fail the course or be dropped from the program.

Students are responsible for their individual transportation to off-campus clinical sites. Individual transportation does not mean arrangements to car-pool with someone. Off-campus clinical assignments cannot be promised on the basis of the student's transportation convenience. Clinical sites may not be local and may require significant driving time. Students may be required to complete a clinical experience on a Sunday or a holiday.

## Licensure

To be eligible to write the NCLEX-RN examination, the student must have completed all prerequisites and required BRN-approved nursing curriculum courses required for licensure and have been awarded a B.S. degree in nursing. Under the laws of California, a candidate for the examination is required to report all misdemeanors, driving citations over $1,000, and felony convictions. If a candidate has a criminal history, the

California Board of Registered Nursing will determine the eligibility of that individual to write the licensing examination.

## Credit by examination

**Challenge/equivalency examination**

An undergraduate student may meet academic requirements by passing an examination at least equal in scope and difficulty to examinations in the course. Undergraduate students with prior education in nursing or in another health-care profession are eligible to challenge nursing courses required for California state licensure. The applicant's background in health-care theory and clinical experience must be commensurate with the theory and skills required for the course.

Challenge examinations in nursing courses include both a written examination covering theory and an examination of clinical competence. A fee is charged for a challenge examination. See the "Schedule of Charges" in this section for fees.

Progression to the next level in the program is permissible only after successful completion of the challenge examination at 76%. A grade of S is recorded for challenge credit earned by examination only after the student has successfully completed a minimum of 12 units of credit at this University with a G.P.A. of 2.0 or above.

Examination fee will be waived when used to determine initial placement for military persons, licensed vocational nurses, and individuals transferring from other nursing programs who meet requirements for advanced placement in the nursing program. Credit for previous coursework must not exceed program residency requirements.

**Advanced placement program**

Credit toward graduation may be accepted by the school for an entering student who has passed one or more Advanced Placement examinations with a score of 3, 4, or 5. Records for AP courses must be sent directly from the College Board to University Records.

For specific policy and time limits regarding CLEP examinations, see "Academic Policies" in the Section II of the CATALOG.

**Licensed vocational nurse (LVN) option for advanced placement**

Licensed vocational nurses may be eligible to apply for advanced placement in the nursing program at Loma Linda University. Substantive experience and/or testing will be considered to determine placement. Interested candidates are advised to discuss advanced placement options with the admissions department prior to applying for the nursing program.

**Military option for advanced placement**

Individuals who have held military health-care occupations in the areas including, but not limited to Basic Medical Technician Corpsmen, Army Health Care Specialist, or Air Force Independent Duty Medical Technician may be eligible to apply for advanced placement in the nursing program at Loma Linda University School of Nursing if they are able to provide verifiable education and experience. Interested candidates are advised to meet with the Associate Dean for Undergraduate Program at least four weeks prior to application to review eligibility requirements.

## Academic success

- Students who receive a grade less than a B- in any of the courses listed below must:
  - Enroll in NRSG 244 Strategies for Academic Success each quarter until they successfully pass NRSG 301 Adult Health Nursing I.
  - Follow an individualized plan for continued involvement with the Academic Center for Excellence (ACE) in subsequent quarters. The individualized plan will be developed based on individual needs as determined by the ACE faculty mentor, course instructor(s), advisor, and student.
  - Applicable courses: NRSG 224 Nursing Pathophysiology, NRSG 231 Foundations of Nursing, NRSG 232 Fundamentals of Nursing, NRSG 233 Health Assessment, NRSG 305 Nursing Pharmacology

## Withdrawal

A student may withdraw (W) from no more than two nursing courses during the nursing program, and may withdraw only one time from the same course.

## Repeating undergraduate courses

A grade of C (2.0) is the minimum passing grade for nursing courses. A student may repeat a course only one time. Any nursing course taken while a student at Loma Linda University School of Nursing in which the earned grade is C- or lower must be repeated. When a student repeats a course, both the original and repeat grades are entered on the student's permanent record; but only the repeat grade and credit are computed in the grade point average and included in the total units earned.

## Academic probation

- Students who have received a C- or below in a nursing course or who have withdrawn (W) due to failing, are placed on academic probation.
- Students on probation status will be required to take NRSG 244 Strategies for Academic Success, under the supervision of the Center for Academic Excellence (ACE).
- Students on probationary status are required to communicate regularly with the academic advisor.
- Students on probation status may take no more than 13 units including NRSG 244 Strategies for Academic Success.
- When the failed course work has been repeated successfully, the student is returned to regular status.
- Students who receive a C- or below in any the courses listed below must continue to enroll in NRSG 244 Strategies for Academic Success each quarter until successful completion of NRSG 301 Adult Health Nursing I.
  - NRSG 224 Nursing Pathophysiology
  - NRSG 231 Foundations of Nursing
  - NRSG 232 Fundamentals of Nursing
  - NRSG 233 Health Assessment
  - NRSG 305 Nursing Pharmacology

## Academic dismissal

- Enrollment in the School of Nursing will be terminated if a student receives two grades of C- or below in nursing courses (See Student Handbook (http://www.llu.edu/student-handbook/) for Grievance Procedure).

## Repeating a course

A grade of C (2.0) is the minimum passing grade for nursing and required religion courses. Any nursing or religion course taken while a student at Loma Linda University School of Nursing in which the earned grade is C- or lower must be repeated. A nursing or religion course may be repeated only once. When a student repeats a course, both the original and repeat grades are entered into the student's permanent record; but only the repeat grade and credit are computed in the grade point average and included in the total units earned.

## Graduation requirements

A candidate must complete the Undergraduate Intent to Graduate form two quarters prior to completion of degree.

A degree will be granted when the student has met the following requirements:

1. Completed all requirements for admission to the respective curriculum.
2. Completed all requirements of the curriculum, including specified attendance, level of scholarship, and length of academic residence.
3. Completed a minimum of 185 quarter units for the baccalaureate degree, with a minimum overall G.P.A. of 2.0.
4. Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the respective discipline.
5. Discharged financial obligations to the University.

It is the responsibility of the student to see that all requirements have been met; and to communicate each quarter with their assigned advisor.

A student who completes the requirements for a degree at the end of the Spring or Summer Quarter is expected to be present at the University's ceremony for conferring of degrees and presentation of diplomas. Permission for the conferral of a degree in absentia is granted by the University upon recommendation of the dean of the school.

A student who completes the requirements for a degree at the end of Autumn or Winter quarter is invited, but not required, to participate in the subsequent conferring of degrees. Degrees are conferred at graduations only.

The University reserves the right to prohibit participation in commencement exercises by a candidate who has not satisfactorily complied with all requirements.

## Additional requirements/policies

For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

# Nursing — B.S. (standard)

## Admissions

The Admissions Committee seeks individuals who reflect a high degree of personal integrity, dependability, self-discipline, intellectual vigor, and a caring and thoughtful manner. Individuals who have held military health-care occupations, licensed vocational nurses, and individuals transferring from other nursing programs may qualify for advanced placement.

## Application deadlines

Applicants seeking undergraduate admission must complete the application process by the following dates:

- Autumn Quarter—March 15
- Winter Quarter—August 1
- Spring Quarter—November 1

In addition to Loma Linda University (p. 23) admission requirements, the applicant must:

1. Have completed a high school diploma or its equivalent.
2. Have a current first-aid certificate.
3. Have a current basic life support certificate approved by the American Heart Association.
4. Have earned a cumulative G.P.A. of 3.0 on all college coursework. Exception may be made based on a specific individualized evaluation. Grades below a "C" are nontransferable.
5. Students considering transfer of nursing coursework must provide course descriptions or outlines for clinical nursing courses in order for the school to determine the amount of transfer credit to be granted.
6. Complete entrance tests required for all incoming students who are not registered nurses.
7. Complete an interview arranged by the director of admissions.
8. Complete prerequisite courses listed below:

| | |
|---|---|
| Intermediate algebra (or one year of high school algebra II) High school algebra does not count toward domain units. | 4 |
| Anatomy and physiology I with laboratory [1] | 4 |
| Anatomy and physiology II with laboratory [1] | 4 |
| Introduction to organic chemistry and biochemistry with laboratory [2, 3] | 8 |
| Basic medical microbiology (with lab) [1] | 5 |
| Public speaking | 4 |
| English composition (full sequence) | 8-9 |
| General psychology | 4 |
| Life span development (Developmental psychology) | 4 |
| Intro to sociology or anthropology | 4 |
| Physical education (two activity classes) | 1-2 |
| Nutrition | 3 |
| Humanities [4] | 12-17 |
| Select a minimum of three areas of humanities from the following: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed four quarter units), or philosophy. | |
| Electives (as needed to meet the unit requirement for graduation) | |

[1] Preferred within five years

[2] A complete sequence of both general biology and general chemistry may be accepted in lieu of the Intro to organic and biochemistry requirements.

[3] A combined organic and biochemistry course of less than 8 units may be accepted if determined the course has covered the necessary content adequately.

[4] Applicants who completed coursework at a Seventh-day Adventist institution are required more religion and less humanities which will be determined during the admissions evaluation.

For graduation requirements, see LLU General Education Requirements (p. 26).

### Pre-entrance requirements (p. 24)

1. A completed background check.
2. Health clearance, including immunizations as outlined in the "Admissions Policies and Information."

## Program requirements

| | | |
|---|---|---|
| **Major** | | |
| NRSG 217 | Psychiatric Mental Health Nursing | 6 |
| NRSG 224 | Nursing Pathophysiology | 5 |
| NRSG 230 | Principles of Professionalism, Clinical Reasoning, and Self-Care | 3 |
| NRSG 231 | Foundations of Nursing | 3 |
| NRSG 232 | Fundamentals of Nursing | 7 |
| NRSG 233 | Health Assessment | 3 |
| NRSG 301 | Adult Health Nursing I | 6 |
| NRSG 302 | Adult Health Nursing II | 8 |
| NRSG 303 | Adult Health Nursing III | 7 |
| NRSG 305 | Nursing Pharmacology | 3 |
| NRSG 314 | Obstetrical and Neonatal Nursing | 5 |
| NRSG 315 | Child Health Nursing | 6 |
| NRSG 316 | Wellness and Health Promotion | 3 |
| NRSG 324 | Nursing Informatics and Evidence-Based Practice | 3 |
| NRSG 375 | Introduction to Applied Biostatistics for Nursing | 3 |
| NRSG 375L | Computer Applications in Biostatistics | 1 |
| NRSG 404 | Introduction to Epidemiology for Nursing | 2 |
| NRSG 405 | Home Care Nursing | 3 |
| NRSG 408 | Critical Care Nursing | 8 |
| NRSG 416 | Public Health Nursing | 4 |
| NRSG 416L | Public Health Nursing Clinical Laboratory [2] | 4 |
| NRSG 418 | Capstone Nursing Practicum | 6 |
| NRSG 419 | Capstone Nursing Leadership | 6 |
| NRSG 429 | Nursing Research | 3 |
| **Cognates** | | |
| Religion: upper-division [1] | | 11-16 |
| Must include from each of the following content areas: RELE (ethical), RELR (relational), and RELT (theological) | | |
| Must select one course from the following: | | |
| RELT 406 | Adventist Beliefs and Life | |
| RELT 423 | Loma Linda Perspectives | |
| RELT 436 | Adventist Heritage and Health | |
| RELT 437 | Current Issues in Adventism | |
| **Total Units** | | **119-124** |

[1] Total units required are based on the percentage of coursework from an SDA college/university. (See Division of General Studies (https://currentcatalog.llu.edu/about-university/division-general-studies/) for religion and humanities details.) If no previous coursework was taken at an SDA college/university, 11 units of religion are required.

[2] Fulfills service learning requirement.

Total unit requirement for graduation is 185 quarter units (transfer units plus above-listed courses).

### Normal time to complete the program

Four (4) years — 2.66 years (eight [8] academic quarters) at LLU) — based on full-time enrollment; part time permitted

# Nursing – RN to B.S.

## Admissions

The Admissions Committee is looking for individuals who reflect a high degree of personal integrity, dependability, self-discipline, intellectual vigor, and a caring and thoughtful manner.

### Application deadlines

Applicants seeking undergraduate admission must have the application process completed by the dates as follow.

- Autumn Quarter—March 15
- Winter Quarter—August 1
- Spring Quarter—November 1

In addition to Loma Linda University (p. 23) admission requirements, the applicant must also meet the following requirements:

1. Currently licensed registered nurse (RN), unless attending a school that has a concurrent enrollment agreement with Loma Linda University.
2. No grade below a "C" submitted for transfer.
3. An Associate in Science degree in nursing or equivalent from an accredited school of nursing, unless attending a school that has a concurrent enrollment agreement with Loma Linda University.
4. An interview or an advising appointment with the RN-B.S. representative.
5. Prerequisite courses listed below. Up to 12 units may be completed while in the program. (Requirements listed below are in quarter units.)

| | |
|---|---|
| Anatomy and physiology I with laboratory [1] | 4 |
| Anatomy and physiology II with laboratory [1] | 4 |
| Introduction to chemistry with laboratory [1] | 4 |
| Basic medical microbiology with laboratory [1] | 5 |
| Public speaking | 4 |
| English composition, full sequence | 8-9 |
| General psychology | 4 |
| Social science elective | 4 |
| Intro to sociology | 4 |
| Physical education, two activity courses | |
| Nutrition (waived based on passing NCLEX exam) | |
| Humanities [2] | 22 |
| Select a minimum of three areas of humanities from the following: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed four quarter units), or philosophy. | |
| Electives (as needed to meet total unit requirements for graduation) | |

[1] Preferred within five years

[2] Applicants who completed coursework at a Seventh-day Adventist institution are required more religion and less humanities which will be determined during the admissions evaluation.

If the RN is a graduate of an accredited nursing program, the nursing credits will be accepted as equivalent to the School of Nursing lower

division courses. For unaccredited schools, or for additional information regarding transfer credit, see section on transfer credit (p. 41) under Academic Policies. Credit for 300-level nursing courses will be granted upon satisfactory completion of NRSG 337 Strategies for Professional Transition and NRSG 407 Complex Nursing Concepts of Health and Disease.

For graduation requirements, see LLU General Education Requirements (http://llucatalog.llu.edu/about-university/division-general-studies/).

# Program requirements

| | | |
|---|---|---|
| **Major** | | |
| NRSG 324 | Nursing Informatics and Evidence-Based Practice | 3 |
| NRSG 337 | Strategies for Professional Transition | 4 |
| NRSG 375 | Introduction to Applied Biostatistics for Nursing | 3 |
| NRSG 375L | Computer Applications in Biostatistics [1] | 1 |
| NRSG 407 | Complex Nursing Concepts of Health and Disease | 6 |
| NRSG 414 | Management and Leadership for the Registered Nurse | 5 |
| NRSG 416 | Public Health Nursing | 4 |
| NRSG 424 | Professional RN Capstone | 7 |
| NRSG 425 | Introduction to Epidemiology for RNs | 3 |
| NRSG 428 | Health Promotion for the RN | 4 |
| NRSG 429 | Nursing Research | 3 |
| NRSG 434 | Public Health Nursing Laboratory for the Working RN [3] | 3 |
| **Cognates** | | |
| Religion: upper division—must include the following content areas. [2] | | 6 |
| RELE (ethical) | | |
| RELT (theological) Must have one course from the following: | | |
| RELT 406 | Adventist Beliefs and Life (3) | |
| RELT 423 | Loma Linda Perspectives (2) | |
| RELT 436 | Adventist Heritage and Health (2) | |
| RELT 437 | Current Issues in Adventism (2) | |
| **Total Units** | | **52** |

[1] Students may take this course if an approved stats theory course has been completed previously.

[2] A minimum of six (6) units in religion required (either two 3-unit courses or three 2-unit courses).

[3] Fulfills service learning requirement

Total unit requirement for graduation is 185 quarter units (transfer units plus above-listed courses).

## Normal time to complete the program

Four (4) years — 1.33 years (four [4] academic quarters) at LLU — based on full-time enrollment; part time permitted

# Graduate

The sections that follow describe the Master of Science (M.S.), Doctor of Nursing Practice (D.N.P.), and Doctor of Philosophy (Ph.D.) degrees offered by the School of Nursing, and list the courses for each. School of Nursing students are expected to operate under the general policies of the University and the school, as well as the specific policies of the degree in which they are enrolled. Graduate education provides the student with opportunities to develop advanced knowledge, skills, and attitudes relevant to a specific area of interest in nursing. Programs of study prepare the nurse for practice, leadership, and research as appropriate to their professional role.

# Academic policies

## Academic residence

To qualify for a degree from the graduate department in nursing at Loma Linda University, the student must take a minimum of 80 percent of the academic curriculum while in residence at the University, i.e., 48 units for the master's degree; 55-119 units for Doctor of Nursing Practice, depending on the selected concentration area and 60-86 units for the Doctor of Philosophy degree.

## Transfer credits

1. A transfer student may transfer credits up to 20 percent of the units required by the chosen program to be applied to the degree requirements at Loma Linda University. This transfer is limited to credits for which a grade of B (3.0) or better has been recorded and the coursework was done at an accredited institution and meets the requirements of a course for the degree at LLU.
2. A maximum of nine quarter units that have been previously applied to another degree may be accepted as advanced standing upon petition.
3. The maximum number of transfer credit towards a master's or doctoral degree may not exceed 20 percent of the minimum credits required for the degree.
4. Following acceptance into a graduate program, all required courses must be taken at Loma Linda University.
5. Credits taken through NEXus for graduate courses are not considered transfer credits.
6. Transfer credits will not be used to offset coursework at this University with less than a B grade.

## Academic standing

1. Course grades
   a. The expected earned grade level for graduate studies is a cumulative grade point average of 3.0 (B average) or higher.
   b. Students must earn a grade of B (85 percent) or higher in all courses. If the earned grade is less than a B, the course must be repeated, except as noted in 3 A and 4 A below.
   c. For all CNS and NP *clinical courses*, an earned grade of less than B (3.0) may not be repeated.
   d. For *all required nurse anesthesia courses*, an earned grade of less than B (3.0) may not be repeated.
2. Withdrawal and repeating course
   a. A student may withdraw only one time from any given core, concentration, or clinical course. (See 4B and 5B below for exception for Nurse Anesthesia students).
   b. A student may repeat no more than one course in the program.
   c. Students requesting to repeat a clinical course due to a withdrawal are placed on a waiting list, according to the timing of the request.
   d. Nurse anesthesia students who withdraw from a course may not continue in the program.
   e. Nurse anesthesia students may not repeat a course.
3. Academic probation

At the end of each quarter, student G.P.A.s will be reviewed. Students will be placed on probationary status if:

a. the earned cumulative G.P.A. is less than 3.0
b. If the earned G.P.A. is less than 3.0 in the nursing major
c. If a course must be repeated due to a grade lower than an earned B in the CNS (core and concentration courses), Nursing Administration, Nursing Education concentration areas or in the D.N.P. or Ph.D. programs, the courses must be retaken and a grade of B or higher earned before proceeding in the clinical sequence. This applies if the low grade occurred in a clinical area that allows a course to be repeated (Nursing Administration, Nursing Education and D.N.P.). To repeat the course, it will be necessary to wait until the course is offered again and has space.
    i. While on probation, a student:
        1. May not take the clinical focus courses, unless this is the course that must be repeated
        2. May not submit the comprehensive project

4. Academic probation may be removed when the student:
    a. Retakes the course and earns a grade of B or higher.
    b. Raises the G.P.A. to 3.0 or higher the next quarter.
    c. Academic termination.
5. Academic enrollment will be terminated if:
    a. The cumulative G.P.A. has not been raised to 3.0 or above while on academic probation.
    b. Any grade lower than B has not been raised when the course is retaken.
    c. A CNS or NP student earns a grade of B- (2.7) or lower in a *clinical course*.
    d. A nurse anesthesia student earns a grade of B- (2.7) or lower in *any course*.

## Clinical probation

Clinical work must be evaluated as satisfactory. The faculty may recommend that the student be placed on clinical probation. While on probation, the student must demonstrate satisfactory clinical work as stipulated by the faculty; or the student will be dismissed from the school.

## Clinical termination

A student may be dismissed from the program if there is evidence of:

1. Unsafe clinical behavior in any of the areas of knowledge, skill, and attitudes
2. Unethical clinical behavior, such as, but not limited to, falsification of records and/or reporting, photographing and /or recording in the clinical site, and posting patient information or photos on social media sites.

## Application for candidacy

A student in the master's degree program will apply for candidacy on Form A after completing at least 25 units of required graduate course work. A Ph.D. degree student will be advanced to candidacy after successful defense of the dissertation proposal. A D.N.P. degree student will be advanced to candidacy after successful defense of the project proposal.

## Time limits

The time lapse from first enrollment in a graduate curriculum to the conferring of the master's degree may not exceed five years. For the doctoral degrees, seven years are allowed after the date of admission. A student desiring reinstatement must reapply. This procedure implies a re-evaluation of the student's total academic plan.

Any credit transferred to the school or taken in residence and submitted toward a graduate degree is nullified seven years from the date when the course was completed. Refer to university policy on satisfactory academic progress.

## Scholastic standing

**Grade scale**

The graduate department in nursing uses the following percentages for determining grades:

| | |
|---|---|
| 95-100% | A |
| 92-94% | A- |
| 88-91% | B+ |
| 85-87% | B |
| 82-84% | B- |
| 79-81% | C+ |
| 76-78% | C |
| 71-75% | C- |
| 68-70% | D+ |
| 63-67% | D |
| Below 62% | F |

## Practicum experiences

Practicum experiences shall be individually structured to meet students' needs and program requirements. Practicum experiences are arranged by practicum faculty after consultation with advisors and appropriate agency personnel. Off-campus placement is formalized through written contract or letter of agreement. This process may take as long as six months. Students requesting practicum experiences at sites that will require additional costs—such as faculty travel, phone calls, or legal advice—are responsible for this expense.

*For advanced practice CNS or NP concentrations, due to the intensive nature of the clinical courses, we strongly recommend that the student keeps their workload to less than 20 hours per week. Employment for CRNA students is strongly discouraged. Students are not permitted to work within 10 hours of the start of a clinical shift. Employment by title or function prior to graduation is forbidden.*

## Comprehensive project

A written, comprehensive project is required of all M.S. degree students (NGRD 610). The student is expected to integrate, evaluate, synthesize and apply theories and research studied in the graduate program. Each clinical track will guide development of the project.

## Thesis and dissertation

Thesis is optional for the M.S. degree. The student's research, thesis, project or dissertation preparation are under the direction of their guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as is feasible. Such approval must be secured before petition is made for advancement to candidacy.

### Dissertation format

Consultation with the Faculty of Graduate Studies office is encouraged to help the student avoid formatting errors in the dissertation process that would require them to edit large sections of manuscript.

### Portfolio

A portfolio, developed during the program of study is required of all students

### Graduation requirements

Degree candidates shall have:

1. Completed all requirements for admission to the respective curriculum.
2. Completed all requirements of the curriculum, including required coursework, specified attendance, level of scholarship, and length of residence.
3. Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the respective discipline.
4. Discharged financial obligations to the University.

It is the responsibility of the student to see that all requirements have been met.

A student who completes the requirements for a degree at the end of the Spring or Summer Quarter is expected to be present at the university's ceremony for conferring of degrees and awarding of diplomas. Permission for the conferral of a degree in absentia is granted by the University upon recommendation of the dean of the school.

A student who completes the requirements for a degree at the end of the Autumn or Winter Quarter is invited, but not required, to participate in the subsequent conferring of degrees. Degrees are conferred at commencements only. See Section II of the Academic Policies.

The University reserves the right to prohibit participation in commencement by a candidate who has not satisfactorily complied with all requirements.

### Additional requirements/Policies

For additional policies governing Loma Linda University students, see the academic polices and information (p. 34) section under the heading, *About this University*, in this CATALOG, as well as the University *Student Handbook* which can be accessed at www.llu.edu/student-handbook/ (http://www.llu.edu/student-handbook/). Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

# Nursing – M.S.

### Learning outcomes for Master of Science

Learning outcomes of the master's degree program are designed to prepare nurse leaders with a Christian perspective to enable them to contribute to professional nursing through clinical practice, teaching, and administration. Upon completion of the Master of Science degree, the graduate should be able to:

1. Synthesize and apply research findings as a foundation for evidence-based practice;
2. Apply informatics and health-care technologies to support data management and improve patient care;
3. Collaborate interprofessionally to improve patient and population health outcomes;
4. Utilize baccalaureate-level humanities, nursing, and science competencies as a basis for advanced nursing practice;
5. Use organizational and systems leadership, management, and teaching skills to promote high-quality and safe patient care;
6. Contribute to health policy and advocacy by working with clients, health professionals, and organizations to improve access, quality, and delivery of health care;
7. Apply quality improvement and safety methods, tools, performance measures, and standards within professional settings;
8. Engage in clinical prevention and health promotion to maintain and improve population health;
9. Utilize advanced knowledge acquired from nursing and cognate sciences as a basis for advanced nursing practice.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant to the Master of Science program in nursing must also complete the following requirements:

1. Baccalaureate degree in nursing or its equivalent from an accredited institution.
2. GPA of 3.0, both cumulative and in nursing courses.
3. Current United States RN license before application and CA RN license before the start of classes.
4. Three electronic recommendations from recent professors or current work supervisor.
5. Interview by faculty members in the School of Nursing.

#### Application deadlines

Applicants seeking graduate admission must have the application process completed by the dates indicated in the following.

Nurse Educator, Nursing Administration

- Autumn Quarter—April 1
- Winter Quarter—August 1
- Spring Quarter—November 1

Pre-entrance requirements (p. 24):

1. Health clearance, including immunizations
2. Background check

## Regulations

### Nondegree course status

Up to 12 units of required core coursework may be taken as a nondegree student, with the consent of the instructor, while the application submission and review are in progress. If grades of B or higher are earned, the coursework may be applied toward the graduate degree upon acceptance into the program.

### Course scheduling

Core nursing courses are scheduled to accommodate the typical working nurse.

### Curriculum change

The school reserves the right to update and modify the curriculum without prior notice to maintain currency with standards in health care.

Students in continuous attendance will meet graduation requirements of the CATALOG under which they enter the School of Nursing unless change is necessary to comply with new professional standards.

### General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Catalog of Loma Linda University, Section II *About the University* and in Section III, *About the Schools,* School of Nursing *(*p. 316*).*

## M.S. concentrations

Demonstration of comprehensive learning is required, either through a project or requirements embedded in courses required for the Master of Science degree, depending on the selected area of concentration

- Nurse Educator: Adult-Gerontology (p. 331)
- Nurse Educator: Obstetrics and Pediatrics (p. 332)
- Nursing Administration (p. 333)

# Nurse Educator: Adult–Gerontology Concentration

The nurse educator adult–gerontology concentration prepares nurses for a role as educator in either the academic or clinical setting, with a focus on the care of the individual from early adulthood through geriatrics.

| | | |
|---|---|---|
| **Core** | | |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4 |
| NGRD 657 | Intermediate Statistics | 4 |
| NGRD 658 | Nursing Research and Translational Science | 4 |
| RELE 524 | Bioethics and Society [1] | 3 |
| **Concentration** | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment [2] | 3 |
| or NGNE 502 | Assessment of Learning Outcomes | |
| NGCN 551 | Adult - Gerontology: CNS I | 4 |
| NGCN 552 | Adult - Gerontology: CNS II | 4 |
| NGNE 500 | Teaching and Learning Theory | 3 |
| NGNE 501 | Curriculum Development in Higher Education | 3 |
| NGNE 503 | Educational Leadership | 2 |
| NGRD 621 | Pharmacology in Advanced Practice I | 2 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3 |
| NGRD 624 | Advanced Health Assessment | 4 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4 |
| **Clinical** | | |
| NGNE 504 | Teaching Practicum | 3 |
| NGNE 505 | Clinical Practicum: Nurse Educator | 3 |
| **Project** | | |
| NGRD 610 | Master's Comprehensive Project | 2 |
| **Thesis (optional)** | | |
| NGRD 696 | Master's Thesis (1-5 units) [3] | |
| **Total Units** | | **59** |

[1] Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

[2] Substituted with NGNE 502 Assessment of Learning Outcomes in off-campus programs

[3] Units are in addition to minimum required for the degree.

## Normal time to complete the program

Three (3) years (11 academic quarters) — based on less than full-time enrollment

# Nurse Educator: Obstetrics–Pediatrics Concentration

The nurse educator obstetrics–pediatrics concentration prepares nurses for an educator role in either the academic or clinical setting, with a focus on the care of the child from birth through adolescence.

| | | |
|---|---|---|
| **Core** | | |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4 |
| NGRD 657 | Intermediate Statistics | 4 |
| NGRD 658 | Nursing Research and Translational Science | 4 |
| RELE 524 | Bioethics and Society [1] | 3 |
| **Concentration** | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment [2] | 3 |
| or NGNE 502 | Assessment of Learning Outcomes | |
| NGCN 561 | Pediatrics: Clinical Nurse Specialist I | 4 |
| NGCN 562 | Pediatrics: Clinical Nurse Specialist II | 4 |
| NGNE 500 | Teaching and Learning Theory | 3 |
| NGNE 501 | Curriculum Development in Higher Education | 3 |
| NGNE 503 | Educational Leadership | 2 |
| NGRD 621 | Pharmacology in Advanced Practice I | 2 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3 |
| NGRD 624 | Advanced Health Assessment | 4 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4 |
| **Clinical** | | |
| NGNE 504 | Teaching Practicum | 3 |
| NGNE 505 | Clinical Practicum: Nurse Educator | 3 |
| **Project** | | |
| NGRD 610 | Master's Comprehensive Project | 2 |
| **Thesis (optional)** | | |
| NGRD 696 | Master's Thesis (1-5 units) [3] | |
| **Total Units** | | **59** |

1 Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

2 Substituted with NGNE 502 Assessment of Learning Outcomes for off-campus programs

3 Units are in addition to minimum required for the degree.

## Normal time to complete the program

Three (3) years (11 academic quarters) — based on less than full-time enrollment

# Nursing Administration Concentration

The nursing administration option prepares nurses for leadership in a variety of organizational settings. The M.S. degree curriculum draws from the practice of nursing, management, and related fields; and includes administration, research, and clinical components.

| | | |
|---|---|---|
| **Core** | | |
| NGRD 650 | Advanced Role Development and Collaboration | 4 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4 |
| NGRD 652 | Health-Care Systems Leadership | 4 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4 |
| NGRD 655 | Health Systems Finance | 4 |
| NGRD 657 | Intermediate Statistics | 4 |
| NGRD 658 | Nursing Research and Translational Science | 4 |
| RELE 524 | Bioethics and Society [1] | 3 |
| **Concentration** | | |
| HADM 528 | Organizational Behavior in Health Care | 3 |
| HADM 534 | Health-Care Law | 3 |
| HADM 605 | Health-Care Quality Management | 3 |
| Select three courses from the following: | | 9 |
| HADM 514 | Health-Care Economics | |
| HADM 529 | Applied Leadership Concepts in Health-Care Organizations | |
| HADM 555 | Health-Care Delivery Systems | |
| HADM 559 | Health-Care Marketing | |
| HADM 574 | Managing Human Resources in Health-Care Organizations | |
| HADM 575 | Management Information Systems in Health Care | |
| HADM 604 | Health Systems Strategic Planning | |
| **Clinical** | | |
| NGRD 606 | Nursing Administration Practicum | 8 |
| **Project** | | |
| NGRD 610 | Master's Comprehensive Project | 2 |
| **Thesis (optional)** | | |
| NGRD 696 | Master's Thesis (1-5 units) [2] | |
| **Total Units** | | **59** |

[1] Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

[2] Units are in addition to minimum required for the degree.

## Normal time to complete the program

Three (3) years (11 academic quarters) — based on less than full-time enrollment

# Doctor of Nursing Practice

The Doctor of Nursing Practice (D.N.P.) degree offers B.S. or post-master's degree curriculum. This curriculum allows B.S. or M.S.-prepared registered nurses to earn doctorates, which will prepare them for assuming advanced practice in patient care and health-care systems' leadership roles. It addresses and meets outcome expectations, as articulated by the American Association of Colleges of Nursing, that advanced practice specialty areas be staffed by nurses with doctoral degrees.

### Learning outcomes for Doctor of Nursing Practice

Learning outcomes for the D.N.P. degree program are designed to prepare nurse leaders with a Christian perspective and enable them to contribute to professional nursing through clinical practice, teaching, and administration. Upon completion of the D.N.P. degree, the graduate should be able to:

1. Provide leadership in the use of information systems/technology and patient care technology for the improvement and transformation of health care;
2. Utilize current scientific underpinnings for practice;
3. Promote the use of practice scholarship and analytical methods for evidence-based practice;
4. Participate in interdisciplinary collaboration for improving patient and population health outcomes;
5. Advocate for health care through policy analysis and development;
6. Apply organizational and systems leadership theory for quality improvement and systems thinking;
7. Demonstrate leadership in the promotion of advanced nursing practice and the nursing profession;
8. Incorporate into their practice the principles of disease prevention and population health for improving the nation's health;
9. Develop and sustain therapeutic relationships with patients, families, and other professionals, considering all aspects of care—including physical, mental, and spiritual—to facilitate optimal care and patient outcomes using evidence based-practice.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant to the Doctor of Nursing Practice program must also complete the following:

**Bachelors to Doctor of Nursing Practice program admissions criteria**

1. Baccalaureate degree or equivalent in nursing from an accredited institution
2. GPA of 3.0, both cumulative and in nursing courses
3. Current United States RN license before application and CA RN license before the start of classes.
4. Current BLS certification
5. Three electronic recommendations from recent professors or current work supervisor
6. Interview by faculty members in the School of Nursing
7. Additional criteria for nurse anesthesia applicants:
   a. Science GPA of 3.0 or higher
   b. Unrestricted Registered Nurse license in the United States; unrestricted Registered Nurse license in California before matriculation and must be maintained until program completion
   c. Three electronic recommendations from the following: one each from a spiritual advisor or pastor, an immediate supervisor in the critical care area in which the applicant is currently working, and a critical care/ICU coworker
   d. Current certification in BLS, ACLS, and PALS is required before clinical courses begin and must be maintained until program completion; CCRN preferred
   e. Eight hours of clinical observation with a CRNA highly recommended before admission interview
   f. Minimum one year, full-time critical care RN experience (in the US) at time of matriculation (excluding orientation); adult critical care experience preferred—ER will be considered. Experience is evaluated on an individual basis.
   g. Completion of an online questionnaire following submission of application—must be completed by the applicant before the admission deadline
   h. Not all applicants who meet the admissions criteria are guaranteed an interview. Competitive applicants are selected for an interview by Nurse Anesthesia Admissions Committee.

**Post-Masters to Doctor of Nursing Practice program admissions criteria**

1. Completion of a master's degree in nursing with a clinical major from a program or completion of a Bachelor's degree in nursing and a Masters in a closely related field. The nursing degrees must be accredited by Commission on Collegiate Nursing Education (CCNE), National League of Nursing Accrediting Commission (NLNAC) or the Accreditation Commission for Education in Nursing (ACEN).
2. Undergraduate and Graduate GPA of 3.0, both cumulative and in nursing courses.
3. Current U.S. RN license and BLS certification.
4. Three electronic recommendations from recent professors or current work supervisors.
5. Interview by faculty members in the School of Nursing.

### Application deadlines

Applicants seeking graduate admission must have the application process completed by the dates indicated in the following.

- Nurse Anesthesia
  - Autumn Quarter Priority—November 1
  - Autumn Quarter Standard—December 15
- Clinical Nurse Specialist and Nurse Practitioner
  - Autumn Quarter—April 1
  - Winter Quarter—August 1
  - Spring Quarter—November 1

Pre-entrance requirements (p. 24):

1. Health clearance, including immunizations
2. Background check

## Regulations

### Nondegree course status

Up to 12 units of required core coursework may be taken as a nondegree student, with the consent of the instructor, while the application submission and review are in progress. If grades of B or higher are earned, the coursework may be applied toward the graduate degree upon acceptance into the program.

### Course scheduling

Core nursing courses are scheduled to accommodate the typical working nurse.

### Curriculum change

The school reserves the right to update and modify the curriculum without prior notice to maintain currency with standards in health care.

Students in continuous attendance will meet graduation requirements of the CATALOG under which they enter the School of Nursing unless change is necessary to comply with new professional standards.

### General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult these sections of the CATALOG: *About the University* and General Regulations, School of Nursing *(p. 316)*.

## Program requirements

**Bachelor of Science to Doctor of Nursing Practice:**

Clinical Nurse Specialist concentration areas:

- Clinical Nurse Specialist: Adult-Gerontology (p. 335)
- Clinical Nurse Specialist: Pediatrics (p. 337)
- Nurse Anesthesia (p. 341)

Nurse Practitioner concentration areas:

- Family Nurse Practitioner (p. 340)
- Primary Care Adult-Gerontology Nurse Practitioner (p. 342)
- Primary Care Pediatric Nurse Practitioner (p. 343)
- Psychiatric Nurse Practitioner (p. 344)

Post-Masters to Doctor of Nursing Practice (p. 345)

# Clinical Nurse Specialist: Adult-Gerontology Concentration

The clinical nurse specialist: adult-gerontology concentration prepares students for leadership roles as clinical nurse specialists within the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to adult and geriatric clients and families. The curriculum offers an opportunity to choose an emphasis in a selected vulnerable population with health-care needs. The curriculum includes 540 hours of clinical practicum in the advanced practice role and 510 practicum hours for the D.N.P. role. The graduate is prepared for certification by the American Nurses Certification Corporation as a clinical nurse specialist in adult-gerontology nursing.

| Core | | Theory | | Clinical | | Total Units |
|---|---|---|---|---|---|---|
| | | Units | Hours | Units | Hours | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[2] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGRD 621 | Pharmacology in Advanced Practice I | 2.0 | 20 | — | — | 2.0 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | — | — | 13.0 |
| **Clinical** | | | | | | |
| NGCN 551 | Adult - Gerontology: CNS I | 4.0 | 40 | — | — | 4.0 |
| NGCN 552 | Adult - Gerontology: CNS II | 4.0 | 40 | — | — | 4.0 |
| NGCN 553 | Adult - Gerontology: CNS III | 2.0 | 20 | 2.0 | 60 | 4.0 |
| NGCN 554 | Adult - Gerontology: CNS Clinical Practicum | — | — | 2.0 | 120-480 | 2.0-8.0 |
| Totals | | 10.0 | 100 | 4.0 | 180-540 | 14.0-20.0 |
| **D.N.P. Project** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 74.0 | 740 | 21.0 | 710-1070 | 95.0-101.0 |

[1] Multiple registrations required to fulfill total unit requirement

[2] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters) — based on less than full-time enrollment

# Clinical Nurse Specialist: Pediatrics Concentration

Closed to admissions for the 2020-2021 academic year.

The clinical nurse specialist: pediatric concentration prepares students for leadership roles as clinical nurse specialists within the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to nursing care of children and families. The curriculum offers an opportunity to choose an emphasis in a selected vulnerable population experiencing health-care needs. The curriculum includes 540 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The graduate is prepared for certification by the American Nurses Certification Corporation (ANCC) as a clinical nurse specialist in acute-care pediatrics.

| Core | | Theory | | Clinical | | Total Units |
|---|---|---|---|---|---|---|
| | | Units | Hours | Units | Hours | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[2] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGRD 621 | Pharmacology in Advanced Practice I | 2.0 | 20 | — | — | 2.0 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | — | — | 13.0 |
| **Clinical** | | | | | | |
| NGCN 561 | Pediatrics: Clinical Nurse Specialist I | 4.0 | 40 | — | — | 4.0 |
| NGCN 562 | Pediatrics: Clinical Nurse Specialist II | 4.0 | 40 | — | — | 4.0 |
| NGCN 563 | Pediatrics: Clinical Nurse Specialist III | 2.0 | 20 | 2.0 | 60 | 4.0 |
| NGCN 564 | Pediatrics: Clinical Nurse Specialist Clinical Practicum | — | — | 2.0 | 60-240 | 2.0-8.0 |
| Totals | | 10.0 | 100 | 4.0 | 120-300 | 14.0-20.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 74.0 | 740 | 21.0 | 650-830 | 95.0-101.0 |

[1] Multiple registrations required to fulfill total unit requirement

[2] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters) — based on less than full-time enrollment

# Acute Care Adult-Gerontology Nurse Practitioner

The acute care adult–gerontology nurse practitioner concentration prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to the acute health-care needs of adults across the age spectrum in consultation and collaboration with acute care physicians and other health-care providers. The curriculum includes 600 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The curriculum prepares the student to be certified as an adult-gerontology nurse practitioner by the state of California, the American Nurses Certification Corporation, and the American Association of Nurse Practitioners.

| Core | | Theory | | Clinical | | Total Units |
|---|---|---|---|---|---|---|
| | | Units | Hours | Units | Hours | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGAC 501 | Acute Care Advanced Pharmacology I | 2.0 | 20 | — | — | 2.0 |
| NGAC 502 | Acute Care Advanced Pharmacology II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | — | — | 13.0 |
| **Clinical** | | | | | | |
| NGAC 540 | Acute Care Nurse Practitioner Skills Lab | — | — | 1.0 | 30 | 1.0 |
| NGAC 541 | Adult Gerontology Acute Care Nurse Practitioner I | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 542 | Adult Gerontology Acute Care Nurse Practitioner II | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 543 | Adult Gerontology Acute Care Nurse Practitioner III | 3.0 | 30 | 4.0 | 120 | 7.0 |
| NGAC 544 | Adult Gerontology Acute Care Nurse Practitioner IV | 3.0 | 30 | 4.0 | 120 | 7.0 |
| NGAC 545 | Adult Gerontology Acute Care Nurse Practitioner V | 1.0 | 10 | 7.0 | 210 | 8.0 |
| Totals | | 13.0 | 130 | 22.0 | 660 | 35.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |

| | | | | | |
|---|---|---|---|---|---|
| Totals | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | 77.0 | 770 | 39.0 | 1190 | 116.0 |

[1] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters) based on less than full-time enrollment.

# Acute Care Pediatric Nurse Practitioner

The acute care pediatric nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to the primary health-care needs of children from birth through adolescence in consultation and collaboration with primary care physicians and other health-care providers. The curriculum includes 570 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The curriculum prepares the student to be certified as a pediatric nurse practitioner by the state of California and by the Pediatric Nursing Certification Board.

| **Core** | | **Theory** | | **Clinical** | | **Total Units** |
|---|---|---|---|---|---|---|
| | | **Units** | **Hours** | **Units** | **Hours** | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGAC 501 | Acute Care Advanced Pharmacology I | 2.0 | 20 | — | — | 2.0 |
| NGAC 502 | Acute Care Advanced Pharmacology II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | — | — | 13.0 |
| **Clinical** | | | | | | |
| NGAC 540 | Acute Care Nurse Practitioner Skills Lab | — | — | 1.0 | 30 | 1.0 |
| NGAC 541 | Adult Gerontology Acute Care Nurse Practitioner I | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 542 | Adult Gerontology Acute Care Nurse Practitioner II | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 543 | Adult Gerontology Acute Care Nurse Practitioner III | 3.0 | 30 | 4.0 | 120 | 7.0 |
| NGAC 544 | Adult Gerontology Acute Care Nurse Practitioner IV | 3.0 | 30 | 4.0 | 120 | 7.0 |
| NGAC 545 | Adult Gerontology Acute Care Nurse Practitioner V | 1.0 | 10 | 7.0 | 210 | 8.0 |
| Totals | | 13.0 | 130 | 22.0 | 660 | 35.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 77.0 | 770 | 39.0 | 1190 | 116.0 |

[1] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters), based on less than full-time enrollment.

# Family Nurse Practitioner Concentration

The family nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to the primary health-care needs of family members from newborn through elders, in consultation and collaboration with family practice physicians and other health-care providers. The curriculum includes 660 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The curriculum prepares the graduate to be certified as a family nurse practitioner by the state of California and the American Nurses Certification Corporation.

| Core | | Theory | | Clinical | | Total Units |
|---|---|---|---|---|---|---|
| | | Units | Hours | Units | Hours | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGFP 519 | Family Nurse Practitioner: Skills Lab | — | — | 1.0 | 30 | 1.0 |
| NGRD 621 | Pharmacology in Advanced Practice I | 2.0 | 20 | — | — | 2.0 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | 1.0 | 30 | 14.0 |
| **Clinical** | | | | | | |
| NGFP 510 | Family Nurse Practitioner: Pediatrics and Adolescent | 3.0 | 30 | 2.0 | 60 | 5.0 |
| NGFP 511 | Family Nurse Practitioner I | 3.0 | 30 | 2.0 | 60 | 5.0 |
| NGFP 512 | Family Nurse Practitioner II | 2.0 | 30 | 4.0 | 180 | 6.0 |
| NGFP 513 | Family Nurse Practitioner III | 4.0 | 40 | 4.0 | 120 | 8.0 |
| NGFP 514 | Family Nurse Practitioner IV | 4.0 | 40 | 4.0 | 120 | 8.0 |
| NGFP 515 | Family Nurse Practitioner V: Practicum | 1.0 | 10 | 7.0 | 210 | 8.0 |
| Totals | | 17.0 | 180 | 23.0 | 750 | 40.0 |
| **D.N.P. Project** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 81.0 | 820 | 41.0 | 1310 | 122.0 |

[1] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4 ) years (15 academic quarters) — based on less than full-time enrollment

# Nurse Anesthesia

The nurse anesthesia concentration is designed to educate critical care registered nurses in the nurse anesthetist role across the life span. Upon completion, graduates are able to exercise advanced levels of clinical judgment, systems thinking, and expanded responsibility, as well as become accountable for planning, implementing, and evaluating evidence-based strategies. Graduates are awarded a Doctor of Nursing Practice degree and are eligible to sit for the National Certification Examination of the National Board on Certification and Recertification of Nurse Anesthetists.

| Code | Title | Clock Hours | | | | Total Units |
|---|---|---|---|---|---|---|
| | | Lec | Lab | Clinical | Total | |
| **Core** | | | | | | |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 40 | | | 40 | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 40 | | | 40 | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 40 | | | 40 | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 40 | | | 40 | 4.0 |
| NGRD 655 | Health Systems Finance | 40 | | | 40 | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 40 | | | 40 | 4.0 |
| NGRD 657 | Intermediate Statistics | 40 | | | 40 | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 40 | | | 40 | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 40 | | | 40 | 4.0 |
| RELE 564 | Ethics and Health Disparities | 30 | | | 30 | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 30 | | | 30 | 3.0 |
| RELT 557 | Theology of Human Suffering | 30 | | | 30 | 3.0 |
| **Concentration** | | | | | | |
| NGNA 571 | Advanced Role for the Nurse Anesthetist I | 20 | | | 20 | 2.0 |
| NGNA 572 | Advanced Role for the Nurse Anesthetist II | 20 | | | 20 | 2.0 |
| NGNA 573 | Scientific Foundations of Nurse Anesthesia Practice | 40 | | | 40 | 4.0 |
| NGNA 574 | Anesthesia Equipment and Technology | 20 | | | 20 | 2.0 |
| NGNA 575 | Advanced Clinical Anatomy for the Nurse Anesthetist I | 10 | 30 | | 40 | 2.0 |
| NGNA 576 | Advanced Clinical Anatomy for the Nurse Anesthetist II | 10 | 30 | | 40 | 2.0 |
| NGNA 577 | Advanced Physiology for the Nurse Anesthetist | 40 | | | 40 | 4.0 |
| NGNA 578 | Advanced Physiology and Pathophysiology for the Nurse Anesthetist I | 40 | | | 40 | 4.0 |
| NGNA 579 | Advanced Physiology and Pathophysiology for the Nurse Anesthetist II | 40 | | | 40 | 4.0 |
| NGNA 580 | Advanced Health Assessment for Nurse Anesthetists | 30 | 30 | | 60 | 4.0 |
| NGNA 581 | Advanced Pharmacology for the Nurse Anesthetist I | 60 | | | 60 | 6.0 |
| NGNA 582 | Advanced Pharmacology for the Nurse Anesthetist II | 20 | | | 20 | 2.0 |
| NGNA 583 | Advanced Pharmacology for the Nurse Anesthetist III | 20 | | | 20 | 2.0 |
| NGNA 584 | Principles of Nurse Anesthesia Practice I | 30 | 30 | | 60 | 4.0 |
| NGNA 585 | Principles of Nurse Anesthesia Practice II | 30 | 30 | | 60 | 4.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGNA 586 | Principles of Nurse Anesthesia Practice III | 40 | | | 40 | 4.0 |
| NGNA 587 | Principles of Nurse Anesthesia Practice IV | 40 | | | 40 | 4.0 |
| **Clinical** | | | | | | |
| NGNA 591 | Clinical Practicum I | | | 200 | 200 | 2.0 |
| NGNA 592 | Clinical Practicum II | | | 200 | 200 | 2.0 |
| NGNA 593 | Clinical Practicum III | | | 200 | 200 | 2.0 |
| NGNA 594 | Clinical Practicum IV | | | 200 | 200 | 2.0 |
| NGNA 595 | Clinical Practicum V | | | 400 | 400 | 4.0 |
| NGNA 596 | Clinical Practicum VI | | | 400 | 400 | 4.0 |
| NGNA 597 | Clinical Practicum VII | | | 400 | 400 | 4.0 |
| NGNA 598 | Clinical Practicum VIII | | | 400 | 400 | 4.0 |
| NGNA 599 | Clinical Practicum IX | | | 400 | 400 | 4.0 |
| **DNP Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 20 | 30 | | 50 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | | | 120 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | | | 120 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | | | 80 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | | | 60 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | | | 60 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | | | 60 | 60 | 2.0 |
| **Total Units** | | **980** | **180** | **3300** | **4460** | **148** |

[1] Fulfills service learning requirement

### Normal time to complete the program

Thirty-nine (39) months (14 academic quarters) — based on full-time enrollment

# Primary Care Adult-Gerontology Nurse Practitioner Concentration

The primary care adult–gerontology nurse practitioner concentration prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to the primary health-care needs of adults across the age spectrum, in consultation and collaboration with primary care physicians and other health-care providers. The curriculum includes 600 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. The curriculum prepares the student to be certified as an adult-gerontology nurse practitioner by the state of California, the American Nurses Certification Corporation, and the American Association of Nurse Practitioners.

| **Core** | | **Theory** | | **Clinical** | | **Total Units** |
|---|---|---|---|---|---|---|
| | | **Units** | **Hours** | **Units** | **Hours** | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGAG 509 | Primary Care Adult-Gerontology Nurse Practitioner: Skills Laboratory | — | — | 1.0 | 30 | 1.0 |
| NGRD 621 | Pharmacology in Advanced Practice I | 2.0 | 20 | — | — | 2.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGRD 622 | Pharmacology in Advanced Practice II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | 1.0 | 30 | 14.0 |
| **Clinical** | | | | | | |
| NGAG 500 | Gerontological Health and Wellness | 2.0 | 20 | — | — | 2.0 |
| NGAG 501 | Primary Care Adult-Gerontology Nurse Practitioner I | 3.1 | 33 | 1.9 | 60 | 5.0 |
| NGAG 502 | Primary Care Adult-Gerontology Nurse Practitioner II | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAG 503 | Primary Care Adult-Gerontology Nurse Practitioner III | 6.0 | 120 | 2.0 | 120 | 8.0 |
| NGAG 504 | Primary Care Adult-Gerontology Nurse Practitioner IV | 6.0 | 120 | 2.0 | 120 | 8.0 |
| NGAG 505 | Primary Care Adult-Gerontology Nurse Practitioner V: Practicum | 1.0 | 10 | 7.0 | 210 | 8.0 |
| Totals | | 21.1 | 333 | 15.9 | 600 | 37.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 85.1 | 973 | 33.9 | 1160 | 119.0 |

[1] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters) — based on less than full-time enrollment

# Primary-Care Pediatric Nurse Practitioner Concentration

The primary care pediatric nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to the primary health-care needs of children from birth through adolescence, in consultation and collaboration with primary care physicians and other health-care providers. The curriculum includes 570 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. The curriculum prepares the student to be certified as a pediatric nurse practitioner by the state of California and by the Pediatric Nursing Certification Board.

| Core | | Theory | | Clinical | | Total Units |
|---|---|---|---|---|---|---|
| | | Units | Hours | Units | Hours | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGAC 501 | Acute Care Advanced Pharmacology I | 2.0 | 20 | — | — | 2.0 |
| NGAC 502 | Acute Care Advanced Pharmacology II | 3.0 | 30 | — | — | 3.0 |
| NGPE 539 | Primary Care Pediatric Nurse Practitioner: Skills Laboratory | — | — | 1.0 | 30 | 1.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | 1.0 | 30 | 14.0 |
| **Clinical** | | | | | | |
| NGPE 531 | Primary Care Pediatric Nurse Practitioner I | 4.0 | 40 | — | — | 4.0 |
| NGPE 532 | Primary Care Pediatric Nurse Practitioner II | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 533 | Pediatric Acute Care Nurse Practitioner III | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 535 | Pediatric Acute Care Nurse Practitioner V | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGAC 536 | Pediatric Acute Care Nurse Practitioner VI | — | — | 7.0 | 210 | 7.0 |
| NGAC 540 | Acute Care Nurse Practitioner Skills Lab | — | — | 1.0 | 30 | 1.0 |
| Totals | | 13.0 | 130 | 17.0 | 510 | 30.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 77.0 | 770 | 35.0 | 1070 | 112.0 |

[1] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Four (4) years (15 academic quarters) — based on less than full-time enrollment

# Psychiatric Mental Health Nurse Practitioner Concentration

The psychiatric mental health nurse practitioner (PMHNP) clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as they relate to the promotion of mental health, prevention, and treatment of psychiatric disorders, in consultation and collaboration with psychiatrists and other mental health-care providers. The curriculum includes 570 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. The curriculum prepares the student to be certified as a psychiatric nurse practitioner by the state of California and the American Nurses Certification Corporation.

| **Core** | | **Theory** | | **Clinical** | | **Total Units** |
|---|---|---|---|---|---|---|
| | | **Units** | **Hours** | **Units** | **Hours** | |
| NGRD 650 | Advanced Role Development and Collaboration | 4.0 | 40 | — | — | 4.0 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice | 4.0 | 40 | — | — | 4.0 |
| NGRD 652 | Health-Care Systems Leadership | 4.0 | 40 | — | — | 4.0 |
| NGRD 653 | Health Systems Policy Development and Advocacy | 4.0 | 40 | — | — | 4.0 |
| NGRD 654 | Social Determinants of Health[1] | 4.0 | 40 | — | — | 4.0 |
| NGRD 655 | Health Systems Finance | 4.0 | 40 | — | — | 4.0 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4.0 | 40 | — | — | 4.0 |
| NGRD 657 | Intermediate Statistics | 4.0 | 40 | — | — | 4.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NGRD 658 | Nursing Research and Translational Science | 4.0 | 40 | — | — | 4.0 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4.0 | 40 | — | — | 4.0 |
| RELE 564 | Ethics and Health Disparities | 3.0 | 30 | — | — | 3.0 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3.0 | 30 | — | — | 3.0 |
| RELT 557 | Theology of Human Suffering | 3.0 | 30 | — | — | 3.0 |
| Totals | | 49.0 | 490 | — | — | 49.0 |
| **Concentration** | | | | | | |
| NGPM 549 | Psychiatric Mental Health Nurse Practitioner VII: Skills Laboratory | — | — | 1.0 | 30 | 1.0 |
| NGRD 621 | Pharmacology in Advanced Practice I | 2.0 | 20 | — | — | 2.0 |
| NGRD 622 | Pharmacology in Advanced Practice II | 3.0 | 30 | — | — | 3.0 |
| NGRD 624 | Advanced Health Assessment | 4.0 | 40 | — | — | 4.0 |
| NGRD 625 | Advanced Clinical Pathophysiology | 4.0 | 40 | — | — | 4.0 |
| Totals | | 13.0 | 130 | 1.0 | 30 | 14.0 |
| **Clinical** | | | | | | |
| NGPM 541 | Psychiatric Mental Health Nurse Practitioner I | 3.0 | 30 | 1.0 | 30 | 4.0 |
| NGPM 542 | Psychiatric Mental Health Nurse Practitioner II | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGPM 543 | Psychiatric Mental Health Nurse Practitioner III | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGPM 544 | Psychiatric Mental Health Nurse Practitioner IV | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGPM 545 | Psychiatric Mental Health Nurse Practitioner V | 3.0 | 30 | 3.0 | 90 | 6.0 |
| NGPM 546 | Psychiatric Mental Health Nurse Practitioner VI: Practicum | 1.0 | 10 | 6.0 | 180 | 7.0 |
| Totals | | 16.0 | 160 | 19.0 | 570 | 35.0 |
| **D.N.P. Project** | | | | | | |
| NGRD 667 | DNP Proposal Development | 2.0 | 20 | 1.0 | 30 | 3.0 |
| NGRD 669A | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669B | DNP Practice Inquiry Project | — | — | 4.0 | 120 | 4.0 |
| NGRD 669C | DNP Practice Inquiry Project | — | — | 2.0 | 80 | 2.0 |
| NGRD 669D | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669E | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| NGRD 669F | DNP Practice Inquiry Project | — | — | 2.0 | 60 | 2.0 |
| Totals | | 2.0 | 20 | 17.0 | 530 | 19.0 |
| Overall Totals | | 80.0 | 800 | 37.0 | 1130 | 117.0 |

[1] Fulfills service learning requirement

### Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

### Normal time to complete the program

Four (4) years (15 academic quarters) — based on less than full-time enrollment

## M.S. to D.N.P.

The Master of Science degree to Doctor of Nursing Practice degree option prepares the advanced practice registered nurse, the nursing administrator, or the nurse educator for a leadership role in the health-care system. Theoretical content focuses on the development of leadership knowledge, skills, and attitudes. Systems thinking, evidence-based practice, and translational research are emphasized.

Advanced standing may be given for courses usually required for a master's degree in advanced practice, administration, or education.

Please see program requirements for more details. All students are required to complete the D.N.P. degree project.

## Program requirements

| | | |
|---|---|---|
| **Core** | | |
| NGRD 650 | Advanced Role Development and Collaboration [1] | 4 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice [1] | 4 |
| NGRD 652 | Health-Care Systems Leadership [1] | 4 |
| NGRD 653 | Health Systems Policy Development and Advocacy [1] | 4 |

| | | |
|---|---|---|
| NGRD 654 | Social Determinants of Health [3] | 4 |
| NGRD 655 | Health Systems Finance | 4 |
| NGRD 656 | Outcomes Assessment for Strategic Planning | 4 |
| NGRD 657 | Intermediate Statistics [1] | 4 |
| NGRD 658 | Nursing Research and Translational Science [1] | 4 |
| NGRD 659 | Professional Writing for Nurse Leaders | 4 |
| RELE 564 | Ethics and Health Disparities [2] | 3 |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | 3 |
| RELT 557 | Theology of Human Suffering | 3 |
| **D.N.P. Project** | | |
| NGRD 667 | DNP Proposal Development | 3 |
| NGRD 669A | DNP Practice Inquiry Project | 4 |
| NGRD 669B | DNP Practice Inquiry Project | 4 |
| NGRD 669C | DNP Practice Inquiry Project | 2 |
| NGRD 669D | DNP Practice Inquiry Project | 2 |
| NGRD 669E | DNP Practice Inquiry Project | 2 |
| NGRD 669F | DNP Practice Inquiry Project | 2 |
| **Total Units** | | **68** |

[1] Advanced standing may be given for content covered in a prior M.S. degree. Prior learning is evaluated and an individualized program of study is developed based on this evaluation and length of time since these courses were taken. Prior coursework that partially meets the course outcomes will be augmented by registering for 1 to 6 units of NGRD 660 Integrative Leadership Case Study.

[2] Advanced standing will be given if this specific course was taken as part of the M.S. degree program.

[3] Fulfills service learning requirement

## Portfolio

Prior to graduation, students are required to submit an online professional portfolio. Documentation of 510 doctoral leadership practice hours will be included in the portfolio.

## Normal time to complete the program

Three (3) years (11 academic quarters) — based on less than full-time enrollment

# Nursing — Ph.D.

The aim of the Doctor of Philosophy (Ph.D.) degree program in nursing is to prepare nurse scholars for leadership in education, health-care administration, and research. The Ph.D. degree in nursing is a research-oriented degree with emphases on the development of nursing science in the areas of vulnerable populations, health/wellness/wholeness, and health systems research. The nurse-scientist who completes this program should be committed to the generation of knowledge critical to development of nursing science and practice. Graduates join other nursing leaders in furthering the development of nursing science and improving health-care delivery throughout the world. The program is designed for entry with a minimum of a B.S. degree. Advanced standing, of up to 32 units, is given to students with a prior master's degree in nursing. See program requirements for more details. The program completion range is three-to-seven years (projected mean is five years) depending on whether students are full or part time.

### Learning outcomes for Doctor of Philosophy

The learning outcomes of the Ph.D. degree program are designed to prepare nurse scientists and scholars with a Christian perspective for leadership in education, health-care administration, and research within a global community. Upon completion of the Ph.D. degree, the graduate should be able to:

1. Embrace a holistic perspective on life and demonstrate this by integrating the bio-psycho-social-spiritual dimensions in teaching, scholarship, and service;
2. Extend Christ-centered values to nursing scholarship and education;
3. Serve as a nurse scholar through the generation and dissemination of knowledge relevant to nursing science, health policy, and the nursing profession;
4. Explain complex phenomena clearly in spoken and written English to both professional and lay audiences;
5. Demonstrate advanced competency and leadership in the use of technology for the purpose of generating new knowledge in nursing;
6. Engage in collaborative discourse, scholarship, and leadership contributing to health care and society;
7. Expand the knowledge and science in the provision of nursing-related care to diverse groups.

## The curriculum

The Ph.D. degree program is offered using a year-round hybrid/blended format, including both face-to-face on the Loma Linda University campus and distance-learning strategies. The curriculum has six domains: core courses (B.S. to Ph.D.), Ph.D. role courses, concentration/elective courses (to support the dissertation), methods courses (research methods and statistics), religion, and dissertation units. The department has identified approximately 20 courses within the School of Nursing that could be selected to satisfy requirements within the domains as well as a variety of courses in other Loma Linda University schools and the NEXus* consortium that may support the student's dissertation interest.

The doctoral degree provides an in-depth understanding of knowledge development within the discipline of nursing through philosophical, theoretical, and scientific methods of inquiry. The student is encouraged to select an individually focused area of advanced inquiry that will support their chosen area of expertise in nursing and falls within the broad scope of vulnerable populations, health/wellness/wholeness, or health systems research. The individual area of concentration should fit established research programs of the School of Nursing faculty or other University faculty members as advised.

* NEXus is a partnership among select Western Institute of Nursing institutions to facilitate enrollment in doctoral courses not available on the student's home campus. Through NEXus, the institutions have identified courses that are available at a distance and open for enrollments from partner institutions.

## Progression criteria

The following sequential elements are required for progression in the doctoral program:

1. Develop an area of concentration and receive approval of the proposed academic plan by the end of the first year of full-time study;
2. Complete all core, concentration, and methods courses;
3. Pass oral comprehensive examination;
4. Successfully defend research proposal;
5. Advance to candidacy;
6. Successfully defend dissertation.

Refer to guidelines from the Faculty of Graduate Studies* and the Ph.D. degree student handbook for dissertation format requirements.

The normal time to complete the program is three to seven years—(five [5] years projected mean) based on less than full-time enrollment.

*The Ph.D. Program Oversight: Faculty of Graduate Studies

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant to the Doctor of Philosophy degree program in nursing must also complete the following requirements:

1. Minimum of a baccalaureate degree in nursing from an accredited program. Applicants with a prior master's degree in nursing are eligible to receive up to 32 units of advanced standing.*
2. GPA of 3.3, both cumulative and in nursing courses
3. Current RN license before application*
4. Three electronic recommendations from recent professors or current work supervisor
5. Interview by faculty members in the School of Nursing
6. Health Science Reasoning Test
7. Evidence of scholarly work as determined by faculty

### Application deadlines

Applicants seeking graduate admission must have the application process completed by the dates indicated in the followi

- Autumn Quarter—April 1
- Winter Quarter—August 1
- Spring Quarter—November 1

* Non-nurses who have completed health related Master's degree may be considered for admission on an individual basis.

# Program requirements

| | | |
|---|---|---|
| **Core** | | |
| NGRD 650 | Advanced Role Development and Collaboration [1] | 4 |
| NGRD 651 | Theoretical Foundations for Evidence-Based Practice [1] | 4 |
| NGRD 652 | Health-Care Systems Leadership [1] | 4 |
| NGRD 653 | Health Systems Policy Development and Advocacy [1] | 4 |
| NGRD 657 | Intermediate Statistics [2] | 4 |
| NGRD 658 | Nursing Research and Translational Science [1] | 4 |
| **PhD Role** | | |
| NGRD 679 | Writing for Professional Publication | 4 |
| NGRD 680 | Strategies for Advanced Theory Development in Nursing | 4 |
| NGRD 681 | Philosophical Foundations of Nursing Science | 4 |
| NGRD 688 | Nursing Science Seminar (1) [6] | 2 |
| **Concentration/Electives** | | |
| Focused courses foundational to dissertation and/or the PhD role. [3] | | 20 |
| **Cognates** | | |
| RELR 5__ | Graduate-level Relational | 3 |
| RELE 5__ | Graduate-level Ethics | 3 |
| RELT 5__ | Graduate-level Theological | 3 |
| **Research and Statistics** | | |
| NGRD 664 | Advanced Statistics | 4 |
| NGRD 683 | Mentored Research (2) [4] | 4 |
| NGRD 684 | Quantitative Research Methods | 4 |
| NGRD 685 | Qualitative Research Methods | 4 |
| NGRD 686 | Applied Psychometrics for Health Care (Advanced Methods Course) [5] | 4 |
| or NGRD 695 | Advanced Qualitative Research | |
| NGRD 697 | Dissertation Research (1-8) | 20 |
| **Total Units** | | **107** |

[1] Advanced standing given for students with a prior masters degree in nursing.

[2] Advanced standing given for students with a prior masters degree in nursing if the course has been taken within the last five years.

[3] Advanced standing up to 8 units given for students with a prior master's degree in nursing.

[4] Research Practicum.

[5] NGRD 686 if study design is quantitative; NGRD 695 if study design is qualitative.

[6] Requires multiple registrations

## Normal time to complete the program

5.5 years — based on less than full-time enrollment

# SCHOOL OF PHARMACY

## Dean's welcome

Pharmacists play an integral role in caring for patients in a multidisciplinary approach within the health-care team. While the traditional role for pharmacists is to dispense medications to patients, the practice of pharmacy is extensive and has become a "hands-on" practice. In the community setting, pharmacists administer vaccines to patients and also conduct patient assessments of ailments such as hypertension, hyperlipidemia, and seizures in outpatient disease-based clinics. In the institutional setting, pharmacists work closely with physicians, nurses, and allied professionals to ensure that patients are receiving appropriate doses of medications per protocol. In order to gain these skills, knowledge of pharmacy practice in drug information, pharmaceutical care, clinical therapeutics, and experiential education is vital—along with an understanding of biomedical, pharmaceutical, social, and administrative science. This CATALOG will introduce you to the courses and services available to help you reach your goals.

The aim of our faculty, staff, and administration is to provide an environment that helps you develop into a caring, compassionate, competent, and skillful pharmacist. We are committed to ensuring that all students gain the knowledge and skills needed for the profession, and a dedication of lifelong service to others. While a student at Loma Linda University School of Pharmacy, you will have opportunities to participate in community outreach, including programs to underserved patient populations.

The University motto, "To make man whole," combined with the mission to continue the teaching and healing ministry of Jesus Christ, is the foundation on which all programs at Loma Linda University are built. It is our desire to prepare all graduates to fulfill this mission. Welcome to the school that will help you grow spiritually, mentally, physically, socially, and professionally for a life of service to those in need.

Michael D. Hogue, Pharm.D., FAPhA, FNAP
Dean, School of Pharmacy

## School foundations

### History

In 1994, a school of pharmacy was proposed to the Loma Linda University Board of Trustees; in 1995, the Board voted to continue to approve, in principle, the establishment of a school of pharmacy. The new School of Pharmacy's pioneering class of 2006 began on September 19, 2002. In July 2007, the Accreditation Council for Pharmacy Education granted full accreditation status to the School of Pharmacy. In October 2012, the School of Pharmacy moved into Shryock Hall, a historical building in the core of the LLU campus. The administrative team, Department of Pharmacy Practice, and Department of Experiential and Continuing Education now call Shryock Hall home. The Chan Shun Pavilion houses the Department of Pharmaceutical and Administrative Sciences as well as three research laboratories.

## Mission, vision, goals and values

### Our mission

The mission of Loma Linda University School of Pharmacy is to educate competent and compassionate pharmacists who are dedicated to whole-person care as integral members of a health-care team. We pursue excellence in teaching, service, research, and clinical care in honor of Jesus Christ.

### Our vision

To continue the teaching and healing ministry of Jesus Christ.

### Our goals

The goals of Loma Linda University School of Pharmacy are to:

- Develop graduates who possess the leadership and critical thinking skills to innovate and influence the dynamic field of health care.
- Develop a spirit of service in students by engaging in reciprocal and sustainable relationships with local and global communities.
- Develop students, faculty, and alumni who are accountable and responsible for patient drug therapy outcomes.
- Develop graduates who will demonstrate mastery of social intelligence and emotional intelligence.
- Actively engage students and faculty in collaborative teaching, scholarship, service, and patient care.

### Our values

The School of Pharmacy's academic and co-curricular activities focus on Loma Linda University's seven core values (p. 18).

**Dean**
Michael D. Hogue

### Primary faculty

Jacinda Abdul-Mutakabbir

Olayemi Adeoye

Khaled Bahjri

Kristopher Boyle

Danielle L. Davis

Willie L. Davis

Ike delaPena

Alireza FakhriRavari

Olivia Francis

Paul Gavaza

Jody M. Gonzalez

Alireza Hayatshahi

Michael D. Hogue

Lisa Hong

Christopher Jacobson

Soo Min Jang

Nancy E. Kawahara

Justin M. Kinney

Kathryn T. Knecht

Jessa M. Koch

Victoria Maskiewicz

Aimable Ngendahimana

Wei-Xing Shi

Caroline M. Sierra

Kyle M. Sousa

Noreen Chan Tompkins

Huyentran N. Tran

Farnoosh Zough

### Secondary and adjunct faculty

Steven C. Forland

Antony Gobin

Norm Hamada

Christopher Hauschild

Michelle Spencer-Safier

# General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III provides the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

## Transfer credit units

The School of Pharmacy accepts students with advanced standing into the Pharm.D. program under the following conditions:

1. Student must meet one of the two following conditions:
   a. They must be currently enrolled in good standing at an ACPE-accredited school of pharmacy.
   b. If not currently enrolled, they must be currently eligible to be re-enrolled at their previous ACPE-accredited school of pharmacy.
2. Student must have a grade point average of not less than 3.25 or equivalent in a Pharm.D. program.
3. Student must complete the prescribed admissions process and provide for evaluation of all requested documents (e.g., transcripts, syllabi, and/or course descriptions) related to their previous enrollment in pharmacy school. Applications will be reviewed on a case-by-case basis.

Students will only be admitted with advanced standing to either the PY1 or PY2 years of the LLUSP curriculum.

## Computer competency

Students must have computer proficiency prior to enrollment, such as use of an email system (including attachment of a document), familiarity with a learning management system (Canvas or Blackboard), as well as basic knowledge of word processing program(s), presentation program(s), and spreadsheet program(s). Students must also be capable of searching the internet and navigating their computers.

# Student life

The information on student life contained in this CATALOG is brief. The University *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

The School of Pharmacy prepares a school-specific *Policy and Procedure Manual*, which is provided to all pharmacy students. Regulations, policies, procedures, and other program requirements are contained in this manual. Students who have questions about the *Policy and Procedure Manual* should contact the associate dean of student affairs and admissions.

## Health check requirements

All new students are required to have the immunizations listed below before their first registration. Students will not be allowed to register without a valid and completed immunization record. It is strongly recommended that all required immunizations and physical examinations be obtained by the student before arrival on campus. All immunizations,

except the third hepatitis B, can be completed in one month. Many county health departments offer these immunizations at a reduced cost.

### Immunizations

- Measles, mumps, rubella (MMR): Series of two injections must be current after 1980 or show a positive MMR titer.
- Tetanus/diphtheria/pertussis (Tdap): Must be current within ten years. (Note: a tetanus-only or Td vaccine does not meet the requirement; it must contain the pertussis component.)
- Hepatitis B: Series of three injections, recombinant form-Engerix-B or Recombivax-HB; or series of two injections, intradermal form Heplisav-B consistent with Centers for Disease Control and Prevention current recommendations.
- Tuberculosis skin test (PPD Mantoux): Must be current within six months. (If a student tests positive, a chest X-ray report done within the past year is required.)
- Varicella (chickenpox): Must show proof of a positive Varicella titer.

A completed immunization record form must be submitted to the School of Pharmacy Office and must be uploaded to the E-Value program in Experiential Education, as well as to Student Health Services. A valid and completed immunization record is required before the student can register.

### Physical examination

Documentation of a physical examination is required for entrance into the program. For additional information, please contact Student Health Services directly at 909/558-8770.

## Pharmacy intern license

California law requires that all pharmacy students be licensed as interns before participating in any pharmacy practice experience. Consequently, all enrolled students must possess a valid, non-probationary intern pharmacist license to participate in the experiential components of the Pharm.D. program. Application for this license is part of the orientation program scheduled prior to the start of the PY1 year.

## Professional integrity

Loma Linda University seeks to educate ethical and proficient pharmacists within a Christian paradigm. Fundamental core values of compassion, integrity, freedom, excellence, justice, purity, and humility are expected of each student attending the School of Pharmacy. Integrity is important in upholding the standards of professional and personal conduct, and is consistent with the oath that is taken upon graduation. Integrity includes being accountable for one's own conduct as well as assuming responsibility for the professional behavior of one's colleagues within the profession. Professionalism involves treating others with courtesy and respect. It is expected that all School of Pharmacy students will exhibit conduct that shows respect to others at all times.

## Code of conduct

In harmony with the goals of Loma Linda University, students are expected to demonstrate a pattern of personal discipline with lifestyle expectations that are consistent with those of the Seventh-day Adventist Church. Joining the Loma Linda University family is an honor and requires each individual to uphold the policies, regulations, and guidelines established for all members of the University team. The following are expected of each member of the Loma Linda University family:

- To respect oneself.
- To respect the dignity, feelings, worth, and values of others.
- To respect the rights and property of others, and to discourage vandalism and theft.
- To prohibit discrimination while striving to learn from differences in people, ideas, and opinions.
- To practice personal, professional, and academic integrity as well as discourage all forms of dishonesty, plagiarism, deceit, and disloyalty to the code of conduct.
- To foster a personal, professional work ethic within the Loma Linda University family.
- To foster an open, fair, and caring environment.
- To be fully responsible for upholding the Loma Linda University code.

Specific policies are outlined in greater detail in the University *Student Handbook*.

## CPR and first aid certification

All students must be currently certified in cardiopulmonary resuscitation and first aid during their enrollment in the School of Pharmacy.

## Professional organizations

Involvement in professional organizations is an integral part of the educational and professional experience within the School of Pharmacy. The complete list of School of Pharmacy-recognized professional organizations can be found in the *Professional Organization Policies and Procedure Manual*. This manual is maintained by the Office of Student Affairs.

# Academic policies and procedures

## Curriculum outcome objectives

On August 21, 2014, the faculty approved and adopted the following outcomes based on CAPE 2013 educational outcomes.

**Domain 1—Foundational Knowledge**

**Subdomain 1.1. Learner (Learner)—**Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Develop and demonstrate depth and breadth of knowledge in pharmaceutical, social/behavioral/administrative, and clinical sciences;

2. Articulate how knowledge in foundational sciences is integral to: 1) clinical reasoning, 2) evaluation of future advances in pharmacotherapy, 3) supporting health and wellness initiatives, and 4) delivery of contemporary pharmacy services;

3. Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work, and evaluate their potential value in individuals and populations;

4. Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care;

5. Analyze scientific literature related to drugs and disease to enhance clinical decision making;

6. Identify and analyze emerging theories, information, and technologies that may impact patient-centered and population-based care.

**Domain 2—Essentials for Practice and Care**

**Subdomain 2.1. Patient-centered care (Caregiver)—**Provide patient-centered care as the medication expert (collect and interpret evidence; prioritize; formulate assessments and recommendations; implement, monitor and adjust plans; and document activities).

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Collect subjective and objective evidence related to patient, medications, allergies/adverse reactions, and disease by performing patient assessment (including physical assessment) from chart/electronic health records, pharmacist records, and patient/family interviews;

2. Interpret evidence and patient data;

3. Prioritize patient needs;

4. Formulate evidence-based care plans, assessments, and recommendations;

5. Implement patient-care plans;

6. Monitor the patient and adjust the care plan as needed;

7. Document patient care-related activities.

**Subdomain 2.2. Medication-use systems management (Manager)—**Manage patient health-care needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication-use systems.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Compare and contrast the components of typical medication-use systems in different pharmacy practice settings;

2. Describe the role of the pharmacist in impacting the safety and efficacy of each component of a typical medication-use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, documentation, and outcomes);

3. Utilize technology to optimize the medication-use system;

4. Identify and utilize human, financial, and physical resources to optimize the medication-use system;

5. Manage health-care needs of patients during transitions of care;

6. Apply standards, guidelines, best practices, and established processes related to safe and effective medication use;

7. Utilize continuous quality improvement techniques in the medication-use process.

**Subdomain 2.3. Health and wellness (Promoter)—**Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Describe the use of risk assessment, risk reduction, screening, education, and immunizations to provide systematic preventive care;

2. Provide prevention, intervention, and educational strategies for individuals and communities to improve health and wellness;

3. Participate with inter-professional health-care team members in the management of and health promotion for all patients;

4. Evaluate personal, social, behavioral, economic, and environmental conditions to improve health and wellness.

**Subdomain 2.4. Population-based care (Provider)—**Describe how population-based care influences patient-centered care, the development of practice guidelines, and evidence-based best practices.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Assess the health-care status and needs of a targeted patient population.

2. Develop and provide an evidence-based approach that considers items—including cost, care, access, satisfaction needs, and cultural appropriateness of a targeted patient population.

3. Participate in population health management by evaluating, recommending, and/or adjusting interventions to maximize health.

**Domain 3—Approach to Practice and Care**

**Subdomain 3.1. Problem solving (Problem Solver)—**Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Identify and define the primary problem;

2. Define basic and alternative goals;

3. Explore multiple solutions by organizing, prioritizing, and defending each possible solution;

4. Anticipate positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences;

5. Implement the most viable solution, including monitoring parameters, to measure intended and unintended consequences;

6. Reflect on the solution implemented and its effects to improve future performance.

**Subdomain 3.2. Educator (Educator)—**Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Conduct a learning needs assessment of constituents who would benefit from pharmacist-delivered education (e.g., patients/caregivers, technicians and interns, pharmacy students, fellow pharmacists, other health-care providers, and legislators);

2. Select the most effective techniques/strategies to achieve learning objectives;

3. Demonstrate the ability to coordinate educational efforts with other health-care providers, when appropriate, to ensure a consistent, comprehensive, and team-based encounter;

4. Ensure that instructional content contains the most current information relevant for the intended audience;

5. Adapt instruction and delivery to the intended audience;

6. Assess audience comprehension.

**Subdomain 3.3. Patient advocacy (Advocate)—**Assure that patients' best interests are represented.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Incorporate elements of Loma Linda University's wholeness philosophy to empower patients to take responsibility for and control of their health.;

2. Assist patients in navigating the complex health-care system;

3. Ensure that patients obtain the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other health-care services).

**Subdomain 3.4. Inter-professional collaboration (Collaborator)—**Actively participate and engage as a health-care team member by demonstrating mutual respect, understanding, and values to meet patient-care needs.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Establish a climate of shared values and mutual respect necessary to meet patient-care needs;

2. Define clear roles and responsibilities for team members to optimize outcomes for specific patient-care encounters;

3. Communicate in a manner that values team-based decision making and shows respect for contributions from other areas of expertise;

4. Foster accountability and leverage expertise to form a highly functioning team (one that includes the patient, family, and community) and promote shared patient-centered problem solving.

**Subdomain 3.5. Cultural sensitivity (Includer)—**Recognize social determinants of health to diminish disparities and inequities in access to quality care.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Recognize the collective identity and norms of different cultures without overgeneralizing (i.e., recognize and avoid biases and stereotyping);

2. Demonstrate an attitude that is respectful of different cultures;

3. Assess a patient's health literacy and modify communication strategies to meet the patient's needs;

4. Safely and appropriately incorporate patients' cultural beliefs and practices into health- and wellness-care plans.

**Subdomain 3.6. Communication (Communicator)—**Effectively communicate verbally and non-verbally when interacting with an individual, group, or organization.

**Learning objectives**

By the end of the program, the graduate should be able to:

1. Interview patients using an organized structure, specific questioning techniques, and medical terminology adapted for the audience;

2. Actively listen and ask appropriate open- and closed-ended questions to gather information;

3. Use available technology and other media to assist with communication as appropriate;

4. Use effective interpersonal skills to establish rapport and build trusting relationships;

5. Communicate responsibly with assertiveness, persuasiveness, confidence, and clarity;

6. Demonstrate empathy when interacting with others;

7. Deliver and obtain feedback to assess learning and promote goal setting and goal attainment;

8. Develop professional documents pertinent to organizational needs;

9. Document patient-care activities clearly, concisely, and accurately using appropriate medical terminology.

## ACPE complaint policy

Standard No. 15: Student Complaints Policy of the accreditation standards and guidelines for the professional program in pharmacy leading to the Doctor of Pharmacy degree states, "the college or school develops, implements, and makes available to students a complaints policy that includes procedures for how students may file complaints within the college or school and also directly to ACPE regarding their college or school's adherence to ACPE standards. The college or school maintains a chronological record of such student complaints, including how each complaint was resolved."

The ACPE complaints policy with instructions on how to file a complaint can be found at < (http://www.acpe-accredit.org/complaints/default.asp)https://www.acpe-accredit.org/complaints/>. (http://www.acpe-accredit.org/complaints/default.asp)

**Experiential education**

While enrolled in the Doctor of Pharmacy program, students are required to complete a supervised series of practice-based courses to prepare them for licensure as pharmacists. To qualify for licensure as a pharmacist, students must graduate from the School of Pharmacy with a Doctor of Pharmacy degree, achieve passing scores on the North American Pharmacist Licensure Examination (NAPLEX) and the law examination for the state where they plan to practice.

The experiential program consists of both introductory (IPPE) and advanced (APPE) pharmacy practice experiences designed to meet the required structured, supervised, professional experience for a Doctor of Pharmacy degree. Students and their supervising preceptors are guided by the Loma Linda University School of Pharmacy *Experiential Program Manuals* for both students and preceptors, which contain guidelines and policies for successful completion of the program.

The School of Pharmacy requires participation in introductory pharmacy practice experiences (IPPE) each year during P1 through P3 to enhance practice skills and prepare students to function as members of a health-care team. Advanced pharmacy practice experiences comprise the entire P4 curriculum and are designed to help students integrate and refine skills learned in the first three years of pharmacy (didactic and experiential) coursework as well as prepare students to serve as trustworthy professionals who provide patient-centered care.

The purpose of the experiential education program is to apply knowledge from classroom and laboratory courses to patient care (pharmacy practice). The ultimate goal of the experiential program is to produce well-rounded, competent, caring, and responsible pharmacists who can deliver exemplary pharmaceutical care as well as communicate effectively with diverse patients and other health-care professionals.

**Experiential education requirements**

During experiential courses, students are assigned to both inpatient and outpatient pharmacy practice settings under the direct supervision of a School of Pharmacy preceptor. Participation in the IPPE/APPE courses requires a valid California intern pharmacist license issued by the California Board of Pharmacy. Students completing IPPE/APPE experiences at sites outside of California must be licensed in the applicable state. When a student is participating in an IPPE or APPE rotation, Loma Linda University's code of conduct and the guidelines found in the *School of Pharmacy Student Policies and Procedures Manual* remain in effect throughout the completion of this experience. If IPPE or APPE site regulations and policies differ from University policies, the site policies supersede. In addition to the aforementioned guidelines, the following regulations are to be followed by all professional pharmacy students assigned to experiential sites or rotations.

- Attendance is mandatory. Punctuality is expected and tardiness will not be tolerated.
- Students must maintain their University email accounts as well as the experiential education course platforms (e.g., Canvas) indicated by the Office of Experiential Education, and check them at least daily to keep apprised of important information or announcements.
- All experiential educational assignments are made through the Office of Experiential Education.
- Students are not to function as agents or employees of the site. They must identify themselves as a student pharmacists (interns) from Loma Linda University School of Pharmacy. While participating in this graded experience, students shall not, under any circumstances, receive financial remuneration from the experiential site. Failure to adhere to this policy will result in suspension and removal from the rotation as well as receipt of a failing grade in the course.

The student is responsible for all financial obligations associated with their pharmacy education. They are also responsible for fulfilling all site requirements prior to each rotation within the time frame requested. These responsibilities include transportation, food, lodging, and any other incidental costs related to practice assignments. Concurrent employment during the experiential experience does not exclude or excuse students from any responsibilities associated with course requirements. The student must possess a valid driver's license and is responsible for transportation to and from sites. IPPE rotations can be up to 70 miles from campus.

Loma Linda University School of Pharmacy students are required to dress and act professionally at all times. This expectation extends to experiential educational activities where the student is not on the campus, but receives instruction and guidance through a School of Pharmacy preceptor.

The Office of Experiential Education requires all students to adhere to the School of Pharmacy dress code, and to wear their Loma Linda University identification cards and short white laboratory coats at all times while at the experiential site. The laboratory coat must be white, clean, and freshly pressed. Students who attend out of dress code will be considered absent by the preceptor and sent home to fulfill dress code requirements *prior to returning* to the practice site.

In addition to the general school requirements, other rules may apply for students who are off site. If the experiential site implements special attire or dress code requirements (e.g., wearing scrubs in the operation room pharmacy or in a sterile compounding area), the more stringent of the dress code requirements prevails, whether that of Loma Linda University or of the off-site institution.

**Pharmacy practice experience**

The chair of the Department of Pharmacy Practice, along with the IPPE and APPE directors and their respective staff, coordinate the experiential training, courses, reflections, and communication with students, sites, preceptors, and the state board of pharmacy. Participation in the practice-based experiences requires:

- *Immunizations:* Students must safeguard themselves and be sure that all University-required immunizations are up to date. Students are responsible for keeping the records for their own immunizations accessible. For the protection of patients and the students themselves, it is highly recommended that students receive the influenza and COVID-19 vaccine in September during their P4 year. Some sites may require these immunizations.
- *HIPAA certificate:* All students are required to complete HIPAA training and obtain a certificate of completion annually.
- *Bloodborne pathogen training:* All students are required to complete training and obtain a certificate of completion annually.
- *Medicare fraud and abuse training:* Students must complete training and obtain a certificate of training annually.
- *Tuberculosis screening:* Students must be screened and cleared for tuberculosis annually during their enrollment (complete a one- or two-step PPD test, depending on the practice site requirement). A chest X-ray may also be required when medically indicated. Students shall follow specific instructions provided by the Office of Experiential Education. A record of tuberculosis screening clearance must be on file with student health.
- *Background check:* Loma Linda University School of Pharmacy and practice facilities require background checks of all personnel, including students who are placed on site for experiential education. Some institutions may require the student to sign a confidentiality agreement or disclosure statement. Annual review and update is required during the program.
- *Random drug screening:* Random drug screening may be required for some practice settings. This screening may be above and beyond school-mandated screening.

- *Intern license:* Students must hold valid, non-probationary California pharmacist intern licenses throughout the advanced pharmacy practice experiences.
- *CPR/First aid:* Students must hold valid CPR and first aid certificates. Effective dates must be current through the completion of P4.
- *Student health card:* Students must carry the Loma Linda University student health insurance card with them at all times.

Requirements for participation in the IPPE/APPE program are subject to modification based on the requirements for licensure and the requirements for placement in the participating practice settings.

**Introductory pharmacy practice experience (IPPE)**
The goals of the introductory pharmacy practice experiences are to sharpen clinical skills through direct patient-care activities in community, institutional, and ambulatory care settings; to introduce the student to different career opportunities in pharmacy; and to apply therapeutic knowledge through the first three years of the curriculum. Under the supervision of a School of Pharmacy preceptor, who is also a licensed pharmacist, the student will be provided opportunities to apply didactic knowledge to patient care in community, institutional, and ambulatory care settings early in the program. These experiences enhance communication, problem-solving, critical-thinking, and decision-making skills through direct patient-care activities.

**Advanced pharmacy practice experience (APPE)**
Students are required to complete a total of six advanced pharmacy practice experiences in specific clinical areas. Four experiences (each lasting six weeks) will be in required fields of hospital practice, ambulatory care, adult acute care (medicine), and clinical community practice. Two experiences will be in elective fields. All APPEs must be completed under the supervision of a School of Pharmacy preceptor who is also a licensed pharmacist. In order to progress to the advanced pharmacy practice experiences, a student must achieve P4 standing as defined by the School of Pharmacy.

# Licensing

**Pharmacy intern license**
All School of Pharmacy students must have a current non-probationary California intern pharmacist license. Students will be guided through the licensure application process during the first-year orientation. The intern licensure is required for all IPPEs and APPEs. Information about the pharmacy intern license can be found online at <http://www.pharmacy.ca.gov/forms/intern_app_pkt.pdf>.

It is the student's responsibility to keep his or her pharmacy intern license current and valid. The Board of Pharmacy must be notified of address, enrollment status, or name changes within thirty days of the change. A photocopy of the student's valid pharmacy intern license must be on file in the school's Office of Experiential Education.

**Pharmacy intern hours**
In order to be licensed as a pharmacist in California, the California State Board of Pharmacy requires each applicant to have completed a minimum of 300 IPPE and 1,440 APPE hours of supervised pharmacy practice experience. As of January 1, 2016, an applicant for the pharmacist examination who has graduated on or after January 1, 2016, from an ACPE-accredited college of pharmacy or school of pharmacy recognized by the board shall be deemed to have satisfied those pharmacy practice experience requirements.

# Financial information

The Office of the Dean is the final authority on all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is non-binding for the school or the University unless approved by the dean.

Registration is not complete until tuition and fees of the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or with this University must have been settled.

### Deposits

Upon notification of acceptance, the applicant must deposit $500 to hold a place in the class. This amount is deducted from the tuition and fees due at registration and is nonrefundable should an applicant decide not to register.

### International student deposit

Students who are not U.S. citizens or permanent residents entering Loma Linda University School of Pharmacy must deposit funds in the amount of the first full year of tuition. This deposit will be applied to the student's account for educational costs during their last term of enrollment. An international student's deposit will be refunded if a student visa is not obtained.

## Schedule of charges

The following charges are subject to change without notice.

### Tuition

| | |
|---|---|
| $48,000 | Annual block tuition |

### Fees

| | |
|---|---|
| $3,676 | Enrollment fee |

### Miscellaneous

| | |
|---|---|
| $75 | Application fee |
| $500 | Acceptance deposit; nonrefundable, applicable to tuition |
| $1,500 | Estimated books and supplies |
| $25 | Returned check processing fee |
| $100-200 | Late fee |

### Other charges

| | |
|---|---|
| $230 | California Board of Pharmacy internship license (application, examination, interim practice permit); plus Live Scan fingerprinting fee (cost varies). |

## On- and off-campus student housing

Students may go to <llu.edu/central/housing (http://www.llu.edu/central/housing/)> for housing information and a housing application form.

## Additional requirements

Students are responsible for staying informed and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

# Pharmacy — Pharm.D.

The curriculum at Loma Linda University School of Pharmacy is designed to ensure students are prepared for lifelong learning and prepared to serve as medication experts. The school reserves the right to make changes to the curriculum upon recommendation of the curriculum committee and adoption by the faculty. Students will be notified of any necessary changes.

## Admissions

### General entrance information

Applicants to the School of Pharmacy must fulfill the prerequisite course requirements listed below. For a course to fulfill the biology, chemistry, organic chemistry, and physics prerequisites, it must be taken at the level of those required for a science major in the field. Introductory courses are not acceptable. Courses accepted to fulfill the prerequisites for biochemistry may be taken at any level as long as the unit requirements are fulfilled. The minimum cumulative G.P.A. and cumulative mathematics/science G.P.A. considered for acceptance to the School of Pharmacy is 2.75 on a 4.00 scale.

### Required courses (semester/quarter units)

- General biology, with laboratory* (8/12)
- General chemistry, with laboratory* (8/12)
- Organic chemistry, with laboratory* (8/12)
- General physics (one quarter or/semester), lecture and laboratory (4/4) Must include mechanics or Newtonian physics. Survey course is acceptable.
- General biochemistry (3/4) (or molecular biology or cell biology)

Decisions regarding the final determination of acceptable courses as prerequisites reside with the School of Pharmacy Admissions Committee in collaboration with the Office of University Records.

* A full sequence of coursework is required for general biology, general chemistry and organic chemistry. The semester and quarter units listed in the table above are a general guideline for the *minimum* number of units that must be completed to fulfill the prerequisite requirements. These minimum units may not be the same in all universities/colleges.

In rare circumstances, an applicant who has not completed a bachelor's degree may be considered for admission into the School of Pharmacy. An applicant without a bachelor's degree must complete an additional 12 semester or 16 quarter units of coursework in Social and Behavioral sciences, an additional 12 semester or 16 quarter units of coursework in humanities and fine arts, and an additional six semester or nine quarter units of English composition.

### Recommended courses

Cellular and molecular biology
Genomics
Histology
Human Genetics
Immunology
Microbiology
Physiology

### Recommended experience

It is highly recommended that applicants obtain volunteer or pharmacy work experience.

### Application and acceptance requirements

#### Application process

The School of Pharmacy only accepts online applications through the central application service PharmCAS. The link to PharmCAS and other required forms are available online at <llu.edu/central/apply (http://www.llu.edu/central/apply/)>.

#### Procedure

The application procedure is as follows:

- Online submission of Doctor of Pharmacy application through PharmCAS.
- When the PharmCAS application is received, Loma Linda University School of Pharmacy will request completion of an LLU secondary application.
- Three online letters of recommendation from previous instructors, employers (pharmacist employer, if possible), and a spiritual advisor (required). Letters of recommendation are now accepted only through the online application. Instructions for online letters are given once an application has been started. Committee letters are accepted from Seventh-day Adventist colleges/universities only and will fulfill the requirement for recommendation letters.
- Written personal statement (answer all questions in two pages or less).
- Projected College Work form (if applicable).
- Completed Academic Prerequisite Record form (available after the LLU secondary application is submitted).
- Payment of the $75 application fee by check or credit card, submitted with the online LLU secondary application.
- After the secondary application and letters of reference have been submitted and reviewed, the applicant may be invited for an interview. All application documents are evaluated by the School of Pharmacy Admissions Committee to determine if the applicant is accepted, placed on an alternate list, or denied. All applicants are notified of the final committee decision. Admission into the School of Pharmacy continues until the class is filled.

#### Acceptance process

The accepted applicant is sent an email acceptance letter that includes a link to the online confirmation process and deadline. At this link, the accepted applicant can confirm and pay the $500 class-holding fee electronically. The class-holding fee can also be paid by check for an additional processing fee of $25. The class-holding fee is applied to the student's financial account at the time of matriculation. Class-holding fees are nonrefundable. A follow-up acceptance letter is also mailed to the applicant's home address.

#### International applicants

International applicants must have their transcripts reviewed by one of the following evaluation services prior to applying:

- Educational Credential Evaluators, Inc. (ECE) <http://www.ece.org/>
- World Education Services (WES) <http://www.wes.org/>

If the applicant's native language is not English, or if most education was completed in a non-English program, a score of at least 79 (Internet

based) on the Test of English as a Foreign Language (TOEFL) is required. Some consideration is given to applicants who have earned a college degree in an English-speaking country. Please visit <http://www.ets.org/toefl (http://www.ets.org/toefl/)> for more information.

### Rolling admission

The School of Pharmacy has a rolling admission policy in which completed applications are reviewed and students are accepted on a continual basis within the period from the time PharmCAS begins verifying applications for our program (typically September) through the end of March.

## Admission deadline

The School of Pharmacy accepts applications through PharmCAS as soon as the PharmCAS application portal goes live (typically in July) through March (dates may vary; late applications are accepted by contacting the admissions office directly) for entry in September of the following year.

Transcripts, evaluation of international transcripts (if applicable), and TOEFL scores (if applicable) should be mailed to the following address:

Admissions Processing
Loma Linda University
11139 Anderson Street
Loma Linda, CA 92350

# Degree requirements

| First Year | | Units |
|---|---|---|
| RELT 706 | Adventist Beliefs and Life | 2 |
| RXEE 580 | Introductory Pharmacy Practice Experience—Community I | 3 |
| RXPC 561 | Pharmaceutical Care I | 4 |
| RXPS 501 | Pharmaceutical Calculations | 2 |
| RXPS 502 | Pharmaceutics I | 4 |
| RXPS 503 | Pharmaceutics II | 3 |
| RXPS 515 | Pharmaceutics Laboratory I | 0.5 |
| RXPS 516 | Pharmaceutics Laboratory II | 0.5 |
| RXPS 541 | Foundations of Biomedical Science I | 4 |
| RXPS 542 | Foundations of Biomedical Science II | 4 |
| RXRX 500A | Professional Development | 1.5 |
| RXRX 500B | Professional Development | 1.5 |
| RXSA 547 | Pharmacy Law | 2 |
| RXSA 555 | Epidemiology and Public Health | 3 |
| RXSA 650 | Biostatistics | 3 |
| RXTH 560 | Pharmacist-Guided Self Care | 5 |
| RXTH 570 | Introduction to Disease Management | 2.5 |
| **Second Year** | | |
| RELE 705 | Ethics in Pharmacy Practice | 3 |
| RELR 709 | Christian Perspectives on Death and Dying | 2 |
| RXDI 664 | Drug Information and Literature Evaluation | 3 |
| RXEE 680 | Introductory Pharmacy Practice Experience—Community II | 2 |
| RXEE 690 | Introduction to Hospital Pharmacy Practice | 2 |
| RXPS 543 | Foundations of Biomedical Science III | 4 |
| RXPS 544 | Foundations of Biomedical Science IV | 4 |
| RXPS 610 | Pharmacokinetics | 4 |
| RXRX 600A | Professional Development | 1.5 |
| RXRX 600B | Professional Development | 1.5 |
| RXSA 646 | Principles of Management | 3 |
| RXSA 751 | Social-Behavioral Aspects of Pharmacy Practice | 3 |
| RXTH 671 | Fluids and Electrolytes | 2 |
| RXTH 674 | Renal and Respiratory Diseases | 3.5 |
| RXTH 683 | Endocrine | 3.5 |
| RXTH 684 | Cardiovascular I | 3.5 |
| RXTH 685 | Cardiovascular II | 3.5 |
| **Third Year** | | |
| RELE 706 | Advanced Ethics in Pharmacy Practice | 2 |
| RELT 740 | World Religions and Human Health | 3 |
| RXEE 790 | Introduction to Clinical Pharmacy Practice | 2 |
| RXPC 761 | Pharmacy Practice I | 2 |
| RXPC 762 | Pharmacy Practice II | 2 |
| RXPC 763 | Pharmacy Practice III | 3 |
| RXRX 700A | Professional Development | 1.5 |
| RXRX 700B | Professional Development | 1.5 |
| RXSA 743 | Health Systems, Reimbursement, and Pharmacoeconomics | 3 |
| RXTH 704 | Special Populations | 3 |
| RXTH 770 | Infectious Diseases I | 3.5 |
| RXTH 771 | Central Nervous System II | 3.5 |
| RXTH 772 | Infectious Diseases II | 3.5 |
| RXTH 773 | Central Nervous System I | 3.5 |
| RXTH 774 | Gastrointestinal Disorders | 2.5 |
| RXTH 775 | Oncology | 2.5 |
| Electives[1] | | 9 |
| **Fourth Year** | | |
| Six (6) of the following eight (8) APPE courses required: | | |
| RXEE 821 | Advanced Pharmacy Practice Experience I | 6 |
| RXEE 822 | Advanced Pharmacy Practice Experience II | 6 |
| RXEE 823 | Advanced Pharmacy Practice Experience III | 6 |
| RXEE 824 | Advanced Pharmacy Practice Experience IV | 6 |
| RXEE 825 | Advanced Pharmacy Practice Experience V | 6 |
| RXEE 826 | Advanced Pharmacy Practice Experience VI | 6 |
| RXEE 827 | Advanced Pharmacy Practice Experience VII | 6 |
| RXEE 828 | Advanced Pharmacy Practice Experience VIII | 6 |
| | **Total Units:** | **181.5** |

[1] To be completed by the end of the third year (no more than 4 units of independent study can be applied to this requirement). Choose from the electives listed below. Elective courses are subject to change.

## Electives

| | | |
|---|---|---|
| RXPS 616 | Neuropsychopharmacology | 3 |
| RXPS 630 | Biochemical Aspects of the Obesity and Metabolic Syndrome | 2 |
| RXPS 782 | Special Topics in Pharmaceutical Sciences | 1-4 |
| RXPS 783 | Special Topics in Pharmaceutical Sciences | 1-4 |
| RXPS 784 | Special Topics in Pharmaceutical Sciences | 1-4 |
| RXRX 506 | Introduction to Pharmacy Leadership | 1 |
| RXRX 798 | Independent Study with Faculty | 1-4 |

| | | |
|---|---|---|
| RXSA 618 | Writing for Publication | 3 |
| RXSA 748 | Advanced Topics in Pharmacy Law | 1 |
| RXTH 606 | Antimicrobial Stewardship | 1 |
| RXTH 610 | Introduction to Pharmacy Informatics | 1 |
| RXTH 703 | Advanced Topics in Critical Care | 2 |
| RXTH 757 | Advanced Cardiovascular Life Support | 3 |
| RXTH 782 | Special Topics in Pharmacy Practice | 1-4 |
| RXTH 783 | Special Topics in Pharmacy Practice | 1-4 |
| RXTH 784 | Special Topics in Pharmacy Practice | 1-4 |
| RXPS 710 | Dietary Supplements | 2 |
| RXPS 719 | Nutrition and Metabolic Syndrome | 2 |
| RXTH 529 | Strategies for Achieving a Successful Career in Pharmacy | 2 |
| RXTH 605 | Advanced Diabetes Management | 2 |
| RXTH 608 | Viral Infections Evidence-Based Therapy | 2 |
| RXTH 609 | Advanced Literature Evaluation | 1 |
| RXTH 611 | Introduction to Nuclear Pharmacy | 2 |
| RXTH 619 | Clinical Pharmacokinetic Dosing and Monitoring | 3 |
| RXTH 701 | Pediatric Pharmacotherapy | 2 |
| RXTH 702 | Advanced Topics in Neurology and Therapeutics | 2 |
| RXTH 708 | Mental Health in the Movies | 2 |

## Normal time to complete the program

Four (4) years (12 academic quarters) — full-time enrollment required

# SCHOOL OF PUBLIC HEALTH

## Dean's welcome

In 1967, the Loma Linda University School of Public Health became the 13th accredited school of public health in the United States. From our inception, we understood the importance of teaching relevant public health from a faith-based perspective.

Whether online or on campus, our students reflect the culture and values of our school. Every quarter, when students share their practicum experiences during their poster presentations, I marvel at and appreciate the diversity of our students—a wealth of perspectives leading to relevant and innovative ideas, which students continue to display through their work in and out of the classroom.

I want to personally welcome and thank you for choosing to be a part of our legacy. We are proud of our more than 50 years of research and practice aimed at a vision of healthy people living in resilient communities, supported by equitable systems of health. Now, we stay true to our legacy through our mission of creating learning experiences for each generation.

I want you to know that we are listening to what you have to say. We want to hear your experiences in the classroom, on campus, in your practicums, and beyond. Our success is measured by the opportunities you have to succeed as a student, and later, as a professional. All of you are on your way to becoming our alumni. Just as we are proud of you, we want you to be proud of us, your future alma mater.

As you browse through these pages, I encourage you to take advantage of the many ways you can reach your professional goals—mainly, a degree in public health that will enable you to serve individuals, communities, and systems of health in an increasingly global and connected community.

I would like to leave you with one final thought.

My mission in public health is underlined by a personal purpose. At this school of public health, a belief in a power greater than ourselves is what drives us. The actions of Jesus Christ inspire us, and that inspiration informs our work. It is the reason we choose to teach, research, practice, study, and play at Loma Linda University School of Public Health. We believe that everyone has value, and that value is connected to a greater purpose. During your time as a student, along with all the other exciting opportunities you'll experience, I encourage you to focus on your spiritual journey.

Welcome to the Loma Linda University School of Public Health.

Helen Hopp Marshak, Ph.D.
Dean, School of Public Health

## Mission, vision, values, and goals

### Mission

We create learning experiences for each generation. We translate scientific discovery into action, improve health, spread hope, and promote wholeness from our neighborhood to yours.

### Vision

Healthy people living in resilient communities supported by equitable systems of health.

### Values

Accountability—*Our actions match our words*. We take ownership of our roles within the school. Our customers are best served when each of us works in a timely and responsive manner. We accept responsibility for our actions with transparency and respect for others. Always striving for the best outcomes, we are proactive and committed to working together for the common good. As stewards of our resources, accountability is fundamental to fulfilling our mission and living our core values every day.

Relevance—*We are listening.* Our students merit the most advanced teaching methods. Our communities deserve practical health solutions backed by research. For this reason, we are always asking, "Do we matter?" We know the answer to why we matter when we meet our customer's needs.

Diversity—*Eyes at every angle piece together a complete picture.* Diversity is not only about equality. It's about perspective—one that is intentional. We respect our differences and value openness. It's our belief that a wealth of perspectives leads to relevant and innovative ideas. Beyond informing thought, a culture of openness and respect embodies the spirit of our work in public health. Our geographic location allows us to capitalize on a wealth of viewpoints. We attribute our success to a wealth of experiences.

Innovation—*We kindle an informed sense of wonder.* We flourish under a mentality of continuous creativity and exploration of thought. We insist that, in order to make public health a success, we must work across

disciplines. Responsible innovation requires flexibility and evaluation. It ensures growth and determines the impact of new ideas. We are willing to take calculated risks and continue moving our best ideas forward. At every level of our operation, we are looking to make improvements—from improving how our students register for classes to defining new areas of study. Indeed, our innovation is one way we remain relevant.

Wholeness—*We strive for progress over perfection.* Wholeness is a perspective of the world that recognizes all facets of what it means to be human. It encompasses the integration of our spiritual, physical, intellectual components as well as our families, work, play. Despite its many facets, we continually consider our potential in relation to our reality. This translates into how we live each day—with humility, gratitude, and compassion. It keeps us grounded in what matters most.

Faith-Inspired Excellence—*Belief in a power greater than ourselves is what drives us*. As a school of public health founded in Christianity, the actions of Jesus Christ inspire us. Our faith informs our work. It's the reason we're at Loma Linda. We believe that everyone has value and that value is connected to a greater purpose. Wholeness is underlined by the relationship between health and faith. Behind our professional mission, we each have a personal purpose.

### Goals

1. Constantly improve the quality of instruction in support of exceptional educational value.
2. Develop reciprocal and sustainable community-academic partnerships that lead to research, practice, and teaching that are responsive to societal needs.
3. Enhance the school's visibility in support of efforts to maximize enrollment.
4. Enhance the school's visibility in public health issues.
5. Enhance the school's operating resources through increased external (nontuition) sources.
6. Strengthen infrastructure supporting excellence in grant writing.
7. Recruit and retain a student body that reflects the diversity of the population served.

### Educational goals

Loma Linda University School of Public Health, a Seventh-day Adventist Christian institution, seeks to further the teaching and healing ministry of Jesus Christ “to make man whole” by:

- Educating ethical and proficient scholars through instruction, example, and the pursuit of truth.
- Expanding and providing advanced knowledge through research in various fields related to human health and disease.
- Providing advanced skills and competencies for professionals who plan to pursue a practice or research career.

## School foundations

### History

The school's foundation was laid in 1948 with the organization of the School of Tropical and Preventive Medicine, the purpose of which was to provide a base for research and teaching. In 1964, plans were laid for faculty and facilities to meet the requirements of the Committee on Professional Education of the American Public Health Association (APHA). Three years later, the School of Nutrition and Dietetics (established in 1922) and the Division of Public Health and Tropical Medicine were accredited by APHA, organized under the name Loma Linda University School of Public Health. This name was changed to School of Health in October 1970 to reflect more clearly the school's emphasis on lifestyle. In response to changing societal perceptions and definitions of "public health," the original name, School of Public Health, was readopted in August 1987. The Center for Health Promotion, the Department of Preventive Medicine, and the Preventive Medicine Group were merged into the School of Public Health in 1990. The expanded resources realized by this merger stimulated further growth and development of the school to provide a dynamic learning and research environment for its students and faculty.

The school has maintained continuous accreditation since it was accredited at its inception in 1967 by the American Public Health Association. It is currently accredited by the Council on Education for Public Health (CEPH), 1010 Wayne Avenue, Suite 220, Silver Spring, MD 20910; and is also a member of the Association of Schools and Programs of Public Health (ASPPH). CEPH may be contacted at 202/789-1050. <jconklin@ceph.org>

## Master's degree programs

The Master of Public Health (M.P.H.), Master of Health-Care Administration (M.H.A.), and Master of Science (M.S.) degree programs are designed for those with appropriate backgrounds who are seeking to acquire graduate-level competencies in public health, health-care administration, and nutrition.

## Online programs

The School of Public Health offers multiple degree programs in an online format to meet the needs of qualified individuals who seek to develop graduate-level competencies in public health, but who for a variety of reasons choose not to be full-time, on-campus students.

The School of Public Health has considerable experience offering distance-learning programs at the master's degree level. For more than thirty years, the School of Public Health has adapted its program delivery style to meet the needs of busy professionals. Currently the school offers an online postbaccalaureate certificate in health geoinformatics, an online M.H.A. degree in health-care administration, and an online M.P.H. degree in three areas: epidemiology, population medicine, and health education and wellness coaching. The Dr.P.H. degree is also offered in a technology-mediated format in three areas: health education, health policy and leadership, and preventive care. These programs cater to students in the U.S. and internationally.

#### General degree requirements

All applicants to the online programs must meet the general admissions requirements found in Section II of this CATALOG.

#### Online program financial information

##### Financial policies

Tuition for the online M.P.H. degree programs courses is the same as the on-campus tuition rate. Tuition must be paid in full at the time of registration.

##### Financial clearance

The student is expected to maintain a clear financial status at all times. Financial clearance must be obtained before:

- Registering for any class;
- Receiving a diploma;

- Requesting a transcript, statement of completion, or other certification to be issued to any person, organization, or professional board.

### Loans
Inquiry about loans should be directed to the University Office of Financial Aid. Only students who are accepted into a degree program or federal financial aid-approved certificate program are eligible to apply. For loan purposes, online students registered for four units per quarter are considered to be enrolled half time.

### Checks
Checks should be made payable to Loma Linda University, and should show the student's name and social security or LLU ID student number to ensure that the correct account is credited.

## Online Master of Public Health
The Online Master of Public Health Program is offered with majors in epidemiology, population medicine, and in health education and wellness coaching. Each is a two-year, full-time, online program with online orientation, community, and courses. Students begin their program in any of the four quarters of the academic year.

The program includes applied practice and integrative learning experiences.

### Course load
A full-time graduate course load consists of eight units, and a half-time graduate course load is four units. Students in the distance-learning program who need to qualify for financial aid must take a minimum of four units per quarter to establish and maintain eligibility.

### Proctors
Some courses require a proctored examination. Each student is required to have on file a signed proctor contract with the name of a person who will serve as their permanent proctor. A proctored examination is automatically sent to this person. The proctor may not be a relative or someone living in the same house as the student. The registrar of a local college or university, or a librarian is considered an appropriate proctor.

### Residence requirement
There is no residence requirement for the online M.P.H. degree program. Students complete this program online.

# Additional requirements
For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

### Dean
Helen Hopp Marshak

### Executive associate dean
Dwight Barrett

### Associate dean, academic administration
Donna L. Gurule

### Associate dean, strategy
Karl McCleary

### Assistant dean, student support
Wendy M. Saravia-Genovez

### Core faculty, Center for Health Strategy and Innovation
Jim E. Banta, Jr.

Dwight Barrett

Juan Carlos Belliard

Ronald H. Mataya

Karl J. McCleary, Executive center director

Wendy Shih

Rhonda Spencer-Hwang

Seth Wiafe

### Core faculty, Center for Teaching and Learning
Theresa Ashby

Monita Baba-Djara

Megan Daly

Hildemar Dos Santos

Leonard Gashugi

Albin Grohar

Donna Gurule, Executive center director

Michelle Hamilton

R. Patti Herring

Celine Heskey

Walter Johnson

Katherine Jones-Debay

Jerry Lee

Ernesto Medina

Anna Nelson

Keiji Oda

Jisoo Oh

Michael Paalani

Huma Shah

David Shavlik

Gina Siapco

Pramil Singh

Karen Studer

Lori Wilber

### Core faculty, Center for Nutrition, Healthy Lifestyle, and Disease Prevention

Gary E. Fraser

Ella H. Haddad

Karen Jaceldo-Siegl

Fayth Miles

Graciela O. Molina

Ifeanyi Nwachukwu

Michael Orlich

Sujatha Rajaram

Joan Sabaté, Executive center director

Ryan Sinclair

### Other faculty

Godwin Nwadibia Aja

Yen Ang

Khaled Bahjri

Mohan Balagopalan

Dora J. Barilla

Yessenia T. Bartley

Richard Blanco

Jesus J. Cazares

Barbara F. Dickinson

Harvey A. Elder

Linda H. Ferry

Elaine H. Fleming

Thelma Gamboa-Maldonado

Bryan L. Haddock

Susan L. Hall

Linda G. Halstead

Kenneth W. Hart

Richard H. Hart

Gordon Hewes

Liane H. Hewitt

Wesley James

Christian W. Johnston

Robert I. Krieger

Susan K. Lewis

Harold J. Marlow, Jr.

Edward H. Martin

Olivia Moses

Makram A. Murad-Al-Shaikh

James O. Neergaard

Joyce B. Neergaard

Tricia Penniecook

Corwin Porter

Thomas J. Prendergast, Jr.

Brenda L. Rea

Susan E. Reische

Obed Rutebuka

Jeanne F. Silberstein

Bruce E. Smith

Larry L. Thomas

Calvin J. Thomsen

Serena Tonstad

Padma Uppala

Maryellen Westerberg

Jerald W. Whitehouse

Wesley S. Youngberg

### Emeritus faculty

P. William Dysinger

Joyce W. Hopp

Patricia K. Johnston

Naomi N. Modeste

## Accreditation

The school has maintained continuous accreditation since it was accredited at its inception in 1967 by the American Public Health Association. It is currently accredited by the Council on Education for Public Health (CEPH), 1010 Wayne Avenue, Suite 220, Silver Spring, MD 20910; and is also a member of the Association of Schools and Programs of Public Health (ASPPH). CEPH may be contacted at 202/789-1050. <jconklin@ceph.org>

## Centers

**Center for Health Strategy and Innovation**
Executive Director, Karl J. McCleary

Public health has gone through several eras where the focus of attention or paradigm has guided the actions of the field. At present, the concept of population health has emerged as a broader, more encompassing concept of public health that incorporates a range of factors that interact

and affect the health of individuals, communities, and the population as a whole. Unfortunately, these health outcomes frequently reflect inequities across the population. The Center for Health Strategy and Innovation seeks to identify and deploy successful strategies—evidence-based interventions, once adopted and implemented in practice and policy, help achieve desired improvements in population health. We accomplish this vital work through scholarship in dissemination and implementation science, which primarily focuses on organizations, communities, and systems.

**Center for Teaching and Learning**
Executive Director, Donna Gurule

The Center for Teaching and Learning houses the degree programs for the School of Public Health. It has the responsibilities of identifying ways to transform public health education, reporting assessment results for student learning outcomes, engaging and training faculty in pedagogy, course design, and faculty delivery, and providing excellent learning opportunities for our students utilizing technology and innovation. These are accomplished through scholarship in teaching and learning.

**Center for Nutrition and Healthy Lifestyles**
Executive Director, Joan Sabaté

Cardiovascular disease, diabetes, chronic respiratory disease, and cancers account for 60% of all deaths worldwide, with an estimated 80% of these deaths occurring in low and middle income countries. These conditions are largely preventable through the adoption of healthy diets, physical activity, and avoidance of smoking. The center focuses on elucidating key dietary and other behavioral factors for the prevention of chronic diseases. Also, the center is compelled to focus effort on effective health education programs to improve diet quality and recover a healthy lifestyle in the US and globally.

Researchers at the center are leaders in the study of the health effects of plant foods, and the home of the world-renowned Adventist Health Study, providing the global community with strong evidence for healthy outcomes, and the prevention of chronic diseases when adopting a plant-based diet. Building on the Adventist Health Study's unique 50 plus years of research in lifestyle and plant-based diets, the center pioneers new knowledge and aims to develop innovative, interdisciplinary, translational, and interventional research directed at reducing the risk, morbidity and mortality of unhealthy diets, sedentary lifestyle, and tobacco use related chronic diseases in the US and globally.

# Admissions

Applicants must meet Loma Linda University (p. 23) and school-specific admissions requirements. The school's admissions office and program director ensure that applicants are qualified for the proposed curriculum and are capable of profiting from the educational experience offered by this University. This is accomplished by examining evidence of scholastic competence, moral and ethical standards, and significant character and personality qualities. Applicants are considered for admission only upon recommendation of the program in which study is desired. Those who meet the requirements as well as published deadlines may enroll.

In selecting students, the admissions office and program director look for evidence of self-discipline, personal integrity, and intellectual rigor. They also look for evidence that applicants possess the capabilities required to complete the full curriculum in the allotted time and to achieve the levels of competence required.

## Where to write

Correspondence about admissions to all programs and requests for application information should be addressed to Office of Admissions, School of Public Health, Loma Linda University, 24951 North Circle Drive, Nichol Hall 1703, Loma Linda, CA 92350; or via email to <admissions.sph@llu.edu>.

## Application review process

All completed applications are first reviewed by the admissions office. Completed applications are then forwarded to the appropriate program director, who makes the final decision regarding acceptance.

## Procedure

The procedure for application and acceptance is given below.

1. *Application.* Submit a complete application and accompanying documents to SOPHAS (<www.sophas.org (http://www.sophas.org)>).
2. *Transcripts.* Official transcripts from all postsecondary institutions attended must be sent to SOPHAS. If accepted, official transcripts will then need to be sent to Loma Linda University, Admissions Processing, 11139 Anderson Street, Loma Linda, CA 92350.
3. *International evaluations.* All international (non-U.S.) transcripts must be submitted to one of the LLU-approved evaluation services. See <llu.edu/central/apply/intltrans.page (http://www.llu.edu/central/apply/intltrans.page)> for a list of the approved companies. Copies of transcripts forwarded from evaluation services do not meet the requirement of official transcripts. They must be sent directly to LLU from the issuing institution. SOPHAS will only accept international transcripts submitted through World Education Services (<www.wes.org (http://www.wes.org)>). Please note: Transcript copies included only in official WES evaluation reports will also satisfy the requirement for official transcripts.
4. *References.* The applicant is asked to supply a minimum of three personal references. It is recommended that these include an academic reference, a reference from an employer, and a character or religious reference.
5. *Pre-entrance examination.* All official pre-entrance test scores (e.g., TOEFL [international applicants only], GRE or equivalent [e.g., MCAT]) as required by each program must be sent directly to SOPHAS by the testing organization.
6. *Interview.* The applicant's records will be screened when the supplementary application is submitted and the file is complete. The file will then be forwarded for program review; and, if necessary, the applicant may be invited for a personal interview.
7. *Acceptance.* The accepted student receives an acceptance letter and a link that will prompt payment of the class-holding fee and confirmation of acceptance. Official transcripts will need to be submitted to Admissions Processing prior to registration for first term.
8. *Pre-entrance health requirements/Immunizations.* New students are required to have certain immunizations and tests before registration. In order to avoid having a hold placed on registration, the student is encouraged to provide documentation to the Student Health Service prior to the start of regular registration. For further information, contact the Student Health Service office at 909/558-8770.
9. *Financial aid.* Application for financial aid should be submitted early, even before the student is admitted into the program. For further information, visit <http://www.llu.edu/students/financial-aid/> (http://www.llu.edu/students/financial-aid/).

10. *Financial requirement.* Non-U.S. citizens are required by U.S. immigration regulation to secure sufficient funds and pay for their first year tuition and fees before they can register. In addition, they must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa applications and registration clearance after they have submitted their deposits and payment plans.

## Admissions decisions

The Admissions Office and program director considers the following qualifications in making admission decisions:

Personal statement, letters of recommendation, overall G.P.A., GRE examination scores or equivalent, professional potential, and personal interview. Admission decisions are in one of two categories: regular admission or denial of admission.

### Admissions requirements

Specific requirements—which vary from program to program—should be determined based on the student's area of interest. Requirements for admission into degree programs are specified in the next section.

### Prerequisite courses

A grade of B or higher is required for all prerequisite courses. Prerequisites must be completed prior to acceptance.

### Entrance tests

Scores from the Graduate Record Examination (GRE) or equivalent are required with the application. Application forms for the GRE and information regarding examination times and places are furnished by the Educational Testing Service, GRE-ETS, P.O. Box 6000, Princeton, NJ 08541-6000, U.S.A.; and at <http://www.ets.org>. Applicants for the M.H.A. degree in health care administration are required to submit scores from the Graduate Management Admission Test (GMAT) or equivalent, such as the GRE. Application for the GMAT are available at <http://www.mba.com/us (http://www.mba.com/us/)>.

# General regulations

Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III of this CATALOG provides the general setting for the programs of each school and outlines subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of general requirements applicable to all programs.

## University email accounts

The University accepts its moral, ethical, and legal responsibility for informing and reminding students of deadlines, regulations, and processes by issuing an email account to every student and communicating with students by email. It is the students' responsibility to read and respond to their email messages from the University.

# Learning environment

## Technology facilities

Technology-mediated and fully online courses are part of the school's curricula. Students should be prepared to use email, electronic library resources, online survey tools, course management tools, and other Internet communication tools while engaged in the School of Public Health learning environment. Through the online M.P.H., the technology-mediated Dr.P.H. degree programs, and the online post-baccalaureate certificate programs, the School of Public Health demonstrates its commitment to moving forward with a technology-supported and technology-facilitated learning environment.

Tutorials are available to assist members of this learning community in using the school's various tools.

## Campus facilities

Facilities for the School of Public Health—offices, lecture and seminar rooms, teaching and research laboratories, work and storage areas—are located mainly in and adjacent to Francis Nichol Hall. Additional offices and research facilities are located in the Parkland Building and the Centennial Complex.

# Academic policies

Students are responsible for informing themselves of and satisfactorily complying with policies and meeting regulations pertinent to registration, matriculation, and graduation.

## Advanced standing

Graduate students with previous coursework in areas of public health may apply for limited units of advanced standing. If approved by the program director and the assistant dean for academic and student support, degree requirements may be reduced with the expectation that the minimum unit requirement for the degree is met. Courses taken during the past five years are considered in an evaluation of the student's qualification for advanced standing. Competency in courses taken more than five years previously may be considered if the content has been used professionally on a regular basis. No advanced standing is granted for life experience that is not in conjunction with previous coursework.

## Religion coursework requirement

Registration and completion of graduate-level religion coursework is mandatory for completion of degree requirements. The religion requirement is designed to provide a spiritual dimension to the professional training of public health students, opportunities to further develop their skills in dealing with life's challenges, and for personal spiritual growth. Transfer of course units from other universities and institutions is not allowed; nor is a waiver option available, regardless of educational background. Traditional letter grading is required.

Selection of religion courses to fulfill requirements for the various degrees should be made in consultation with the advisor, some programs may require religion course(s) from an approved list, using the course schedule published online at <llu.edu/central/ssweb (http://www.llu.edu/central/ssweb/)>. Master's degree students are required to complete a three-unit, 500-level religion course per degree sought; and doctoral students are required to complete three 500-level religion courses in each of the religion content areas: ethical, relational, and theological studies. Only courses with REL_ code prefixes may be used to satisfy the religion course requirement. The religion requirement may not be waived by registering for a religion course at a university other than Loma Linda University.

## Student classification

Students enrolled in courses prior to receiving official acceptance into the School of Public Health are classified as "nondegree" students by the University. Students may retain this status only by permission of the assistant dean for academic support for a maximum of 12 units of credit before official acceptance into the school.

## Convocation attendance

Attendance at weekly University at Worship and quarterly school convocations is required. Unexcused absences are reported to the dean. Persistent failure to attend may jeopardize a student's regular standing.

## Course attendance

Only duly registered students may attend classes. Students are expected to attend all required contact elements in a course. Absences in excess of 15 percent may be sufficient cause for a failing or unsatisfactory grade to be recorded.

## Adding an additional M.P.H. major

Students who wish to add another major to their M.P.H. programs must complete a written petition to revise or make a changes in their programs. This request will be reviewed by the relevant departmental committee for approval to add the major. After approval, the student must work with the assigned advisor in the secondary department to determine the course work and other requirements that must be fulfilled for the additional major. These requirements must be specified on the Degree Compliance Report for the student *within one quarter* of acceptance into the added major; otherwise the student will be administratively withdrawn from the added major. Because each combination of majors is unique, there is no guaranteed timeline for completion of the requirements for the additional major. Adding another major may also impact financial aid. Additional majors require a minimum of 18 specified units from the major core coursework beyond those required for the primary major, with a grade point average of at least 3.0 for those added units. Coordination of the field practicum experience between the two majors is also required. All successfully completed majors will be listed on the student's transcript.

## Time limit

The time lapse from first enrollment in courses applied to a master's degree curriculum to the conferring of the degree may not exceed three years. For a doctoral degree, the maximum time allowed for advancement to candidacy is three years, and five years for completion of the degree program. Students who show evidence of appropriate academic progress may be granted up to two, one-year extensions for master's and two, one-year extensions for doctoral degrees. They may not exceed the University maximum allowable time for degree completion of five years for a master's degree and seven years for a doctoral degree. These extensions are not automatic but must be initiated by student request and be approved by the program director and the assistant dean for academic support. Exceeding the time limit requirements may have financial aid implications.

## Academic probation

Students who are not making satisfactory academic progress, as defined elsewhere in this CATALOG, will be placed on academic probation. Students who are marginally above the degree requirements may be on academic warning. The number of units for subsequent registration may be restricted to a maximum determined by the school or program, for a student on academic probation or warning. Students with two quarters of unsatisfactory performance jeopardize their standing in a degree or certificate program.

## Residency requirements

Residency requirements may be met by a student taking, through the School of Public Health, the minimum number of units specified for the appropriate degree.

The minimum didactic unit residency requirement for a single M.P.H. degree is 56 units (including up to nine units of transfer credit) and for a single Dr.P.H. degree is 54 units (plus applied practice experience and integrated learning experience) and for a single Ph.D. degree is 47 units (plus research/dissertation units). Advanced standing can be considered for previous coursework relative to these requirements, but does not alter the minimum unit requirements for the degree.

## Graduation requirements

A candidate for a degree shall have met the following conditions:

- Completed all requirements for admission.
- Satisfactorily completed all requirements of the curriculum, including specified attendance; number of credit units; specific course and field instruction; applicable qualifying and comprehensive examinations and culminating activities; and have a cumulative grade point average of 3.0 for graduate students, computed separately for the total degree program and for courses in the major area.
- Completed a field practicum or internship (if required by the program).
- Completed the culminating experience.
- Completed an online exit survey (at the conclusion of the program).
- Submitted a graduation petition two-to-four quarters before graduation, as specified by the University.
- Given evidence of responsiveness to the established aims of the University and of the school.
- Discharged financial obligations to the University and completed the exit interview with the Office of Student Finance.

The candidate who has completed the requirements at the end of the Spring Quarter is encouraged to be present at the conferring of degrees. Students desiring to participate in commencement ceremonies must do so at the spring (June) exercise immediately following completion of their assigned curricula.

The University reserves the right to prohibit participation in commencement exercises by a candidate who has not satisfactorily complied with all requirements.

## Grievance policy

Grievances related to sexual harassment, racial harassment, or discrimination against the disabled shall be pursued in accordance with University policies specifically relating to these items. Grievances related to academic matters or other issues covered by specific school policies shall be made pursuant to the policies of the school in which the student is enrolled. A student who questions whether the process provided by the school has followed its policy in regard to their grievance may request the Office of the Provost to conduct a review of the process used by the school in responding to their academic grievance. For more detailed information, please see the University *Student Handbook* for School of Public Health grievance policy and procedures.

## Academic advisement

It is the responsibility of students to know and fulfill all academic and graduation requirements and to make every reasonable effort to obtain adequate academic advisement. To aid students in the planning process, master-level students should meet with the Academic Programs Office to map out their program through completion. The student should schedule a meeting with their academic advisor to review and approve the program plan before the end of their second term at the school. If changes are made to the plan at this point, it is the student's responsibility to communicate with their academic advisor and the Academic Programs

Office so that the plan is updated. Doctoral level students should schedule a meeting with their academic advisors to generate their program plans through completion, and file a copy with the Academic Programs Office, before the end of their second term at the School of Public Health. Frequent advisor contact helps to ensure that students have current academic information and are making adequate progress toward educational goals.

### Continuing education

The school offers non-degree short courses and workshops at various locations in the United States and overseas to meet the continuing education needs of School of Public Health alumni, other health professionals, and lay persons in the church and community. In addition, most degree courses are approved for continuing education credit.

## Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or center directors in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or with this University must be settled prior to registration.

### Assistantships

A limited number of teaching and research assistantships are available through the academic programs and individual researchers. It is understood that the student will perform such duties as may be required by the one to whom the student is responsible, but such duties are not to exceed the equivalent of half-time employment. Students will be considered after they demonstrate knowledge and proficiency in the area in which they would work.

### Application for financial aid

Before a fellowship or assistantship is awarded, the student must have secured regular admission to the school. The student's academic record, financial need, and potential productivity are among the factors considered in the awarding of financial aid. Preference is given to complete applications received by March 2. Early application is advised.

### Loans

Loan funds may be available to School of Public Health students who show need as determined by a federal formula. Loans are restricted to citizens of the United States and eligible noncitizens. Certain funds are interest free while a student is enrolled at least half time. Inquiries about loans should be made to the Office of Financial Aid.

### Schedule of charges

Effective Summer Quarter 2021 (subject to change by trustee action):

#### Tuition

| | |
|---|---|
| $895 | Master's students per unit: credit (on campus and online) |
| $448 | Master's students per unit: audit (on campus and online) |
| $975 | Doctoral students per unit: credit (on campus or online) |
| $350 | Certificate students per unit: credit (on campus or online) |

#### Special tuition charges

| | |
|---|---|
| $895 | Field practicum and internship (100 hours/2units) |

#### Enrollment fee

| | |
|---|---|
| $925 | Enrollment fee |

#### Special charges

| | |
|---|---|
| $50 | Application (nonrefundable) |
| $100 | Acceptance deposit for master's degree students (nonrefundable) |
| $250 | Acceptance deposit for doctoral degree students (nonrefundable) |
| $100 | Late payment fee |
| $25 | Returned check fee |
| $200 | Late registration fee |
| $50 | Examination, other than regularly scheduled |
| $50 | Equivalency examination |

#### Miscellaneous expenses

| | |
|---|---|
| cost | Health-care items not covered by insurance |
| cost | Breakage, damage, loss of University equipment |

#### International student deposit

Advance refundable deposit along with first quarter of tuition (minimum 8 units) is required.

| | |
|---|---|
| $1,000 | Master's student |
| $1,000 | Doctoral student |

### Refund policy

Tuition refunds are calculated on a prorated basis for up to 60 percent of the quarter, with no refund after that point. This calculation is based on the day a withdrawal from a course or program is processed by University Records. Students who drop a course from a block program of courses receive no refund.

If a student drops a course after completing 10 percent of a course, the student will receive a 90 percent refund. Because refunds are based on a percentage of the course completed, the days on which these percentage refunds will change are determined by the length of the term in which the course is scheduled.

## Awards and honors

Students demonstrating superior scholarship, professionalism, and promise of future contribution to the field of public health may be nominated for recognition. Faculty members and staff are also eligible for certain awards.

The PRESIDENT'S AWARD is given annually to a student who has demonstrated superior or excellent scholarship, actively participated in the affairs of the student and church communities, actively participated in general community service, and shown evidence of commitment to the highest ideals of the University.

The DEAN'S AWARD is given annually to a student who has demonstrated superior or excellent scholarship, actively participated in the affairs of the student and church communities, actively participated in general community service, and shown evidence of commitment to the highest ideals of the School of Public Health.

The HULDA CROOKS AWARD provides funds to (a) students who personify a personal and professional commitment to health and fitness. This award encourages Loma Linda University School of Public Health students to become involved in the practical application of their educational experience through research and public health practice, and (b) student initiated research and public health practice grants.

The COMMUNITY OUTREACH PROJECT SCHOLARSHIP award is given to students who have gone over and beyond working in the San Bernardino Community through field, research and/or practical experiences. They are expected to have a high academic merit and are dedicated to the service of others.

The MERRIT C HORNING AWARD FOR OUTSTANDING RESEARCH is a recognition-based award emphasizes the good work our student researchers are doing at the School of Public Health at Loma Linda. Dr. Merritt C. Horning, an alumnus of Loma Linda University, aggressively promoted research throughout his career. This award recognizes his lifelong passion for research.

The P. WILLIAM DYSINGER EXCELLENCE IN TEACHING AWARD is given annually by the student association to a faculty member who exemplifies excellence in teaching, Christian commitment, and support for cultural diversity.

The CHARLIE LIU AWARD is given by the student association to an outstanding student, faculty, or staff member who reflects the life of Christ through a caring spirit, a listening heart, and a commitment to peace.

The RUTH WHITE AWARD is given to an outstanding student at commencement each year who exemplifies a spirit of cooperation and leadership, helpfulness in scholastic efforts, and sensitivity to students from diverse cultures.

The WILLARD AND IRENE HUMPAL AWARD recognizes students who have gone the extra mile to give service to their church, their school, and their community; who are enthusiastic learners; and who have demonstrated financial need.

The SELMA ANDREWS SCHOLARSHIP (a) competitive grants may be available to help defray students' costs of traveling to professional or scholarly conferences at which they have been invited to participate formally in the program. (b) scholarship funds are available for registered SPH students in good standing who have completed at least 12 units in their degree programs.

The HAMMOND - HARDINGE STUDENT ASSISTANCE FUND provides assistance to students enrolled in the School who experience a financial "shortfall" or other financial emergency.

The CALLICOT STUDENT SUPPORT FUND provides financial support to Seventh-day Adventist students enrolled in the school.

The DRS. WILLIAM G. AND MARGARET S. HAFNER ENDOWMENT provides scholarship assistance to students enrolled in the school. Recipients shall be full-time graduate students in good academic standing with demonstrable financial need.

The INTERNATIONAL STUDENT ASSISTANCE award provides financial support to full-time international students enrolled in the School. Special consideration shall be given to students expected to return to their home countries upon completion of their studies.

The PRESIDENT'S CIRCLE SCHOLARSHIP FUND FOR HISPANIC STUDENTS this award is to provide scholarship assistance to Hispanic Students.

The SHOLARSHIP ENDOWMENT FOR BLACK STUDENTS this award is to provide scholarship assistance to Black Students.

The BOB & RUTH HERVIG SCHOOL OF PUBLIC HEALTH SCHOLARSHIP ENDOWNMENT FUND provides scholarship to students enrolled in the School who are members of the Seventh-Day Adventist Church or who exhibit a Christian lifestyle.

The DR. JAMES L. WELCH SCHOLARSHIP FUND is available to students enrolled in the School with preferential consideration is to be given to students interested in education, research re treatment related to Acquired Immune Deficiency Syndrome.

The OEP CLASS OF 1978 FUND is available to students enrolled in the School with special priority given to Canadian citizens.

The SPH STOUT FAMILY SCHOLARSHIP FUND given annually to a student enrolled in the School. The student must be in good and regular standing, have a financial need as determined by the Student Financial Aid Office of the university and demonstrated desire to serve people and endeavor to make man whole.

THE SPH ENVIRONMENTAL & OCCUPATIONAL HEALTH SCHOLARSHIP the award is given to students who engage in Environmental and Occupational Health research.

The WIESSEMAN DOCTORAL AWARD the award is given annually to an outstanding student enrolled in the School's Doctor of Public Health Program. Preference is given to Seventh-day Adventist students enrolled in the preventive care program who are U.S. citizens, who have demonstrated financial need and who have maintained a G.P.A. of 3.2 or above.

The COMMUNITY BENEFIT SCHOLARSHIP is available to students born and raised in San Bernardino and Riverside County who are from underrepresented groups, including first generation students, who are committed to serving our region.

The DELTA OMEGA HONOR SOCIETY

Membership in Delta Omega#reflects the dedication of an individual to increasing the quality of the field, as well as to the protection and advancement of the health of all people. Chapters may induct up to 20% of the graduating student body. All inductees must be, at minimum, in the upper 25% of their class academically and meet the chapter criteria/goals.

*Program and area-specific scholarships and awards may be viewed on the SPH website.*

# Programs

## Master's degrees

- Epidemiology—M.P.H. (p. 372) (traditional, online)
- Global Health—M.P.H. (p. 373)
- Health-Care Administration—M.H.A. (p. 374) (traditional, online)

- Health Education and Wellness Coaching—M.P.H. (p. 376) (traditional, online)
- Nutrition with coordinated program in dietetics — M.P.H. (p. 378)
- Plant-Based Nutrition—M.S. (p. 379) (online)
- Population Medicine—M.P.H. (p. 380) (traditional, online)

### Doctoral degrees

- Epidemiology— Ph.D. (p. 384)
- Health Education— Dr.P.H. (p. 385) (traditional, online)
- Health Policy and Leadership—Dr.P.H. (p. 386) (traditional, online)
- Nutrition—Ph.D. (p. 387)
- Preventive Care—Dr.P.H. (p. 389) (traditional, online)

### Cognate Areas [1]

**Health-Care Administration**

| | | |
|---|---|---|
| HADM 534 | Health-Care Law | 3 |
| HADM 555 | Health-Care Delivery Systems | 3 |
| HADM 601 | Quantitative Methods in Health-Care Management | 3 |
| HADM 605 | Health-Care Quality Management | 3 |
| **Total Units** | | **12** |

**Health Geoinformatics**

| | | |
|---|---|---|
| HGIS 522 | Principles of Geographic Information Systems and Science | 2 |
| HGIS 524 | GIS Software Applications and Methods | 3 |
| HGIS 535 | Integration of Geospatial Data in GIS | 2 |
| HGIS 536 | Spatial Analytic Techniques and GIS | 3 |
| HGIS 547 | GIS for Public Health Practice | 2 |
| **Total Units** | | **12** |

**Maternal Child Health**

| | | |
|---|---|---|
| MNCH 520 | Maternal/Child Health: Policy and Programs | 3 |
| MNCH 567 | Reproductive Health | 3 |
| MNCH 614 | Seminar in Maternal and Child Health Practice | 3 |
| NUTR 534 | Maternal and Child Nutrition | 3 |
| **Total Units** | | **12** |

[1] Availability subject to demand.

# Certificates

The School of Public Health offers certificates in various programs to meet the needs of qualified individuals who seek to develop competencies in specialties in public health. Certificate program instruction is primarily provided by regular School of Public Health faculty members during regular quarter terms. Students are responsible for following required registration procedures during regularly scheduled time periods. A minimum of 12 units, plus one (1) unit of religion is required for a certificate. Units may not be shared with a concurrent degree program.

### General certificate information

**Coursework**

Course sessions are conducted during regular term sessions. Certificate courses in the School of Public Health carry the same credit units as courses applicable toward degree programs. Certificate courses are taught on a quarter-term system, although selected courses may be offered by special arrangement.

**Religion course requirement**

Registration and completion of a one-unit, graduate-level religion course is mandatory for each certificate program. Religion courses must have an REL_ prefix and be offered through Loma Linda University. The religion requirement provides a spiritual dimension to the professional training of public health students, as well as an opportunity to further develop their skills in dealing with life's challenges and opportunities for personal spiritual growth. Course units will not be transferred from other universities or institutions, nor is waiving this requirement an option, regardless of educational background. A traditional letter grade is required.

### General certificate requirements

All certificate program applicants must meet the general admissions requirements (p. 23) found in this catalog. Coursework is graduate level; therefore, students must demonstrate eligibility for application to a graduate-level program.

**Course format**

Courses are generally taught in the same format as regularly scheduled on-campus courses. However, Web-based courses and/or intensive format courses may also be utilized. These courses are tailored to the adult learner, with clear application and examples from the public health professional world, and represent the same course requirements and credit units as those applicable to graduate degree programs.

**Grade point average**

A grade point average of 3.0 (B) must be maintained.

## Programs

- Health-Care Administration – Certificate (p. 368)
- Health Geoinformatics – Certificate (p. 369)
- Health and Wellness Coaching – Certificate (p. 369)
- Maternal and Child Health – Certificate (p. 370)

# Health-Care Administration – Certificate

**Program director**

Huma Shah

With the development of the Affordable Care Act and the ever-changing world of health care, greater need exists for people at all levels of management who have a broad understanding of how health-care delivery functions. This certificate will add a breadth of knowledge and key skills to persons with an interest in health-care administration, equipping them with an edge to fill health-care leadership roles.

## Learner outcomes

By the end of the program, graduates will be able to:

1. Demonstrate an understanding of the health-care system in the United States;
2. Apply management skills to health-care settings, ensuring quality and efficient operations utilizing various theories and models;

3. Assess health system gaps and develop effective solutions which provide a competitive advantage through critical analysis of organizational competencies, capabilities, and resources.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must have a:

- Bachelor's degree from an accredited college or university
- G.P.A. of 3.0

## Program requirements

| Required | | |
|---|---|---|
| HADM 534 | Health-Care Law | 3 |
| HADM 555 | Health-Care Delivery Systems | 3 |
| HADM 601 | Quantitative Methods in Health-Care Management | 3 |
| HADM 605 | Health-Care Quality Management | 3 |
| RELT 518 | Adventist Heritage and Health | 1 |
| **Total Units** | | **13** |

### Normal time to complete the program

One (1) year — based on less than half-time enrollment

# Health Geoinformatics — Certificate

**Program director**
Seth Wiafe

The purpose of the health geoinformatics certificate is to prepare participants to apply geospatial information science and technologies to public health practice, research, and learning. These skills are highly desired today as an integral part of health informatics competencies that are needed by health professionals—according to the 2011 RAND Corporation report, "Mapping the Gaps."

The Health Geoinformatics Program certificate is designed primarily for health professionals and students who have completed a bachelor's degree (or equivalent) from an accredited college or university with a cumulative G.P.A. of at least 3.0. Qualified candidates must demonstrate computer proficiency, although no previous experience with geographic information systems (GIS) technology is required. Advanced placement can be considered for applicants with previous GIS experience/training. In addition, interested Loma Linda University students, staff, and faculty who would like to learn about GIS applications in health may also apply.

## Program learning outcomes

By the end of the program, students will be able to:

1. Apply principles of geospatial information science to health research and practice;
2. Use state-of-the-art GIS software and techniques for accessing the spatially defined health information for building useful geodatabases;
3. Use effective geospatial data while producing and publishing customized maps and other visual displays of health data;
4. Employ GIS-based methods and techniques of spatial analysis that support health research and decision making in public health practice and policy;
5. Competently apply geospatial technology and methods in at least one key area of health geographics, such as disease mapping, tracking and assessment of environmental hazards exposure, health planning and policy, population health, health education and communication, and analysis of access to health services;
6. Implement and manage health GIS projects in government, nongovernment, and community settings.

## Indicators of educational effectiveness

1. Class project (course specific, at the discretion of the instructor).
2. Oral presentation (course specific, at the discretion of the instructor).
3. Portfolio (course specific, at the discretion of the instructor).
4. Participation in a qualifying examination offered annually by SkillsUSA, an organization that has partnered with the geospatial industry to develop a competition program that provides universities, colleges, and their students a way of validating their geospatial programs and measuring them against national standards.

Note: Indicators 1, 2, and 3 are course specific at the discretion of the instructor.

The program is open to health professionals, current Loma Linda University students enrolled in a master's or doctoral degree program, Loma Linda University faculty and staff (tuition benefits may apply), and anyone interested in GIS applications in the health field.

## Admissions

In addition to Loma Linda University (p. 23) admission requirements, the applicant must have a:

- Bachelor's degree from an accredited college or university
- G.P.A. of 3.0

## Program requirements

| Required | | |
|---|---|---|
| HGIS 522 | Principles of Geographic Information Systems and Science | 2 |
| HGIS 524 | GIS Software Applications and Methods | 3 |
| HGIS 535 | Integration of Geospatial Data in GIS | 2 |
| HGIS 536 | Spatial Analytic Techniques and GIS | 3 |
| HGIS 547 | GIS for Public Health Practice | 2 |
| RELT 518 | Adventist Heritage and Health | 1 |
| **Total Units** | | **13** |

### Normal time to complete the program

One (1) year — based on less than full-time enrollment

# Health and Wellness Coaching — Certificate

**Program director**
Anna Nelson

The Health and Wellness Coaching Certificate is designed for any professional or lay person interested in learning how to empower others to take action to improve their health. The online curriculum will prepare students to guide and support individuals as they work toward reaching their behavior change goals.

This three-course program includes topics in health and wellness, coaching structure, coaching process, and ethics/legal considerations. The certificate can be completed over two quarters (spring and summer). While the program is delivered fully online, two of the courses (one per quarter) require weekly synchronous participation by the students using a zoom platform.

The nine units of credit earned in this certificate may be used toward an M.P.H. degree in health education and wellness coaching. In addition to the certificate, students will be individually responsible to complete a minimum of 50 health and wellness coaching sessions outside of the program curriculum to satisfy the certification exam eligibility requirements.

## School certificate

Students register for the certificate program courses through the Office of University Records, but the certificate itself is issued by the School of Public Health—not Loma Linda University. The University Records Office maintains a record of registration but not the certificate. Record of the certificate and its awarding are maintained by the School of Public Health.

Financial aid is not available to students registered in school certificate programs. These programs do not meet requirements established by the U.S. Department of Education for aid eligibility.

## Approval

The program is approved by the National Board for Health and Wellness Coaching (NBHWC), P.O. Box 16307, San Diego, CA 92176; telephone, 866/535-7929; website: https://nbhwc.org/. (https://nbhwc.org/)

## NBHWC Exam Eligibility

Upon successfully completing the certificate program, participants receive a certificate in wellness coaching. Students are responsible for maintaining NBHWC coaching logs after finishing the program. Completion of the certificate program and the written log of 50 health and wellness coaching sessions will make graduates eligible to take the certifying examination offered by the National Board for Health and Wellness Coaching (NBHWC), P.O. Box 16307, San Diego, CA 92176; telephone, 866/535-7929; website: https://nbhwc.org/

## Admissions

The LLU application is available online and can be found at <llu.edu/apply (http://www.llu.edu/apply/)>.

Required:

- Bachelor's degree from an accredited college or university.
- Official transcript documenting awarded degree. To be official, the transcript must be sent directly from the issuing institution to Loma Linda University.

## Program requirements

| Required | | |
|---|---|---|
| HPRO 526 | Lifestyle Diseases and Risk Reduction | 3 |
| HPRO 541 | Wellness Coaching I | 3 |
| HPRO 542 | Wellness Coaching II | 3 |

### Normal time to complete the program

Two (2) quarters — based on less than full-time enrollment

# Maternal and Child Health — Certificate

Closed to admissions for the 2021-2022 academic year.

**Program director**
Patti Herring

The purpose of this certificate is to familiarize students with the complex issues associated with planning, implementing, and evaluating maternal and child health programs for men and women.

## Learner outcomes

By the end of the program, students will be able to:

- Describe key public health issues in the field of maternal and child health;
- Utilize principles of behavior change in the promotion of maternal and child health;
- Plan, implement, and evaluate public health programs addressing multifaceted, integrated programs in maternal and child health based on current operational models;
- Write competitive proposals for grants and contracts in the field of maternal and child health.

## Indicators of educational effectiveness

1. Appropriate course assignments and projects.
2. At least a bachelor's degree (or equivalent), with a cumulative G.P.A. of at least 3.0.
3. Completion of certificate requirements.

## Admissions

This certificate program, primarily designed for M.P.H. degree or doctoral degree students whose focus is not maternal and child health, is offered in conjunction with such programs. Health professionals who have completed a bachelor's degree (or equivalent) from an accredited college or university with a cumulative G.P.A. of 3.0 or higher may also be admitted into the program. Students from other schools and departments are encouraged to add a certificate in maternal and child health to their existing programs.

## Program requirements

| Required | | |
|---|---|---|
| MNCH 520 | Maternal/Child Health: Policy and Programs | 3 |
| MNCH 567 | Reproductive Health | 3 |
| MNCH 614 | Seminar in Maternal and Child Health Practice | 3 |
| NUTR 534 | Maternal and Child Nutrition | 3 |
| RELT 518 | Adventist Heritage and Health | 1 |
| **Total Units** | | **13** |

### Normal time to complete the program

One (1) year — based on less than full-time enrollment

# Master's degrees

The Master of Public Health (M.P.H.), Master of Health-Care Administration (M.H.A.), and Master of Science (M.S.) degree programs are designed for those with appropriate backgrounds who are seeking to acquire graduate-level competencies in public health, health-care administration, and nutrition.

- Epidemiology — M.P.H. (p. 372) (traditional, online)
- Global Health — M.P.H. (p. 373)
- Health-Care Administration — M.H.A. (p. 374) (traditional, online)
- Health Education and Wellness Coaching — M.P.H. (p. 376) (traditional, online), comparison (p. 377)
- Nutrition with coordinated program in dietetics — M.P.H. (p. 378)
- Plant-Based Nutrition — M.S. (p. 379) (online)
- Population Medicine — M.P.H. (p. 380) (traditional, online)

# Admissions

The admissions requirements described below are in addition to the University admissions requirements (p. 23) and program requirements. The minimum eligibility requirements for admission to a master's degree program include the following:

- A baccalaureate degree or equivalent from a regionally accredited institution, with a G.P.A. of 3.0 or above.
- Satisfactory performance in the Graduate Record Examination (G.R.E.) or equivalent; scores must have been attained within the last five years. Other scores are acceptable. G.R.E. may be waived for students with a cumulative G.P.A of 3.2 or higher. Please contact the admissions office for details.
- Applicant may be interviewed by program director and/or faculty.
- Religious affiliation is not a requirement; but students are expected to adhere to on-campus requirements of modest dress, abstinence from alcohol and smoking, and attendance at weekly chapel.

Applicants must satisfy the program-specific admission requirements, including but not limited to pre-requisite courses, license requirements and years of experience. Admissions decisions are based on a review of applicant's transcripts, written statement, letters of recommendation, G.R.E. or equivalent scores, and interview (if necessary). **Satisfying minimum requirements does not guarantee admission.**

# M.H.A.

### Master of Health-Care Administration

The program leading to the Master of Health-Care Administration (M.H.A.) degree is designed to develop the management and leadership skills of those involved in the public and private health-care industries.

The Master of Health-Care Administration (M.H.A.) degree provides a broad understanding of health-care management and hands-on experience in applying learned principles. The M.H.A. degree is designed for those whose professional objective is a career in health-care management. The field practicum period provides experience in a health-care organization. Graduates are prepared for careers at administrative levels in health-care organizations—including hospitals, public agencies, health-care networks, group practices, long-term care, and managed care.

# M.P.H.

### Master of Public Health

The program leading to the Master of Public Health (M.P.H.) degree is designed to provide broad preparation in the fundamentals of public health, while at the same time offering opportunity for some specialization in areas of interest.

The degree is offered with major concentrations in the areas of epidemiology, global health, health education and wellness coaching, nutrition, and population medicine. Second major concentrations can be added in addition to the primary major.

#### Public health core requirements

All M.P.H. students are expected to develop skills and knowledge foundational to public health. This is accomplished by completing the following integrated, interdisciplinary public health core courses:

| | | |
|---|---|---|
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |

#### Applied practice experience

In accordance with Loma Linda University's mission—"To make man whole"—the School of Public Health provides students with rich experiences, as well as training opportunities that include all dimensions of public health: physical, mental, spiritual, intellectual, and environmental. Part of this training occurs during the applied practice (AP) experience—which may be completed as a field practicum, applied research, or course-based activities, depending on the major. The applied practice experience at the School of Public Health is an opportunity for students to apply the knowledge they learn in the classroom, enhance their understanding of public health, and contribute to the health of the community in which they are engaged. The experience allows students to demonstrate their ability to synthesize and integrate prior learning into real-life, public health settings.

#### Integrative learning experience

The Integrative Learning Experience (ILE) gives the students an opportunity to demonstrate proficiency in the professional competencies required of public health professionals. This degree requirement occurs at the end of the of the program and is designed to enhance the student's professional knowledge and skills by developing a professional product and demonstrating proficiency in the specific program competencies. This process involves collaboration with and mentoring by the program faculty and the advisor. In consultation with the advisor and program faculty, the student selects the program learning outcomes for which they will be assessed to determine if they have met the degree requirements for synthesis and application of learning. This product may include a practice-based project, essay-based comprehensive exam, capstone course or another experience that culminates with a high-quality written deliverable for assessment purposes.

#### E-Portfolios

In addition to the AP Experience and ILE, some programs may require students to complete a professional portfolio.

#### Residencies for physicians

Residency training in the specialties of general preventive medicine and public health and in occupational medicine, as well as a combined residency in family and preventive medicine, are offered by the School of Public Health for qualified physicians. Each residency training program is accredited by the Accreditation Council for Graduate Medical Education (ACGME) and prepare residents for certification by the American Board of

Preventive Medicine (ABPM). Both preventive and occupational medicine specialties require the successful completion of an accredited M.P.H. degree.

Those interested in applying to these training programs should contact the residency office by calling 909/ 558-4918 or by visiting the following web address: <http://www.prevmedresidencies.com>

### Preventive medicine residency

The three-year program consists of an internship year followed by two years of integrated academic and practicum experiences. One internship position is offered through the National Residency Matching Program (NRMP) each year. Additional positions are offered for PGY-2 applicants, if they have already completed an internship year.

The program combines the academic and practicum experience over two years. During this time, residents will complete their M.P.H. degree and rotate at the various training sites. Practice sites include Loma Linda University, the Loma Linda Veterans Affairs Healthcare System, Kaiser Permanente, Riverside County Department of Public Health, and the Inland Empire Health Plan.

Under the guidance of the residency and faculty members at the School of Public Health, each resident completes a scholarly activity on a topic of choice during their residency.

### Family and preventive medicine residency

The Family and Preventive Medicine Residency Program combines curricular elements of a three-year family medicine residency and a three-year preventive medicine residency into an efficient training program of four years. During the first year, residents complete a family medicine internship. The remaining years include both family and preventive medicine rotations and M.P.H. degree coursework. Practice sites include Loma Linda University, SAC Healthcare System, the Loma Linda Veterans Affairs Healthcare System, Kaiser Permanente, San Bernardino County Department of Public Health, and the Inland Empire Health Plan.

### Occupational medicine residency

The three-year program consists of an internship year followed by two years of integrated academic and practicum experiences. One internship position is offered through the National Residency Matching Program (NRMP) each year. Additional positions are offered for PGY-2 applicants, if they have already completed an internship year.

The program emphasizes the clinical and applied aspects of occupational and environmental medicine. The program combines the academic and practicum experience over two years. During this time, residents will complete their M.P.H. degree and rotate at the various training sites. The major clinical site is the Occupational Medicine Clinic at Loma Linda University. This residency program focuses on the health of individuals and groups in relationship to work, hazards in the workplace, and environmental issues. The program emphasizes the assessment of individual health hazards and the identification and promotion of practices that help to reduce risk and prevent or postpone disease and injury.

Under the guidance of the residency and faculty members at the School of Public Health, each resident completes a scholarly activity on a topic of choice during their residency.

## M.S.

### Master of Science

The Master of Science (M.S.) degree in plant-based nutrition is offered to meet the specific needs of registered dieticians and other health-care professionals who desire evidence-based training in plant based nutrition and serves as a bridge to the Ph.D. in nutrition program offered by SPH. This Master of Science degree is offered online only.

More information about these areas of specialization is found in the Nutrition Program section of this CATALOG.

# Epidemiology — M.P.H.

**Program director**
David Shavlik

The M.P.H. degree in epidemiology is designed to give theoretical and practical training in how to study and control factors that influence health-related problems. This degree prepares students to work in federal, state, and local health departments/agencies, academic and research institutions, health maintenance organizations, and hospitals.

Coursework for the epidemiology program may be pursued in the following formats:

- A traditional, on-campus program (combination of on-campus and online coursework)
- An online program (combination of synchronous and asynchronous coursework)

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Assist in design and implementation of epidemiologic studies;
- Analyze epidemiologic data using appropriate statistical methods and software;
- Report epidemiologic research results through oral and written reports;
- Critically review relevant health literature;
- Use and interpret principles of public health screening and surveillance programs.

## Educational effectiveness indicators

Program learning outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (http://llucatalog.llu.edu/public-health/masters-degrees/#mphtext)

## Prerequisite

In addition to the entrance requirements for all M.P.H. degrees (http://llucatalog.llu.edu/public-health/masters-degrees/#admissionstext), applicants to the M.P.H. degree program in epidemiology must have taken:

- College algebra or equivalent (calculus preferred)
- Three semester or four quarter undergraduate courses in the biological sciences

## Program requirements

| | | |
|---|---|---|
| **Public health core** | | |
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [3] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |
| **Major** | | |
| EPDM 509 | Principles of Epidemiology | 3 |
| EPDM 510 | Epidemiologic Methods I | 3 |
| EPDM 511 | Epidemiologic Methods II | 3 |
| EPDM 512 | Epidemiologic Methods III | 3 |
| EPDM 520 | Data Collection Methods | 3 |
| EPDM 530 | Disease Distributions and Determinants I | 3 |
| EPDM 531 | Disease Distributions and Determinants II | 3 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3 |
| STAT 521 | Biostatistics I | 4 |
| STAT 522 | Biostatistics II | 4 |
| STAT 548 | Analytical Applications of SAS and R | 2 |
| **Religion** | | |
| RELE 534 | Ethical Issues in Public Health (or REL_) | 3 |
| **Cognates/Electives** | | |
| Choose from defined cognates or select from electives (reduced to 3 units for clinical doctorates) [1, 2] | | 9 |
| **Research project** | | |
| EPDM 699A | Applied Research | 1 |
| **Total Units** | | **62** |

| | | |
|---|---|---|
| **Applied practice experience** | | |
| Practicum units are in addition to the minimum didactic units required for the degree | | |
| PHCJ 798B | Public Health Practicum (200 hours) | 4 |
| or PHCJ 798A | Public Health Practicum | |

1 Total units reduced to 56 units for clinical doctorates.
2 Chosen in consultation with advisor
3 Fulfills service learning requirement

### EPDM/STAT forums

During their program, students are required to attend a minimum of fifteen forums in epidemiology, biostatistics, and/or in the Adventist Health Study.

### Integrative learning experience

See standard integrative learning experience requirements (p. 371).*

* For two of the three options (Demonstrating Proficiency and Service to the Profession), students in the Epidemiology MPH program will be required to deliver an oral presentation and prepare a manuscript.

### Normal time to complete the program

1.75 years (seven [7] academic quarters) — based on full-time enrollment; part time permitted

# Global Health — M.P.H.

**Program director**

Monita Baba Djara

## Program description

The M.P.H. degree earned in the Global Health Program prepares a graduate to practice public health with a *transformational development* worldview—seeking positive change in the whole of human life materially, physically, socially, psychologically, and spiritually. Using a hands-on, practice-based approach to learning, the M.P.H. degree in global health prepares graduates with technical competence and cross-cultural skills to create and manage sustainable health and development programs in diverse settings and populations worldwide.

Graduates of the global health program work in nongovernmental, civil-society, faith-based, and community-based organizations; county and state health departments; private foundations; public health enterprises; and public health practice organizations. Graduates also find positions in UN, international, and multilateral organizations, such as the World Health Organization, UNICEF, and the World Bank; and U.S. government organizations like the Centers for Disease Control and Prevention (CDC) and the United States Agency for International Development (USAID). Those with prior field experience and additional language/s proficiency (for example, French or Spanish) generally have advantages for these positions.

The curriculum is organized around principles of:

- A Christian, faith-based worldview that respects and includes all faiths, as faith plays a major role in how communities address adversity and make decisions about health;
- Transformational development and the social, cultural, economic, and environmental determinants of health;
- Social justice, human rights, and equity among vulnerable populations;
- Support for and empowerment of communities, families, and individuals in their efforts to attain optimal health and development.

The program is designed to build capacity in global health through:

- A series of knowledge-based courses for broad, comprehensive knowledge of the major concepts and issues in global health, the structure and governance of global health, and analytical and program skills to design global, national, and local health programs;
- A series of skills-based courses building competencies in program planning, management, resource management and evaluation, project-proposal preparation, partnership relationships, teamwork, communication, collection and use of community data, quantitative and qualitative research, advocacy, and leadership through community partnerships and projects in the local and global environments.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Assess the global burden of disease and health status of populations;
2. Implement community health interventions across the project cycle;
3. Describe how diversity of populations and individuals influences policies, programs, services, and the health of a population;
4. Collaborate with community partners and stakeholders to improve the health of communities;
5. Analyze health systems in high-, medium-, and low-income countries;

6. Demonstrate leadership, professionalism, and the ability to work in teams.

## Educational effectiveness indicators

Program learner outcomes are evidenced by:

- Signature assignments linked to course and non-course requirements
- Field practicum report
- Culminating experience (p. 371)

## Prerequisite

See entrance requirements for all M.P.H. degrees (p. 371).

## Program requirements

| | | |
|---|---|---|
| **Public health core** | | |
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [3] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |
| **Major** | | |
| GLBH 517 | Cultural Issues in Health Care | 3 |
| GLBH 545 | Integrated Community Development [1] | 4 |
| GLBH 564 | Fundamentals of Global Health I | 3 |
| GLBH 565 | Interventions in Community Health and Development I | 3 |
| GLBH 566 | Fundamentals of Global Health II | 3 |
| GLBH 567 | Interventions in Community Health and Development II | 3 |
| GLBH 568 | Fundamentals of Global Health III | 3 |
| GLBH 569 | Interventions in Community Health and Development III | 3 |
| GLBH 605 | Seminar in Global Health | 1 |
| **Religion** | | |
| RELE 534 | Ethical Issues in Public Health (or REL_) | 3 |
| **Cognates/Electives** [2] | | **12** |
| **Total Units** | | **56** |

| | | |
|---|---|---|
| **Applied practice experience** | | |
| Practicum units are in addition to the minimum graduate units required for the degree | | |
| PHCJ 798D | Public Health Practicum ((Minimum of 8 units/400 hours)) | 8 |
| or PHCJ 798A | Public Health Practicum | |
| or PHCJ 798B | Public Health Practicum | |
| or PHCJ 798C | Public Health Practicum | |

[1] This field-based course involves international travel and fulfillment of required prerequisites. A separate laboratory fee must be paid at the time of registration into this course (subject to change, if needed).

[2] Choose from defined cognates (p. 367) or select from electives, in consultation with advisor.

[3] Fulfills service learning requirement

### Integrative learning experience

See standard integrative learning experience requirements (p. 371).

### Normal time to complete the program

Two (2) years (six [6] academic quarters) — based on full-time enrollment; part time permitted

# Health-Care Administration — M.H.A.

**Program director**
Huma Shah

The School of Public Health offers a Master of Health-Care Administration (M.H.A.) degree, which provides students with a broad understanding of health-care management in line with appropriate and relevant industry-leading competencies. In addition, students engage in practical experience to apply the principles learned through an 800-hour practicum in the health sector. Graduates are prepared for administrative careers in health-service organizations—including medical centers, health plans, physician groups and dental practices, and long-term and managed-care settings, among others.

This degree program provides students with the knowledge, skills, and practice necessary to further their administrative careers in the health-care sector.

Health professionals who are currently employed and have at least five years of professional work experience in health-care administration are eligible to apply for a waiver of up to nine units.

## Program formats

Coursework for the health-care administration program may be pursued in the following formats:

- A traditional, on-campus program (combination of on-campus and online coursework)
- An online program (combination of synchronous and asynchronous coursework)

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Describe key aspects of the health-care environment;
- Demonstrate leadership skills and accountability aptitude;
- Integrate strategic awareness and innovative thinking;
- Apply business management skills and stewardship principles;
- Demonstrate awareness of public health issues and policies.

## Vision statement

The M.H.A. degree program seeks global recognition as a provider of excellent, quality health-care management education with an emphasis on service that uses a values-based approach to confront health-care issues. Students are prepared to confront and solve complex problems in health-care delivery using evidence-based analytics, theory, and practice.

## Mission statement

The mission of the M.H.A. degree program is to provide quality education to new and mid-career professionals locally, nationally, and globally who are interested in health-care management. The program fully integrates a health-care perspective in all coursework, which is guided by theoretical frameworks, scholarship, and informed practice. Faculty apply holistic Christian principles as well as seek to develop conscientious and ethical

health-care leaders who will integrate innovative solutions to health-care challenges.

## Educational effectiveness

Educational effectiveness will be determined through papers, presentations, experiential exercises, tests, field practicum projects/papers, and an exit interview. A competency inventory survey will be conducted two times during the student's program of study at Loma Linda University—upon starting the M.H.A. degree program and upon completion of all classes and the practicum experience.

### Educational effectiveness indicators

Program learner outcomes are evidenced by:

- Signature assignments linked to course requirements and program learning outcomes
- Field practicum report
- Culminating experience

## Prerequisites

The following undergraduate-level courses are required and may be taken as a MOOC or other online course where a certificate is received.

- Micro-economics (one course)
- Accounting (one course)

## Health-care administration practicum

The M.H.A. includes supervised practical opportunities for emerging and experienced administrative health-care professionals. Students from this program with little-to-no health-care leadership experience will engage in an 800-hour practicum in a health-care setting—such as a hospital, long-term care facility, community clinic, or other health-care related organization. Students who enter the program with five years or more of health-care leadership experience will complete a project based on practical experience, in which they will work with a health-care organization and assist or lead a current project in consultation with the faculty and the organization's leaders.

The purpose of the practical experience is to provide students with the opportunity to apply academic learning in an interdisciplinary environment, and to integrate public health concepts and skills from their program of study. The depth and breadth of the experience varies by site location and project availability. This is done in the context of carefully planned and implemented field-based, real-world experience. The practical experience is participatory in nature—rather than observational—and is designed to address students' program competencies and career interests, while also making contributions to the site or organization where they are placed.

While the assigned hours will be spent at the organization, the student's work will be guided and evaluated through a course they have registered for on Canvas/LiveText. The number of units for which a student will need to register will vary according to the hours or projects the student will complete each quarter. The practicum coordinator and/or program director will work closely with students and their mentors in monitoring student progress. Students will present their experiences to the program faculty and site supervisors in final papers and oral presentations.

Students who are accepted into the program with five years or more of health-care management experience will complete a consulting project focusing on identified weaknesses within the program learning outcomes. These students will work with the program faculty to meet these requirements in a directed study course.

Students who are accepted into the program from a clinical background, or who are enrolled in a professional clinical program concurrent with enrollment in the M.H.A. degree program, are required to complete 400 hours in their practicum—with their clinical education being counted as exposure to practical and professional development.

## Individuals who may benefit from the program

Those interested in management and administrative careers in health-service organizations—including hospitals, health plans, physician groups and dental practices, and long-term, managed-care settings, among others—may benefit from the program.

## Program requirements

| | | |
|---|---|---|
| **Public health core** | | |
| HADM 515 | Managerial Epidemiology | 3 |
| PHCJ 606 | Public Health Fundamentals | 4 |
| **Major** | | |
| HADM 506 | Fundamentals of Health-Care Finance | 3 |
| HADM 508 | Accounting Fundamentals in Health-Care Management | 4 |
| HADM 514 | Health-Care Economics | 3 |
| HADM 528 | Organizational Behavior in Health Care | 3 |
| HADM 529 | Applied Leadership Concepts in Health-Care Organizations [1] | 3 |
| HADM 534 | Health-Care Law | 3 |
| HADM 555 | Health-Care Delivery Systems | 3 |
| HADM 559 | Health-Care Marketing | 3 |
| HADM 564 | Health-Care Finance | 3 |
| HADM 574 | Managing Human Resources in Health-Care Organizations | 3 |
| HADM 575 | Management Information Systems in Health Care | 3 |
| HADM 601 | Quantitative Methods in Health-Care Management | 3 |
| HADM 604 | Health Systems Strategic Planning | 3 |
| HADM 605 | Health-Care Quality Management | 3 |
| HADM 607 | Orientation to Professionalism Seminar | 1 |
| HADM 690 | Health-Care Management Capstone | 3 |
| **Religion** | | |
| RELE 535 | Ethical Issues in Health-Care Management | 3 |
| **Electives** [2] | | **3** |
| **Total Units** | | **60** |

| | | |
|---|---|---|
| **Practical experience** | | |
| Practicum units are in addition to the minimum didactic units required for the degree | | 16 |
| HADM 724A | Health-Care Administration Practicum (Total of 16 units/800 hours) [3] | 2-8 |
| or HADM 724B | Health-Care Administration Practicum | |
| or HADM 724C | Health-Care Administration Practicum | |
| or HADM 724D | Health-Care Administration Practicum | |

[1] Fulfills service learning requirement.

[2] Choose a course in consultation with advisor

[3] May substitute with HADM 594 Applied Health-Care Management Project for 2-4 units per approval of practicum director.

### Noncourse requirements

*Culminating experience.* M.H.A. degree students are required to produce a final report at the end of the practicum experience and to present the findings at a formal presentation arranged as part of the grade for the practicum course. They will also complete a final project and portfolio as part of the Integrated Capstone (HADM 690 Health-Care Management Capstone).

*Professional membership.* During their first quarter, students are required to secure and maintain membership in the American College of Healthcare Executives (ACHE) for the duration of the M.H.A. degree program.

*Colloquia.* Participation in 10 hours of noncredit colloquia designed to acquaint students with various aspects of the health-care industry is required of all students.

### Normal time to complete the program

Two (2) years (seven [7] academic quarters) — based on full-time enrollment; part time permitted

# Health Education and Wellness Coaching — M.P.H.

**Program director**
Anna Nelson

## Program formats

Coursework for the Health Education and Wellness Coaching Program may be pursued in the following formats:

- A traditional, on-campus program (combination of on-campus and online coursework)
- An online program (combination of synchronous and asynchronous coursework)

The program leading to M.P.H. degree in health education and wellness coaching allows students to achieve the competencies necessary to promote health and wellness to individuals and communities. The integration of health education and wellness coaching courses will provide students with a combination of cutting-edge skills in health and wellness, health education, health coaching, and whole-person care.

The health education component of the program focuses on educational, interpersonal, community, and legislative factors that promote positive health behaviors. The curriculum emphasizes interventions based on scientific data and established behavioral and learning theories that promote public health through the processes of education and community organization.

Along with the knowledge of lifestyle-related diseases, health, nutrition, and fitness, the wellness coaching component of the curriculum delivers motivational and behavioral skills needed to enable graduates to become a part of the rapidly growing field helping individuals achieve optimal wellness.

Students who complete the curriculum may function as workplace wellness coordinators, health educators, and health coaches in a variety of public and private settings. They are academically prepared to conduct community assessments; design, implement, and evaluate health-education interventions; organize health-promotion efforts; and assist individuals and communities to better utilize techniques of health behavior change.

Professional practice is addressed during the laboratory and field experience portions of the curriculum. Students may develop skills while working in community agencies, health care, school, and worksite settings.

Upon completion of the program, graduates are eligible to sit for the following credentialing examinations:

- CPH—offered by the National Board of Public Health Examiners, <https://www.nbphe.org>.
- National Board Certified Health & Wellness Coach (NBC-HWC)—offered by National Board of Medical Examiners (NBME) and the International Consortium for Health & Wellness Coaching (ICHWC).
- Certified Health Education Specialist (CHES) or MCHES—offered by the National Commission for Health Education Credentialing, Inc., <http://www.nchec.org/> (http://www.nchec.org/).
- Certified Personal Trainer (ACSM-CPT)—offered by American College of Sports Medicine, <https://acsm.org/ (https://www.acsm.org/)>.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Accurately assess individual lifestyle-related risk factors for chronic diseases in culturally diverse populations;
2. Administer and manage health education;
3. Plan, implement, and evaluate health intervention programs;
4. Demonstrate empathetic coaching skills when delivering wellness counseling to clients;
5. Conduct culturally competent wellness coaching assessment, counseling, and evaluation for individuals and groups.

## Educational effectiveness indicators

Achievement of program learning outcomes will be evidenced by:

- Signature assignments linked to course and non-course requirements
- Comprehensive examination

## Prerequisite

- Behavioral science

## Website information

For more information, please see our website at <llu.edu/public-health/online (http://www.llu.edu/public-health/online/)>.

## Program requirements

### On Campus

**Public health core**

| | | |
|---|---|---|
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [4] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |

| | | |
|---|---|---|
| **Major** | | |
| HPRO 526 | Lifestyle Diseases and Risk Reduction | 3 |
| HPRO 530 | Fundamentals of Research in Health Behavior and Health Education | 3 |
| HPRO 535 | Health Education Administration and Leadership | 3 |
| HPRO 537A | Community Programs Laboratory—A [1, 3] | 2 |
| HPRO 537B | Community Programs Laboratory—B [2, 3] | 1 |
| HPRO 537C | Community Programs Laboratory—C [3] | 1 |
| HPRO 538 | Health Education Program Development and Evaluation [2] | 3 |
| HPRO 539 | Policy and Issues in Health Education | 3 |
| HPRO 541 | Wellness Coaching I | 3 |
| HPRO 542 | Wellness Coaching II | 3 |
| HPRO 570 | Wellness Coaching Lab | 1 |
| HPRO 573 | Exercise Physiology I | 3 |
| HPRO 589 | Qualitative Research Methods [1] | 3 |
| NUTR 529 | Health Aspects of Vegetarian Eating | 3 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3 |
| **Religion** | | |
| RELR 540 | Wholeness and Health | 3 |
| **Total Units** | | **56** |

1 HPRO 537A and HPRO 589 to be taken concurrently.
2 HPRO 537B and HPRO 538 to be taken concurrently.
3 HPRO 537 A, B, and C must be taken during the same year
4 Fulfills service learning requirement

## Online

| | | |
|---|---|---|
| **Public health core** | | |
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [1] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |
| **Major** | | |
| HPRO 526 | Lifestyle Diseases and Risk Reduction | 3 |
| HPRO 530 | Fundamentals of Research in Health Behavior and Health Education | 3 |
| HPRO 535 | Health Education Administration and Leadership | 3 |
| HPRO 538 | Health Education Program Development and Evaluation | 3 |
| HPRO 539 | Policy and Issues in Health Education | 3 |
| HPRO 541 | Wellness Coaching I | 3 |
| HPRO 542 | Wellness Coaching II | 3 |
| HPRO 570 | Wellness Coaching Lab | 1 |
| HPRO 573 | Exercise Physiology I | 3 |
| HPRO 589 | Qualitative Research Methods | 3 |
| HPRO 595 | Community Project | 4 |
| NUTR 529 | Health Aspects of Vegetarian Eating | 3 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3 |
| **Religion** | | |
| RELR 540 | Wholeness and Health | 3 |
| **Total Units** | | **56** |

1 Fulfills service learning requirement

## Integrative learning experience

In addition to the standard integrative learning experience requirements (p. 371), students will be required to pass a comprehensive exam.

## Normal time to complete the program

1.67 (five [5] academic quarters) — based on full-time enrollment

## Comparison

See the comparison (p. 377) of the on-campus and online tracks of this program.

# Health Education and Wellness Coaching M.P.H. — On Campus, Online Comparison

| | Course Title | On Campus | Online |
|---|---|---|---|
| **Public Health Core** | | | |
| PCOR 501 | Public Health for Community Resilience | 5.0 | 5.0 |
| PCOR 502 | Public Health for a Healthy Lifestyle | 5.0 | 5.0 |
| PCOR 503 | Public Health and Health Systems | 5.0 | 5.0 |
| **Totals** | | **15.0** | **15.0** |
| | **Course Title** | **On Campus** | **Online** |
| **Major** | | | |
| HPRO 526 | Lifestyle Diseases and Risk Reduction | 3.0 | 3.0 |
| HPRO 530 | Fundamentals of Research in Health Behavior and Health Education | 3.0 | 3.0 |
| HPRO 535 | Health Education Administration and Leadership | 3.0 | 3.0 |
| HPRO 538 | Health Education Program Development and Evaluation | 3.0 | 3.0 |
| HPRO 539 | Policy and Issues in Health Education | 3.0 | 3.0 |
| HPRO 541 | Wellness Coaching I | 3.0 | 3.0 |
| HPRO 542 | Wellness Coaching II | 3.0 | 3.0 |
| HPRO 573 | Exercise Physiology I | 3.0 | 3.0 |
| HPRO 570 | Wellness Coaching Lab | 1.0 | 1.0 |

| | | | |
|---|---|---|---|
| HPRO 589 | Qualitative Research Methods | 3.0 | 3.0 |
| NUTR 529 | Health Aspects of Vegetarian Eating | 3.0 | 3.0 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3.0 | 3.0 |
| HPRO 537A | Community Programs Laboratory—A[1, 3] | 2.0 | |
| HPRO 537B | Community Programs Laboratory—B[2, 3] | 1.0 | |
| HPRO 537C | Community Programs Laboratory—C[3] | 1.0 | |
| HPRO 595 | Community Project | | 4.0 |
| **Totals** | | **38.0** | **38.0** |
| | **Course Title** | **On Campus** | **Online** |
| **Religion** | | | |
| RELR 540 | Wholeness and Health | 3.0 | 3.0 |
| **Totals** | | **3.0** | **3.0** |
| **Overall Totals** | | **56.0** | **56.0** |

1 HPRO 537A and HPRO 589 to be taken concurrently.

2 HPRO 537B and HPRO 538 to be taken concurrently.

3 HPRO 537 A, B, and C must be taken during the same year

# Nutrition with coordinated program in dietetics — M.P.H.

**Program director**
Celine Heskey

The Master of Public Health (M.P.H.) degree curriculum in nutrition and dietetics enables students to meet the didactic and supervised practice requirements for registration eligibility in nutrition and dietetics. The purpose of registration is to protect the health, safety, and welfare of the public by encouraging high standards of performance by persons practicing in nutrition and dietetics.

Students in the M.P.H. degree curriculum may establish eligibility to write the registration examination to become registered dietitian nutritionists (RDN) by completing this program. The program is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND), <https://www.eatrightpro.org/acend>.

## Program learning outcomes

The curriculum integrates the requirements of the M.P.H. degree in nutrition with the competency requirements, foundation, knowledge, and skills to practice dietetics, as defined by ACEND. By the end of the program, graduates should be able to:

- Describe the integration of biological mechanisms underlying the effect of food and nutrients on individual and population health outcomes;
- Function independently and collaboratively as a leader or member of a team to plan, manage, and evaluate public health nutrition interventions;
- Critically analyze studies and nutrition and dietetics evidence-based guidelines for public health prevention, nutrition interventions, and research;
- Scrutinize public policies and processes related to food and nutrition, and explore their impact on health outcomes;
- Examine the role of vegetarian dietary practices on human health, the environment, and ecology;
- Demonstrate effectiveness in applying the nutritional care process consistent with competencies defined by ACEND.

## Educational effectiveness indicators

Program learner outcomes are evidenced by:

- Signature assignments linked to course and non-course requirements
- Field practicum report
- Integrative learning experience (p. 371)

## Prerequisites

- General chemistry
- Organic chemistry
- Microbiology
- Anatomy and physiology
- Human nutrition or equivalent

## Individuals who may benefit from the program

Graduates with bachelor's degrees or higher who seek credentialing as RDNs

## Program requirements

| | | |
|---|---|---|
| **Corequisites** | | |
| DTCS 544 | Medical Nutrition Therapy II | 5 |
| DTCS 554 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 566 | Food Chemistry and Experimental Foods | 4 |
| DTCS 575 | Food Systems Management | 5 |
| NUTR 490 | Topics in Foods and Food Preparation | 1 |
| NUTR 526 | Nutrition Counseling and Education | 2 |
| **Total Units** | | **20** |

| | | |
|---|---|---|
| **Public health core** | | |
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [1] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |
| **Major** | | |
| NUTR 506 | Nutritional Metabolism | 3 |
| NUTR 510 | Advanced Public Health Nutrition | 3 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| NUTR 525 | Nutrition Policy, Programs, and Services | 3 |
| NUTR 527 | Assessment of Nutritional Status | 3 |
| NUTR 531 | Community Nutrition Intervention I | 2 |
| NUTR 532 | Community Nutrition Intervention II | 1 |
| NUTR 534 | Maternal and Child Nutrition | 3 |
| NUTR 535 | Research Applications in Nutrition | 3 |
| NUTR 557 | Nutrition Care Process for Diabetes and Heart Disease | 2 |
| NUTR 564 | Contemporary Issues of Vegetarian Diets | 2 |
| NUTR 605 | Seminar in Nutrition | 1 |
| **Religion** | | |
| RELE 534 | Ethical Issues in Public Health (or REL_) | 3 |
| **Electives** | | **3** |
| choose in consultation with advisor | | |
| **Total Units** | | **57** |

**Field experience**

| | | |
|---|---|---|
| **Corequisites** | | |
| DTCS 777 | Food Systems Management Affiliation | 6 |
| DTCS 778 | Clinical Nutrition Affiliation | 12 |
| **Applied Practice Experience** | | |
| PHCJ 798D | Public Health Practicum (400 hours) | 8 |
| or PHCJ 798A | Public Health Practicum | |
| or PHCJ 798B | Public Health Practicum | |
| or PHCJ 798C | Public Health Practicum | |
| **Total Units** | | **26** |

[1] Fulfills service learning requirement

### Integrative learning experience

In addition to the standard integrative learning experience requirements (p. 371), students are expected to complete a written comprehensive exam, field practicum report, and E-portfolio (including 100 hours of community service).

### Normal time to complete the program

2.33 years (nine [9] academic quarters) — based on full-time enrollment; part time permitted

# Plant-Based Nutrition – M.S.

**Program director**
Ella Haddad

The Master of Science (M.S.) degree in nutrition provides students with advanced training in nutritional science, with an emphasis on plant-based nutrition, through both coursework and noncourse activities. The program offers a variety of courses in nutritional science emphasizing the role of plant-based dietary practices in human health and the environment. The program prepares students for careers in the field of nutrition, promoting plant-based nutrition for health in health-care facilities, the wellness industry, food services, and educational institutions; for leadership roles in academia, government, or the food industry; and careers involving evidence-based communication of plant-based nutritional science for the health and well-being of the individual, population, and the planet.

The M.S. degree requires a minimum of 48 units and includes research, culminating in either a publishable manuscript or a written report. This is considered a nonthesis M.S. program. A written comprehensive examination is required.

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Demonstrate a grasp of the science of nutrients essential to analyzing the role of plant foods in supporting and optimizing human health and longevity;
2. Employ research skills to interpret data on nutrition, and apply it to health promotion and intake requirements across the life cycle;
3. Develop evidence-based food guidance for plant-centered eating that optimizes health and prevents disease;
4. Evaluate the impact of plant-based diets on planetary health, ecology, and the environment;
5. Communicate nutrition concepts effectively to individuals and populations.

## Educational effectiveness indicators

- Comprehensive examination
- Research paper or final written report
- Oral presentation of research paper or final written report

## Prerequisite

- Organic chemistry
- Human physiology
- Human nutrition or equivalent

## Corequisite

NUTR 506 Nutritional Metabolism or nutritional biochemistry or equivalent

## Individuals who may benefit from the program

Those who may benefit from this program include individuals holding a baccalaureate degree in science, registered dietitians, physicians, and other health professionals desiring to apply evidenced-based plant-based diets in their practice, as well as those who want to pursue a Ph.D. in nutrition, working professionals who need an online graduate degree in nutrition, health educators who want to communicate the health benefits of plant-based eating for health promotion, students motivated to promote sustainable diets, and those interested in lifestyle nutrition.

## Program requirements

| | | |
|---|---|---|
| **Public Health** | | |
| PHCJ 606 | Public Health Fundamentals | 4 |
| STAT 521 | Biostatistics I [1] | 4 |
| **Major** | | |
| NUTR 508 | Plant-Based Nutrition for Life Cycle | 2 |
| NUTR 517 | Advanced Nutrition I: Carbohydrates and Lipids | 4 |
| NUTR 518 | Advanced Nutrition II: Proteins, Vitamins, and Minerals | 4 |
| NUTR 519 | Phytochemicals | 2 |
| NUTR 520 | Sustainable Food Systems | 3 |
| NUTR 529 | Health Aspects of Vegetarian Eating | 3 |
| NUTR 556 | Nutritional Applications in Lifestyle Intervention | 3 |
| NUTR 564 | Contemporary Issues of Vegetarian Diets | 2 |
| **Religion** | | |
| RELR 540 | Wholeness and Health [2] | 3 |
| **Electives** | | |
| Choose from elective courses offered at LLU SPH | | 3-6 |
| **Statistics and research** | | |
| NUTR 530 | Dietary Assessment of Populations | 2 |
| NUTR 535 | Research Applications in Nutrition | 3 |
| **Directed research** | | |
| NUTR 694 | Research | 2-5 |
| **Total Units** | | **48** |

[1] Students may take an equivalent statistics course in consultation with advisor.

[2] Fulfills service learning requirement.

### Culminating experience

A culminating research activity (NUTR 694 Research) carried out under the supervision of the program faculty. The deliverable will be either a publishable peer-reviewed manuscript, or a written project report. Students will also present their work in an oral presentation to their program faculty.

### Normal time to complete the program

1.33 year (five [5] academic quarters) — based on full-time enrollment; part time permitted

# Population Medicine — M.P.H.

**Program director**
Karen Studer

The Population Medicine Program is designed to meet the needs of practicing health professionals who have experience in direct patient care, and wish to augment their current careers with additional information and skills in the health of populations. The students will be competent in analyzing the health of a patient population and understanding the social, environmental, and biological determinants of health in that population.

Individuals who may benefit from this program include practicing health professionals, such as physicians, dentists, pharmacists, nurses, social workers, physical therapists, and psychologists; and students who are currently enrolled in clinical practice-related doctoral degrees (e.g., M.D., D.O., D.D.S., Pharm.D.). This degree will provide clinicians with cutting-edge knowledge and a skill set to integrate population-based, health-care approaches into their everyday clinical practice.

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Characterize the health of a community;
- Design and conduct an epidemiologic study;
- Investigate and respond to a cluster or outbreak;
- Analyze and evaluate surveillance data;
- Develop or analyze a guideline for a proposed preventive service;
- Apply evidence-based guidelines for preventive services;
- Monitor and interpret a health status indicator for a community;
- Analyze data using statistical methods.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Applied practice experience products
- Integrative learning experience product

## Prerequisites

In addition to the entrance requirements for all M.P.H. degrees (p. 371), applicants to the M.P.H. degree program in population medicine must have:

- A health-care-related degree
  - Bachelor's or master's degree with two years of postgraduate, direct patient-care experience (e.g., nursing, social work, dental hygiene, physical therapy, occupational therapy, or psychology).
  - Acceptance into—or completion of—a clinical practice-related doctoral degree program (e.g., M.D., D.O., D.D.S., D.N.P., D.P.T., Pharm.D.). Must have completed at least two years in a clinical program.
- GRE examination
  - May be waived with either completion of a clinical practice-related doctoral degree (e.g., M.D., D.O., D.D.S., D.N.P., D.P.T., Pharm.D., or Ph.D.) or by entrance examination for a clinical practice-related doctoral degree (e.g., MCAT, DAT).
- Anatomy and/or physiology (one course)
- Behavioral science (one course)

## Program requirements

| | | |
|---|---|---|
| **Public health core** | | |
| PCOR 501 | Public Health for Community Resilience | 5 |
| PCOR 502 | Public Health for a Healthy Lifestyle [3] | 5 |
| PCOR 503 | Public Health and Health Systems | 5 |
| **Population medicine major** | | |
| PMED 521 | Population Medicine I | 4 |
| PMED 522 | Population Medicine II | 4 |
| PMED 523 | Population Medicine III | 4 |
| **Religion** | | |
| RELE 534 | Ethical Issues in Public Health (or REL_) | 3 |

| | | |
|---|---|---|
| **Cognates/Electives** [1] | | **26** |
| **Total Units** | | **56** |

**Applied practice experience** [2]

| | | |
|---|---|---|
| Practicum units are in addition to the minimum didactic units required for the degree | | |
| PHCJ 798D | Public Health Practicum (400 hours) | 8 |
| or PHCJ 798A | Public Health Practicum | |
| or PHCJ 798B | Public Health Practicum | |
| or PHCJ 798C | Public Health Practicum | |

1 Choose from defined cognates (p. 367) or select from electives in consultation with advisor.

2 For population medicine students who are medical residents in an Accreditation Council for Graduate Medical Education (ACGME) accredited residency program in preventive medicine, occupational medicine, aerospace medicine, or public health and general preventive medicine, may count their residency practice experience as the non-course applied practice experience requirement for the M.P.H. program.

3 Fulfills service learning requirement

### Integrative learning experience

See standard integrative learning experience requirements (p. 371).

### Normal time to complete the program

Two (2) years (eight [8] academic quarters) — based on full-time enrollment; part time permitted

# Doctoral degrees

## Admissions

Admissions requirements for doctoral degree programs described below are in addition to the University admissions requirements (p. 23) and program requirements. The minimum eligibility requirements for admission to a doctoral degree program include the following:

- An M.P.H. degree or master's degree in a related field from a regionally accredited institution, with a G.P.A. of 3.5 or above. Applicants with a master's degree in another field may indicate their relevant training, research and/or practice experience, or educational background comparable to the M.P.H or the M.S. degrees. Dr.P.H. degree applicants who are admitted without an M.P.H. degree will be required to take PHCJ 606 Public Health Fundamentals, EPDM 509 Principles of Epidemiology, STAT 521 Biostatistics I or AHRM 514 Biostatistics, and STAT 548 Analytical Applications of SAS and R or STAT 549 Analytical Applications of SPSS or equivalent courses to fulfill the public health fundamental learning outcomes described in section D.1 of the 2016 CEPH criteria.
- Satisfactory performance on GRE or equivalent is required; scores must have been attained within the past five years. Although there is no minimum GRE score requirement, 40$^{th}$ percentile or higher in each of the three sections of the GRE (verbal, quantitative, and writing) is considered competitive.
- Religious affiliation is not a requirement; but students are expected to adhere to on-campus requirements of modest dress, abstinence from alcohol and smoking, and attendance at weekly chapel, as applicable.

Applicants must satisfy the program-specific admission requirements, including but not limited to prerequisite courses and years of experience. Admissions decisions are based on review of applicant's transcripts, written statement, research and/or practice interest, letters of recommendation, GRE scores or equivalent, and interview. Satisfying minimum requirements does not guarantee admission.

## Dr.P.H. degree

The Doctor of Public Health (Dr.P.H.) programs prepare individuals for leadership positions in public health practice in health-care systems, governmental agencies, non-profit organizations, and community setting. The competency-based curriculum delivers advanced public health education with specific focus within disciplines, and applied practice and integrated learning experiences that address the doctoral foundational and discipline specific competencies. Students may enroll on a full- or part-time basis; however, they must advance to candidacy within three years of entering the program, and complete the program within five years. Majors are available in:

- Health Education—on campus and online
- Preventive Care—on campus and online
- Health Policy and Leadership—on campus and online

Dr.P.H. degree programs offer preparation for careers in which advanced expertise in program planning, implementation, evaluation and policy analysis are required. Students' doctoral projects (integrated learning experiences) and applied practice experiences are key components in the development of critical thinking and leadership skills.

A minimum of two years is generally required to complete coursework, for full-time students. Program plans are described under individual majors. The number of units of course work required to complete the program may be reduced but is not to be fewer than 54 units plus applied practice experience and integrated learning experience units at Loma Linda University.

The overall Dr.P.H. curriculum is designed using a faith-based lens to accurately reflect the mission and vision of Loma Linda University and the School of Public Health. Additionally, nine units of courses offered by the LLU School of Religion are included in the curriculum to allow the students to enhance personal spiritual development as well as application of faith-based values to professional practice.

#### Dr.P.H. Foundational Competencies

The Dr.P.H. core curriculum is based on the doctoral foundational competencies from 2016 CEPH criteria. These include:

**Critical Analysis**: Ability to synthesize and apply evidence based research and theory from a broad range of public health disciplines and health related data sources to advance programs, policies, and systems promoting population health.

Competencies:

1. Analyze quantitative, qualitative, mixed methods and policy analysis research and evaluation methods to address health issues at multiple levels (individual, group, organization, community and population).
2. Design a quantitative, qualitative, mixed methods, policy analysis or evaluation project to address a public health issue.
3. Explain the use and limitations of surveillance systems and national surveys in assessing, monitoring and evaluating policies and programs and to address a population's health.

**Leadership, Management and Governance**: Ability to create, communicate and apply shared vision, inspire trust and motivate others, build capacity and strategies, and identify and analyze ethical issues in addressing public health problems.

Competencies:

4. Propose strategies for health improvement and elimination of health inequities by organizing stakeholders, including researchers, practitioners, community leaders and other partners.
5. Propose strategies to promote inclusion and equity within public health programs, policies and systems.
6. Create a strategic plan
7. Create organizational change strategies
8. Propose human, fiscal and other resources to achieve a strategic goal.
9. Cultivate new resources and revenue streams to achieve a strategic goal.
10. Assess one's own strengths and weaknesses in leadership capacities including cultural proficiency.
11. Facilitate shared decision making through negotiation and consensus building methods.
12. Integrate knowledge, approaches, methods, values and potential contributions from multiple professions and systems in addressing public health problems.
13. Communicate public health science recognizing different communication styles and tools to diverse stakeholders including individuals at all levels of health literacy, for purposes of influencing behavior and policies.

**Policy, Advocacy and Programs**: Ability to design system-level interventions that influences population health outcomes in transdisciplinary team approaches that promote health equity and disease prevention across diverse communities and cultures.

Competencies:

14. Design a system-level intervention to address a public health issue.
15. Integrate knowledge of cultural values and practices in the design of public health policies and programs.
16. Integrate scientific information, legal and regulatory approaches, ethical frameworks and varied stakeholder interests in policy development and analysis.
17. Propose inter professional team approaches to improving public health.

**Education and Workforce development**: Ability to develop and apply pedagogical principles and skills to identify learning needs of a population and promote learning in academia, organizational and community settings.

Competencies:

18. Assess a population's knowledge and learning needs.
19. Use best practice modalities in pedagogical practices.
20. Deliver training or educational experiences that promote learning in academic, organizational or community settings.

### Applied practice and integrated learning experience

All Dr.P.H. students will engage in an applied practice experience (AP) that results in a final product that is relevant to public health organizations. The culminating activity is an integrated learning experience (ILE) that includes a field-based project emphasizing advanced practice. Both AP and ILE will demonstrate integration of foundational and concentration-specific competencies.

### Dr.P.H. degree corequisites

Students must have an M.P.H. from an accredited institution or complete courses in PHCJ 606 Public Health Fundamentals, EPDM 509 Principles of Epidemiology, STAT 521 Biostatistics I or AHRM 514 Biostatistics, and STAT 548 Analytical Applications of SAS and R or STAT 549 Analytical Applications of SPSS or equivalent courses prior to taking doctoral level public health core courses.

### Advancement to candidacy

Advancement to candidacy is granted by the Academic Dean. When the doctoral foundational coursework is completed, the student must successfully pass a written comprehensive examination. The next step is the qualifying examination. The student is required to submit a concept paper describing the proposed doctoral project, and proposed Doctoral Project Guidance Committee. Students are advanced to candidacy when they successfully present their doctoral project proposals that include the rationale and significance to the field, approach and tools, and outcomes (deliverables). Successful completion of the doctoral project also requires a high quality written document (guidelines outlined in the SPH doctoral handbook).

### Teaching experience

Each doctoral student is required to serve as a teaching assistant for a minimum of one quarter. Additional information is detailed in the SPH Doctoral Handbook.

### Professional Development

All doctoral students are required to present their work (applied practice experience or integrated learning experience) at a scientific or professional conference either as a poster or as a short oral presentation.

## Ph.D. degree

The Doctor of Philosophy (Ph.D.) programs prepare individuals for careers in scientific research and/or teaching at universities and leadership positions in governmental agencies, health care, industry and private organizations. The Ph.D. curriculum provides advanced didactic training in a specific discipline, develops students' critical thinking and research skills to conduct independent research, and enhances written and oral communication to the scientific community to advance the field through dissertation and peer-reviewed publications. Students may enroll on a full- or part-time basis; however, they must advance to candidacy within three years of entering the program, and complete the program within five years. Majors are available in:

- Epidemiology
- Nutrition

Ph.D. degree programs offer preparation for careers in which advanced expertise in research and the discipline are required. Students' doctoral dissertation and peer-reviewed manuscripts are key components in the development of critical thinking, research and scientific communication skills.

A minimum of two years is generally required to complete coursework, if full time. Program plans are described under individual majors. The number of units of coursework required to complete the program may be reduced but is not to be fewer than 47 units plus 12 research/dissertation units at Loma Linda University. Students whose academic backgrounds

include substantial graduate study in a cognate field may be granted advanced standing.

The overall Ph.D. curriculum is designed using a faith-based lens to accurately reflect the mission and vision of Loma Linda University and the School of Public Health. Additionally, nine units of courses offered by the LLU School of Religion are included in the curriculum to allow the students to enhance personal spiritual development as well as application of faith-based values to professional practice.

**Learner outcomes**
Please see the individual program descriptions for the specific program learning outcomes. Program learning outcomes tied to scientific communication, both oral and written, educational pedagogy, and professional and scientific ethics are shared across all doctoral programs (both Dr.P.H. and Ph.D.).

**Comprehensive and qualifying examinations**
Students are required to demonstrate ability and readiness to proceed with doctoral study and research by successfully passing the comprehensive examination. Degree specific descriptions of the comprehensive examination can be found in the *Doctoral Handbook*.

**Advancement to candidacy**
Advancement to candidacy is granted by the Academic Dean. When the required discipline specific and research methods courses are completed, the student must successfully pass a written comprehensive examination. The next step is the qualifying examination. The student is required to submit a concept paper describing the proposed dissertation research, and members of the proposed Dissertation Guidance Committee (DGC). Students are advanced to candidacy when they successfully defend (oral examination) their dissertation proposals. Proposal should include the first three chapters of the dissertation—Introduction, Review of Literature, and Methods. The details of this process are described in the SPH Doctoral Handbook.

**Teaching experience**
All doctoral students are required to serve as a teaching assistant for a minimum of one quarter. Additional information is detailed in the SPH Doctoral Handbook.

**Professional development**
All doctoral students are required to present their research work at a scientific conference either as a poster or as short oral presentation.

# Programs


- Epidemiology — Ph.D. (p. 384)
- Health Education — Dr.P.H. (p. 385)
- Health Policy and Leadership — Dr.P.H. (p. 386)
- Nutrition — Ph.D. (p. 387)
- Preventive Care — Dr.P.H. (p. 389)

# Epidemiology — Ph.D.

**Interim program director**
Michael Orlich

The Doctor of Philosophy (Ph.D.) degree program in epidemiology prepares students to effectively conduct epidemiologic research, apply epidemiologic principles and methods to address public health problems, and teach the discipline to others. The major research focus of the faculty in the program has been the epidemiology of chronic diseases linked to exposures such as tobacco use, air pollution, and diet. Studying the effects of diet on health and disease risk in populations is a particular strength of our program. The curriculum is designed to establish competence in classical and modern epidemiologic methods, to promote successful learning and application of emerging methods, and to prepare the graduate for successful interdisciplinary research collaboration with public health and medical professionals, nutritionists, biostatisticians, bioinformaticians, and biological scientists.

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Apply advanced knowledge of the principles and methods of epidemiology to interpret and critically evaluate the results of epidemiologic analyses;
- Apply epidemiologic principles to design appropriate studies to evaluate exposure-disease hypotheses; communicate these study designs in a research grant proposal;
- Demonstrate proficiency in the principles and methods of data collection and management; obtain epidemiologic data and prepare it for analysis;
- Analyze complex data using appropriate statistical methods and computer programming resources to answer epidemiologic questions;
- Effectively communicate epidemiologic science, orally and in writing, to the scientific community and the public, to advance the field and to promote public health;
- Use best-practice modalities in pedagogy to deliver educational experiences in an academic setting;
- Apply the principles of scientific and professional ethics in research, teaching, and practice.

## Educational effectiveness indicators

- Assessments from required courses
- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Dissertation manuscript
- Submission of three manuscripts from the dissertation to peer-reviewed journals, one of which must be published or accepted for publication
- Oral defense of dissertation
- Teaching assistantship
- Presentation at a scientific conference

## Prerequisites

Doctoral-level health professional degree or master's degree in epidemiology or in a related field.

The following courses or equivalents:

- Anatomy and physiology
- Pathology
- Microbiology
- Biochemistry
- Genetics or molecular biology

G.P.A. of 3.5 or higher preferred

GRE or equivalent (above the 40th percentile in each section is favorable)

### Individuals who may benefit from the program

Those who may benefit from the program include individuals seeking careers in:

- Academic epidemiology (research and teaching)
- Research in private industry, governmental agencies, or nonprofit organizations
- Public health epidemiology with a research focus

## Program requirements

| | | |
|---|---|---|
| **Co-requisites** | | |
| EPDM 509 | Principles of Epidemiology | 3 |
| EPDM 510 | Epidemiologic Methods I | 3 |
| EPDM 520 | Data Collection Methods | 3 |
| STAT 515 | Grant- and Contract-Proposal Writing | 3 |
| STAT 521 | Biostatistics I | 4 |
| STAT 548 | Analytical Applications of SAS and R | 2 |
| **Total Units** | | **18** |

Advanced standing from previous degrees considered.

| | | |
|---|---|---|
| **Public health core** | | |
| PHCJ 606 | Public Health Fundamentals | 4 |
| PHCJ 608A | Doctoral Seminar for Public Health | 1 |
| PHCJ 608B | Doctoral Seminar for Public Health | 1 |
| PHCJ 608C | Doctoral Seminar for Public Health | 1 |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | 2 |
| PHCJ 618 | Transformative Communication | 2 |
| **Epidemiologic methods** | | |
| EPDM 610 | Advanced Epidemiologic Methods | 4 |
| STAT 522 | Biostatistics II | 4 |
| STAT 523 | Biostatistics III | 3 |
| **Applied epidemiology** | | |
| EPDM 635 | Epidemiological Studies of Adventists | 1 |
| EPDM 645 | Epidemiology of Tobacco Use and Control | 2 |
| EPDM 664 | Epidemiology of Cardiovasular Disease | 2 |
| EPDM 665 | Epidemiology of Cancer | 2 |
| EPDM 668 | Molecular Epidemiology | 2 |
| NUTR 634 | Concepts of Nutritional Epidemiology | 3 |
| **Religion** | | |
| RELE 525 | Ethics for Scientists | 3 |
| RELR 540 | Wholeness and Health [1] | 3 |
| RELT 617 | Seminar in Religion and the Sciences (or approved alternate course) | 3 |

| | | |
|---|---|---|
| **Electives** | | |
| Select from the following recommended electives or in consultation with advisor | | 12 |
| BCHM 515 | Introduction to Bioinformatics | |
| EPDM 512 | Epidemiologic Methods III | |
| EPDM 544 | Epidemiology of Infectious Disease | |
| HADM 587 | Health Policy Analysis and Research | |
| HGIS 524 | GIS Software Applications and Methods | |
| HGIS 536 | Spatial Analytic Techniques and GIS | |
| HPRO 588 | Health Behavior Theory and Research | |
| HPRO 589 | Qualitative Research Methods | |
| NUTR 620 | Advanced Topics in Nutrition | |
| NUTR 643 | Advanced Applications in Nutritional Epidemiology | |
| NUTR 664 | Vegetarian Nutrition: Person, Population, Planet | |
| PHCJ 600 | Overview of Research Methodologies | |
| PHCJ 630 | Concepts and Practical Issues of Secondary Data | |
| **Research and dissertation** | | |
| EPDM 685 | Preliminary Research Experience | 2 |
| EPDM 698 | Dissertation | 12 |
| PHCJ 624A | Scientist Forum | 1 |
| PHCJ 624B | Scientist Forum | 1 |
| PHCJ 624C | Scientist Forum | 1 |
| **Total Units** | | **72** |

[1] Fulfills service learning requirement

### Additional requirements

Further details regarding non-course degree requirements are found in the *SPH Doctoral Handbook*.

### Teaching assistantship

Ph.D. students are expected to assist faculty members with the teaching of epidemiology and/or biostatistics courses. It is the responsibility of doctoral students to obtain documentation from faculty members they have assisted.

### Comprehensive examination

Doctoral students must pass a comprehensive examination prior to advancement to candidacy.

### Dissertation proposal and proposal defense

After passing the comprehensive examination, each student will prepare a formal dissertation proposal. Successful defense of this proposal will lead to advancement to candidacy for the degree.

### Presentation at scientific conference

The student must present one research project in poster or oral form at an appropriate professional conference.

### Culminating experience

As a part of the culminating experience, the student must submit three manuscripts from the dissertation research to appropriate peer-reviewed journals, successfully defend the dissertation, and submit a committee-approved dissertation manuscript.

### Scientific publication

The student must submit and have accepted for publication one of the three dissertation papers in an appropriate peer-reviewed journal prior to graduation. The two remaining dissertation papers must have been submitted to peer-reviewed journals prior to graduation.

### Normal time to complete the program

Three to five (3-5) years — based on full-time enrollment

# Health Education — Dr.P.H.

**Program director**
Anna Nelson

The on-campus program is closed to admissions for the 2021-2022 academic year.

The Dr.P.H. degree in health education is designed for individuals who desire to add depth to their health education specialization as well as develop research and leadership capabilities. The emphasis on health education offers advanced knowledge and competencies in the health education process and includes advocacy, critical analysis, leadership, professionalism, and ethics, as well as other health education domains. The Dr.P.H.degree in health education is offered in two formats: on campus and online.

The online technology-mediated format is designed to meet the needs of working professionals. The curriculum consists of online asynchronous and synchronous courses (where online and on-campus students meet simultaneously for class via teleconference). Specific hardware and software requirements for the program must be met. Online students are required to comply with the online attendance requirements per LLU Distance Education Policy.

Upon completion, graduates are eligible to sit for the credentialing examination in health education—CHES or MCHES—offered by the National Commission of Health Education Credentialing, Inc. <http://www.nchec.org/>.

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Synthesize assessment results to determine and prioritize health problems;
- Apply theoretical concepts and models in developing health interventions;
- Evaluate effectiveness of health education interventions;
- Provide mentorship and consultation on health education-related issues;
- Apply evidence-based research to develop advocacy efforts for policies and programs promoting health.

## Educational effectiveness indicators

- Comprehensive examination
- Publishable research paper
- Doctoral project presentation

# Prerequisite

In addition to the entrance requirements for all Dr.P.H. degrees (p. 381), each applicant to the Dr.P.H. degree program in health education must have:

- M.P.H. degree in health education, health behavior, or health promotion; or a master's degree in a health-related field (preferred)
- Postmaster's degree work experience (preferred)
- Social science (two courses, which may include psychology, sociology, or cultural anthropology)

# Program requirements

## Corequisites

See standard DrPH corequisites (p. 381).

| | | |
|---|---|---|
| **Dr.P.H. public health core** | | |
| **Critical analysis** | | |
| PHCJ 600 | Overview of Research Methodologies | 3 |
| PHCJ 615 | Intermediate Biostatistics | 3 |
| Electives (choose from following) | | 3 |
| HADM 587 | Health Policy Analysis and Research | |
| PHCJ 630 | Concepts and Practical Issues of Secondary Data | |
| STAT 568 | Data Analysis | |
| **Leadership, management, and governance** | | |
| PHCJ 607 | Professional Leadership | 3 |
| PHCJ 616 | Administrative Systems in Agency Management | 3 |
| PHCJ 617 | Building Healthy Systems | 3 |
| **Education and workforce development** | | |
| PHCJ 618 | Transformative Communication | 2 |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | 2 |
| **Policy, advocacy and programs** | | |
| PHCJ 609 | Building Healthy Individuals | 3 |
| PHCJ 610 | Building Healthy Communities [1] | 3 |
| **Doctoral seminar** | | |
| PHCJ 608A | Doctoral Seminar for Public Health | 1 |
| PHCJ 608B | Doctoral Seminar for Public Health | 1 |
| PHCJ 608C | Doctoral Seminar for Public Health | 1 |
| **Health education major** | | |
| HPRO 544 | Health Education Evaluation and Measurement | 3 |
| HPRO 588 | Health Behavior Theory and Research | 4 |
| HPRO 589 | Qualitative Research Methods | 3 |
| HPRO 604 | Research Seminar | 2 |
| HPRO 608 | Advanced Seminar in Health Education (2) | 4 |
| **Electives** | | **2-5** |
| **Religion** | | |
| RELE 5__ | Graduate-level ethics | 3 |
| RELR 5__ | Graduate-level relational | 3 |
| RELT 5__ | Graduate-level theological | 3 |
| **Integrated learning experience** | | |
| PHCJ 698 | Doctoral Project | 4 |
| **Total Units** | | **62** |

| | | |
|---|---|---|
| **Practicum** | | |
| Practicum units are in addition to the minimum didactic units required for the degree | | |
| PHCJ 795 | Applied Practice | 2 |

[1] Fulfills service learning requirement

## Applied practice experience and integrated learning experience

All Dr.P.H. students will engage in an applied practice experience that results in a product that is relevant to public health organizations. The culminating activity is an integrated learning experience that includes a field-based project emphasizing advanced practice. Both applied practice experience and integrated learning experience will demonstrate integration of foundational and concentration specific competencies.

## Normal time to complete the program

Three (3) years — based on full-time enrollment; part time permitted

# Health Policy and Leadership — Dr.P.H.

**Program director**
Jim Banta

The Dr.P.H. degree curriculum in health policy and leadership emphasizes a blend of professional and academic skills, including leadership and management, finance and philanthropy, community engagement and advocacy, policy analysis and development, ethics, and research methods. The current, rapidly changing health and health-care landscapes—marked by significant health disparities and varied challenges—demands a diversity of leadership talents. Moreover, creative approaches are needed to meet these challenges. The Doctor of Public Health degree in health policy and leadership at Loma Linda University provides a unique opportunity to serve at the intersection of leadership and policy. The goal is to prepare participants for success in leadership positions that have major influence on policies, programs, and public health systems.

Coursework may be pursued in the following formats:

- On-campus (combination of on-campus and online coursework)
- Online (combination of synchronous and asynchronous coursework)

# Program learning outcomes

By the end of the program, the graduate should be able to:

1. Engage in reflective leadership and analyze a broad range of management and leadership issues, including governance, valuing diversity, planning, conflict resolution, and change management;
2. Demonstrate ability to evaluate the health policy development process, including problem identification, policy formulation, and implementation;
3. Demonstrate commitment to ethical choices and values of justice and equity by formulating strategies for policy advocacy;
4. Analyze community-building principles and develop strategies to address social determinants of health—including the delivery, quality, and costs of health and health care for individuals and populations;
5. Develop skills in evaluating, conducting, and reporting research.

## Educational effectiveness indicators

- Comprehensive examination
- Applied project presentation
- Publishable paper
- Doctoral project presentation

## Individuals who may benefit from the program

Participants could be mid-to-senior-level managers in public health, health care, public and government agencies, higher education, social welfare organizations, nongovernmental organizations (NGOs), faith-based organizations, community-based organizations (CBOs), and other related groups. Consistent with the program's focus on social determinants of health to promote health equity, individuals from non-health sectors are encouraged to apply. Those admitted into the program should have had sufficient experience in the workplace (three or more years), and be currently employed in an organization that is supportive of their degree program as well as the unique requirement for developing a "learning environment" in the workplace.

## Prerequisite

See entrance requirements for all Dr.P.H. degrees. (p. 381)

## Program requirements

### Corequisites

See standard DrPH corequisites (p. 381).

| | | |
|---|---|---|
| **Dr.P.H. public health core** | | |
| **Critical analysis** | | |
| PHCJ 600 | Overview of Research Methodologies | 3 |
| PHCJ 615 | Intermediate Biostatistics | 3 |
| Selectives (choose from following) | | 3 |
| HPRO 589 | Qualitative Research Methods | |
| PHCJ 630 | Concepts and Practical Issues of Secondary Data | |
| STAT 568 | Data Analysis | |
| **Leadership, management, and governance** | | |
| PHCJ 607 | Professional Leadership | 3 |
| PHCJ 616 | Administrative Systems in Agency Management | 3 |
| PHCJ 617 | Building Healthy Systems | 3 |
| **Education and workforce development** | | |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | 2 |
| PHCJ 618 | Transformative Communication | 2 |
| **Policy, advocacy and programs** | | |
| PHCJ 609 | Building Healthy Individuals | 3 |
| PHCJ 610 | Building Healthy Communities [1] | 3 |
| **Doctoral seminar** | | |
| PHCJ 608A | Doctoral Seminar for Public Health | 1 |
| PHCJ 608B | Doctoral Seminar for Public Health | 1 |
| PHCJ 608C | Doctoral Seminar for Public Health | 1 |
| **Health policy and leadership major** | | |
| HADM 587 | Health Policy Analysis and Research | 3 |
| HADM 589 | Advanced Practice in Leadership | 3 |
| HADM 595 | Leadership—Past, Present, and Future | 3 |
| HADM 616 | Health Systems and Population Health | 3 |
| HADM 620 | Health Policy Theories and Concepts | 3 |
| HADM 625 | Health Policy Advocacy and Civic Engagement | 3 |
| **Electives** | | |
| | Elective (Choose in consultation with advisor) | 0-3 |
| **Religion** | | |
| RELE 5__ | Graduate-level ethics | 3 |
| RELR 5__ | Graduate-level relational | 3 |
| RELT 5__ | Graduate-level theological | 3 |
| **Integrated learning experience** | | |
| PHCJ 698 | Doctoral Project | 4 |
| **Total Units** | | **62** |

| | | |
|---|---|---|
| **Practicum** | | |
| Practicum units are in addition to the minimum didactic units required for the degree | | |
| PHCJ 795 | Applied Practice | 2 |

[1] Fulfills service learning requirement

### Applied practice experience and integrated learning experience

All Dr.P.H. students will engage in an applied practice experience that results in a product that is relevant to public health organizations. The culminating activity is an integrated learning experience that includes a field-based project emphasizing advanced practice. Both applied practice experience and integrated learning experience will demonstrate integration of foundational and concentration specific competencies.

### Normal time to complete the program

Three (3) years — based on full-time enrollment

# Nutrition — Ph.D.

**Program director**
Sujatha Rajaram

The Doctor of Philosophy (Ph.D.) degree in nutrition prepares students to effectively conduct nutrition research as well as apply nutritional science knowledge and appropriate research methods to address public health problems. The program provide's an advanced curriculum in nutrition, professional skills, and competencies required to support careers in teaching and research. This program is uniquely situated in the School of Public Health at a health sciences university. The program engages in interdisciplinary research, encouraging collaboration across public health disciplines and the basic sciences, promoting and building upon its core legacy of vegetarian and plant-based nutrition. Areas of curricular strength and research emphasis include plant-based diets and the health of the individual, populations and the planet, nutritional epidemiology, diet and chronic disease-risk reduction, and community nutrition.

Students enrolled in this program are able to concurrently complete coursework and practice experience necessary to sit for the registered dietitian nutritionist (RDN) exam if not already an RDN.

## Program learning outcomes

By the end of the program, the graduate should be able to:

- Evaluate advanced knowledge in nutritional science and explain the biological mechanism underlying the relationship between nutrients, foods, and diet pattern and health;
- Critically evaluate the evidence base and advocate for the role of plant-based diets in promoting health of the individual, population groups, and the planet;
- Apply analytical and fundamental concepts in nutritional epidemiology;
- Apply principles of research ethics; conduct a research study that addresses a nutrition problem; collect/abstract, analyze, and interpret the data; and report findings;
- Effectively communicate nutritional science, orally and in writing, to the scientific community and the public, advancing the field and promoting public health;
- Use best-practice modalities in pedagogy to deliver educational experiences in an academic setting;
- Apply the principles of scientific and professional ethics in research, teaching, and practice.

## Educational effectiveness indicators

- Assessment from required courses
- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Dissertation manuscript: submission of two manuscripts from the dissertation to peer-reviewed journals
- One manuscript published in a peer-reviewed journal (from dissertation research or other research)
- Oral defense of dissertation
- Teaching assistantship
- Presentation at a scientific conference

## Prerequisites

- Master's degree in nutrition preferred; or an M.S. or M.P.H. degree with completion of all prerequisite courses; or a health professional degree at the master's level or higher (M.D. or equivalent)
- Advanced biochemistry (may be taken concurrently with the program)
- Anatomy and physiology, microbiology, general chemistry, and organic chemistry
- G.P.A. of 3.5 or higher preferred
- GRE or equivalent (above the 40th percentile in each section is favorable)

## Individuals who may benefit from the program

Individuals seeking careers in:

- Academia (teaching and research)
- Researcher in private industry, governmental agencies, nonprofit organizations, or research institutes
- Public health nutritionist
- Leadership role in academia and public health sector
- Health practitioners who want to further the evidence base for the role of plant-based diets in the prevention of lifestyle related diseases

## Program requirements

| | | |
|---|---|---|
| **Corequisites** | | |
| NUTR ____ | Graduate course in micronutrients or equivalent | |
| NUTR ____ | Graduate course in macronutrients or equivalent | |
| NUTR 506 | Nutritional Metabolism | 3 |
| STAT ____ | Graduate course in analytical applications in statistics (SPSS or SAS) | |
| STAT 521 | Biostatistics I | 3-4 |
| or AHRM 514 | Biostatistics | |
| **Public health core** | | |
| EPDM 509 | Principles of Epidemiology | 3 |
| PHCJ 606 | Public Health Fundamentals | 4 |
| PHCJ 608A | Doctoral Seminar for Public Health | 1 |
| PHCJ 608B | Doctoral Seminar for Public Health | 1 |
| PHCJ 608C | Doctoral Seminar for Public Health | 1 |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | 2 |
| PHCJ 615 | Intermediate Biostatistics | 3 |
| PHCJ 618 | Transformative Communication | 2 |
| **Nutrition core** | | |
| NUTR 617 | Preventive Nutrition I: Carbohydrates and Lipids | 2 |
| NUTR 618 | Preventive Nutrition II: Protein, Vitamins and Minerals | 2 |
| NUTR 619 | Preventive Nutrition III: Phytochemicals | 3 |
| NUTR 620 | Advanced Topics in Nutrition [1] | 6 |
| NUTR 664 | Vegetarian Nutrition: Person, Population, Planet | 3 |
| PHCJ 624A | Scientist Forum [2] | 1 |
| PHCJ 624B | Scientist Forum [2] | 1 |
| PHCJ 624C | Scientist Forum [2] | 1 |
| **Religion** | | |
| RELE 525 | Ethics for Scientists | 3 |
| RELR 540 | Wholeness and Health [7] | 3 |
| RELT 5__ | Graduate-level Theological | 3 |
| **Electives [3]** | | **5** |
| **Research core** | | |
| NUTR 634 | Concepts of Nutritional Epidemiology | 3 |
| NUTR 639 | Research Methods in Nutrition | 2 |
| NUTR 685 | Preliminary Research Experience [4] | 2 |
| NUTR 697 | Dissertation Proposal [6] | 0-3 |
| NUTR 698 | Dissertation [6] | 12 |
| STAT 568 | Data Analysis | 3 |
| **Total Units** | | **72-75** |

| | | |
|---|---|---|
| **Optional coordinated program in nutrition and dietetics [5]** | | |
| DTCS 544 | Medical Nutrition Therapy II | 5 |
| DTCS 554 | Advanced Medical Nutrition Therapy | 3 |
| DTCS 566 | Food Chemistry and Experimental Foods | 4 |
| DTCS 575 | Food Systems Management | 5 |
| NUTR 490 | Topics in Foods and Food Preparation | 1 |
| NUTR 525 | Nutrition Policy, Programs, and Services | 3 |
| NUTR 526 | Nutrition Counseling and Education | 2 |
| NUTR 527 | Assessment of Nutritional Status | 3 |
| NUTR 531 | Community Nutrition Intervention I | 2 |

| | | |
|---|---|---|
| NUTR 532 | Community Nutrition Intervention II | 1 |
| NUTR 534 | Maternal and Child Nutrition | 3 |
| NUTR 557 | Nutrition Care Process for Diabetes and Heart Disease | 2 |
| PHCJ 798A | Public Health Practicum | 8 |
| or PHCJ 798B | Public Health Practicum | |
| or PHCJ 798C | Public Health Practicum | |
| or PHCJ 798D | Public Health Practicum | |
| DTCS 777 | Food Systems Management Affiliation | 6 |
| DTCS 778 | Clinical Nutrition Affiliation | 12 |
| **Total Units** | | **60** |

[1] Register twice for a maximum six units. Each offering in an academic year will be a different topic

[2] Students are required to register for this course 3 times. 0 units in Autumn and Winter, and 1 unit in Spring.

[3] Choose in consultation with academic advisor. Must be graduate-level courses in nutrition, dietetics, public health, or basic sciences.

[4] Students will take 1 unit at a time.

[5] All courses are required for eligibility to sit for the RDN examination. Courses completed in a prior program (either at the undergraduate or graduate level) will be evaluated on a course-by-course basis to determine equivalency; thus reducing the number of courses to be completed at LLU. Consult with your advisor if you wish to pursue this option.

[6] Completed units in NUTR 697 Dissertation Proposal (maximum of 3) will reduce NUTR 698 Dissertation units by the same amount. Minimum combined units for NUTR 697 and NUTR 698 must equal 12.

[7] Fulfills service learning requirement

### Culminating experience

As a part of the culminating experience, the student publishes one manuscript in peer-reviewed journal (co-authorship or review article acceptable, can be from dissertation or non-dissertation related research), submits two publishable papers from their dissertation research to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the SPH *Ph.D. Doctoral Handbook*.

### Normal time to complete the program

Four (4) years — based on full-time enrollment

# Preventive Care — Dr.P.H.

**Program director**
Hildemar Dos Santos

The Preventive Care Program prepares high-level health professionals for wellness and lifestyle-management intervention. Emphasis is on academic preparation, practical skills, and administrative abilities in developing, implementing, and evaluating programs and protocols designed to address a wide spectrum of health issues—particularly those dealing with chronic disease. These programs and protocols include physical and mental health-risk appraisal, nutritional assessment and recommendations, exercise testing and prescription, and smoking-cessation counseling.

The program seeks to demonstrate and elucidate the intimate connection between mind and body. Graduates address the combined influences of nutrition, exercise, stress, smoking, and other lifestyle factors on the promotion of health and the prevention of disease.

This program is ideal for health practitioners such as physicians, nurses, dentists, physical therapists, registered dietitians, and occupational therapists. Non-health practitioners can apply for this program, and it is recommended they take health and wellness coaching while in the program. Non-physicians are not able to practice medicine upon completion of this degree.

Coursework for the Preventive Care Program may be pursued in the following formats:

- An on-campus program (combination of on-campus and online coursework)
- An online program (combination of synchronous & asynchronous coursework)

## Program learning outcomes

By the end of the program, the graduate should be able to:

1. Develop strategies to prevent substance abuse and its consequences in a community setting;
2. Design a professional practice to assist clients individually or in groups by applying lifestyle modification strategies;
3. Develop successful motivational interview skills such as active listening, expressing empathy, dealing with resistance, and developing support for change;
4. Develop strategies for weight management, including health-risk assessments, and adequate diet and exercise guidance;
5. Apply preventive skills to design a health intervention that addresses lifestyle-related diseases (e.g., diabetes, hypertension, and heart disease).

## Educational effectiveness indicators

- Comprehensive examination
- Applied project presentation
- Publishable paper
- Doctoral project presentation

## Prerequisite

In addition to the entrance requirements for all Dr.P.H. degrees (p. 381), applicants to the Dr.P.H. degree in Preventive Care Program must have:

Anatomy and physiology (or equivalent to be evaluated by program director)

## Program requirements

### Corequisites

In addition to standard Dr.P.H. corequisites (p. 381), the Dr.P.H. program in preventive care requires the following courses in addition to units required for the degree. It is recommended these courses be taken early in the program.

HPRO 526 Lifestyle Diseases and Risk Reduction
HPRO 573 Exercise Physiology I

NUTR 529 Health Aspects of Vegetarian Eating

| | | |
|---|---|---|
| **Dr.P.H. public health core** | | |
| **Critical analysis** | | |
| PHCJ 600 | Overview of Research Methodologies | 3 |
| PHCJ 615 | Intermediate Biostatistics | 3 |
| Electives (choose from following) | | 3 |
| HADM 587 | Health Policy Analysis and Research | |
| PHCJ 630 | Concepts and Practical Issues of Secondary Data | |
| STAT 568 | Data Analysis | |
| **Leadership, management, and governance** | | |
| PHCJ 607 | Professional Leadership | 3 |
| PHCJ 616 | Administrative Systems in Agency Management | 3 |
| PHCJ 617 | Building Healthy Systems | 3 |
| **Education and workforce development** | | |
| PHCJ 614 | Pedagogy: The Art and Science of Teaching | 2 |
| PHCJ 618 | Transformative Communication | 2 |
| **Policy, advocacy and programs** | | |
| PHCJ 609 | Building Healthy Individuals | 3 |
| PHCJ 610 | Building Healthy Communities [1] | 3 |
| **Doctoral seminar** | | |
| PHCJ 608A | Doctoral Seminar for Public Health | 1 |
| PHCJ 608B | Doctoral Seminar for Public Health | 1 |
| PHCJ 608C | Doctoral Seminar for Public Health | 1 |
| **Preventive care major** | | |
| HPRO 527 | Obesity and Disordered Eating | 3 |
| HPRO 529 | Preventive and Therapeutic Interventions in Chronic Disease | 3 |
| HPRO 542 | Wellness Coaching II | 3 |
| HPRO 553 | Addiction Theory and Program Development | 3 |
| HPRO 580 | Preventive Care Management | 3 |
| NUTR 556 | Nutritional Applications in Lifestyle Intervention | 3 |
| **Electives** | | **0-3** |
| HPRO 541 | Wellness Coaching I (for students seeking the wellness coaching certificate) | 3 |
| | or elective chosen in consultation wth advisor | |
| **Religion** | | |
| RELE 5__ | Graduate-level ethics | 3 |
| RELR 5__ | Graduate-level relational | 3 |
| RELT 5__ | Graduate-level theological | 3 |
| **Integrated learning experience** | | |
| PHCJ 698 | Doctoral Project | 4 |
| **Total Units** | | **65** |

| | | |
|---|---|---|
| **Practicum** | | |
| Practicum units are in addition to the minimum didactic units required for the degree | | |
| PHCJ 795 | Applied Practice | 2 |

[1] Fulfills service learning requirement

## Applied practice experience and integrated learning experience

All Dr.P.H. students will engage in an applied practice experience that results in a product that is relevant to public health organizations. The culminating activity is an integrated learning experience that includes a field-based project emphasizing advanced practice. Both applied practice experience and integrated learning experience will demonstrate integration of foundational and concentration specific competencies.

## Normal time to complete the program

Three (3) years — based on full-time enrollment

# SCHOOL OF RELIGION

## Dean's welcome

Loma Linda University's School of Religion has been entrusted with the mission of presenting the story of God's gracious plan to redeem a lost and broken world through the life, death, and resurrection of Jesus Christ. The school's mission, as part of Loma Linda University, is particularly focused on the *teaching and healing ministry of Jesus Christ* and the role it plays in equipping health-care practitioners to integrate Christian faith, health, and science. The school contributes to the University's mission, vision, and values by giving priority to the sacred task of serving students in its eight schools. Its use of mission-focused learning through scholarship expands knowledge and addresses the challenges health-care professionals face in today's complex world as well as provides a critical service to the University and world-wide Seventh-day Adventist Church.

The school offers three master's degrees: M.A. degree in bioethics, M.S.Chap. degree in chaplaincy, and M.A. degree in religion and society. These programs prepare graduates with theological education and skills in bioethics and chaplaincy, and emphasize religion's relationship to culture and society. Within the framework of our academic programs, we offer a unique opportunity for students in other University programs to apply for dual enrollment in bioethics as well as religion and society. Students enrolled in medicine, dentistry, and pharmacy are eligible to apply for admission to the bioethics as well as religion and society programs. Please refer to The Combined Degrees Programs of the University *(p. 403)* section to learn more about our dual enrollment degree programs.

We believe our academically rigorous programs and mission-focused courses cultivate a vibrant Christian community at LLU, and help to prepare health-care practitioners to go forth and "make man whole" as they embody the teaching and healing ministry of Jesus Christ. Welcome to Loma Linda University School of Religion.

Leo Ranzolin, Th.D.
Interim Dean, School of Religion

# School foundations

## History

In the configuration of Loma Linda University as a health sciences university, the role of religion as integrative in each of the programs of the University is mandated and continuously affirmed by the University administration and the Board of Trustees.

In July of 1990, the Faculty of Religion (now the School of Religion) was established to assist in this integration.

## Philosophy

As implied by its motto, "To make man whole," the University affirms these tenets as central to its view of education:

- God is the Creator and Sustainer of the universe;
- Humanity's fullest development entails a growing understanding of the individual in relation to both God and society;
- The quest for truth and professional expertise, in an environment permeated by religious values, benefits the individual and society and advances the ministry of the Seventh-day Adventist Church.

## Mission statement

The School of Religion is committed to continue the teaching and healing ministry of Jesus Christ by integrating Adventist faith with the world's changing need.

### Dean

Leo Ranzolin

### Primary faculty

Whitny Braun

Erik Carter

Janice De-Whyte

Oleksandr Dubov

Jeff Gang

David R. Larson

Theodore N. Levterov

Angela Li

Yi Shen Ma

Jon Paulien

Zdravko Plantak

Richard Rice

Randy Roberts

Calvin Thomsen

Gerald Winslow

Zane Yi

### Secondary faculty

Henry H. Lamberton

### Associated faculty

Siroj Sorajjakool

James W. Walters

### Emeritus professor

Ivan Blazen

David L. Taylor, Jr.

### Research professor

Bernard Taylor

Sigve Tonstad

# Admissions

The program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the schools accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

In addition to Loma Linda University (p. 23) admissions requirements, the applicant must also complete the following requirements:

- A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to the School of Religion. Transcripts of the applicant's scholastic record should show appropriate preparation, in grades and content, for the curriculum chosen.
- See admission requirements for individual program in this CATALOG for G.P.A. requirements.
- A personal interview is desirable and should be arranged with the director of the program in which the student wishes to study.
- Because there is some variation in the pattern of undergraduate courses prescribed by different programs, the student should note the specific requirements of the chosen program. Deficiencies may be removed while enrolled; prerequisites must be completed prior to acceptance into the program.

## Application deadlines

The School of Religion has a rolling admission policy for some programs in which completed applications are reviewed and students are accepted on a continual basis. Applications must be completed by the deadlines listed for the program in which the student wishes to enroll:

Master of Arts degree in bioethics and Master of Arts degree in religion and science

- Autumn Quarter: August 1 — Early Admissions for Autumn: May 1
- Spring Quarter: February 15 — Early Admissions for Spring: Nov. 1

Masters of Science in Chaplaincy degree

- Autumn Quarter: November 1 — Late Admissions for Autumn: May 1

# General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for

the programs of each school and the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

### Academic probation

Degree students whose cumulative G.P.A. at the end of any quarter is less than 3.0 will be placed on academic probation. The number of units for subsequent registrations is restricted to a maximum of 12 per quarter. Students who are on academic probation and fail to earn a 3.0 for the next quarter, or who fail to have an overall G.P.A. of 3.0 after two quarters, jeopardize their standing in a degree or certificate program and may be dismissed from school.

### Concurrent admission

Upon approval, students may be admitted to a School of Religion program while admitted to another program at Loma Linda University. Concurrent programs may be either formal (established curriculum in the University Catalog) or informal. Certain criteria must be met for both formal and informal concurrent programs before approval. The exception to this are the combined degrees programs (p. 403), discussed at the end of Section III of this CATALOG.

## Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installments are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## On- and off-campus student housing

Students may go to <llu.edu/central/housing (http://www.llu.edu/central/housing/)> for housing information and a housing application form.

## Additional requirements

For additional policies, governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

## Programs

- Bioethics — M.A., Certificate (p. 393)
- Chaplaincy — M.S.Chap. (p. 394)
- Denominational Studies for Chaplains — Certificate (p. 396)
- Religion and Society — M.A. (p. 397)

# Bioethics — M.A., Certificate

**Program director**
Whitny Braun

The purpose of the Bioethics Program—an interdisciplinary course of graduate study leading to a Master of Arts degree—is to prepare qualified persons to engage in education, research, and service pertinent to the ethical issues in health care, biotechnology, and bioethics.

This degree is designed primarily for two types of students: those who desire the Master of Arts degree as a step toward graduate work at the doctoral level; and those who wish to acquire the degree in order to complement their careers in health care or another field.

This academic program is enhanced by its close association with the Center for Christian Bioethics and its 4,000-volume library, as well as close proximity to the LLU Medical Center and numerous physicians involved in clinical and research ethics.

## Program learning outcomes

Graduates of the Bioethics Program will be able to demonstrate:

1. A broad knowledge of the field of bioethics;
2. Mastery of at least one area of bioethical inquiry;
3. Research and writing skills of a caliber to contribute to bioethical literature;
4. An understanding of the relationship among personal, professional, and social ethics.

## Course requirements

In order to receive the Master of Arts degree in bioethics from Loma Linda University, the student will complete a minimum of 48 units of coursework as herein specified, with an overall grade average of B+ (3.30) or higher, with no grade lower than a C; and with no grade lower than a B- in a required course.

## Transfer credits

Students are permitted to transfer up to eight units of approved graduate-level courses from other accredited institutions into the Bioethics Program. Approval must be requested from the program director.

## Special features

RELE 598 Master's Seminar I: This capstone seminar reflects on previous class work and involves integration of conceptual presuppositions, ethical theories, and ethical principles. Mastery of a broad knowledge of the field through an examination will be assessed by the bioethics faculty. A two-part comprehensive exam will be administered at the end of Master Seminar I. All program faculty members and students are invited to attend sessions they choose from these two seminars.

RELE 599 Master's Seminar II: Each student enters class with a research paper, likely prepared in an earlier course. With collegial critique, these papers are prepared for publication. Papers demonstrate the ability to identify an issue, analyze it, use relevant literature, and creatively conceptualize or advance the discussion. Students who are professionals are encouraged to write for their professional publications, adopting relevant size and editorial considerations. Paper(s) will total 20–25 pages.

## Admissions

In addition to Loma Linda University (p. 23) and School of Religion (p. 392) admissions requirements, the applicant must also complete the following requirements:

Typically, applicants will meet the following criteria for admission:

1. A four-year baccalaureate degree (or its equivalent) from an accredited college or university;
2. Minimal GRE percentile scores of 60 (verbal), 60 (analytical writing), and 35 (quantitative). In some professional programs (e.g., M.D. and D.D.S.), students and graduates need not take the GRE, although other requirements apply;
3. An undergraduate grade point average of B+ (3.30) or better in the overall program;
4. An 800-word essay on the applicant's background and goals and how earning an M.A. degree in bioethics at Loma Linda University is envisioned to further such goals;
5. A personal interview;
6. Three letters of recommendation from current or former professors.

More important than any single admissions factor is the cumulative sense that the applicant is capable of and committed to serious academic work. Hence, the applicant might also submit an essay--published or from previous class work--that demonstrates creative, analytical thinking.

Information on admission, tuition, and student life and an online application can be found on the Web at <llu.edu/central/apply (http://www.llu.edu/central/apply/)>.

# Program requirements

## M.A.

| | | |
|---|---|---|
| **Required** | | |
| RELE 524 | Bioethics and Society | 3 |
| RELE 545 | Bioethics Case Conference I | 1 |
| RELE 588 | Philosophical Ethics | 3 |
| RELE 589 | Biblical Ethics | 3 |
| RELE 598 | Master's Seminar I | 3 |
| RELE 599 | Master's Seminar II | 2 |
| RELG 510 | Christian Service [2] | 2 |
| **Standard electives** | | |
| Choose required units from the following: [1] | | 31 |
| RELE 515 | Faith and Flourishing | |
| RELE 522 | Bioethical Issues in Social Work | |
| RELE 525 | Ethics for Scientists | |
| RELE 534 | Ethical Issues in Public Health | |
| RELE 548 | Christian Social Ethics | |
| RELE 554 | Clinical Ethics Practicum I | |
| RELE 555 | Clinical Ethics Practicum II | |
| RELE 556 | Clinical Practicum III | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 565 | Aesthetics and Ethics | |
| RELE 566 | History of Health-Care Ethics | |
| RELE 567 | World Religions and Bioethics | |
| RELE 568 | Bioethics and the Law | |
| RELG 674 | Reading Tutorial | |
| RELG 697 | Independent Research | |
| **Total Units** | | **48** |

[1] Up to 8 units of approved graduate-level courses from other LLU schools or other accredited institutions may be chosen.

[2] Fulfills service learning requirement

### Normal time to complete the program

1.33 years (five [5] academic quarters) — based on full-time enrollment; part time permitted

## Certificate

Certificate in Bioethics is not accepting applications for 2020/2021.

| | | |
|---|---|---|
| **Required** | | |
| RELE 524 | Bioethics and Society | 3 |
| RELE 588 | Philosophical Ethics | 3 |
| RELE 589 | Biblical Ethics | 3 |
| RELG 510 | Christian Service | 1,2 |
| **Standard electives** | | |
| Choose required units from the following: | | 18 |
| RELE 525 | Ethics for Scientists | |
| RELE 534 | Ethical Issues in Public Health | |
| RELE 548 | Christian Social Ethics | |
| RELE 554 | Clinical Ethics Practicum I | |
| RELE 555 | Clinical Ethics Practicum II | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 565 | Aesthetics and Ethics | |
| RELE 566 | History of Health-Care Ethics | |
| RELE 567 | World Religions and Bioethics | |
| RELE 568 | Bioethics and the Law | |
| **Total Units** | | **28** |

### Normal time to complete the program

One (1) year (three [3] academic quarters) — based on full-time enrollment; part time permitted

# Chaplaincy — M.S.Chap.

**Program director**
Angela Li

The Master of Science in Chaplaincy (M.S.Chap.) program is theological and clinical based chaplaincy education at Loma Linda University. It has been developed using guidelines established by the Association of Professional Chaplains (APC), which oversees and rigorously maintains “best practice” standards for the chaplaincy profession. It is designed to meet a variety of student needs, including:

- It provides APC full board certification academic requirement.
- It is a professional degree that blends theological study with clinical experience.
- It provides specialty training in spiritual care and/or chaplaincy.
- It prepares students for employment as professional chaplains.

Graduates of the program will receive excellent academic training enhanced by professional, clinical, and ministerial experience. The program's goal is to prepare chaplains who can model the "teaching and healing ministry of Jesus Christ," and who are trained at the highest level of Christian professionalism, in preparation for full board certification by the APC.

Students are required to complete four (4) units of clinical professional education (CPE) credits prior to graduation. As a premier teaching and research medical complex, Loma Linda University Health (LLUH) is an excellent setting to experience clinical aspects of this program and is an accredited Clinical Pastoral Education (CPE) Center. (Students are not required to complete their clinical internships at LLU but are able to complete this requirement at any ACPE-approved site in North America. Visit the ACPE-approved centers web page here (https://www.acpe.edu/ACPE/Directory/Accredited_Centers.aspx) to view a list of available sites. Separate application, fees, and acceptance procedures are required for this component of the program.) To increase diverse learning experiences, students are requested to complete a maximum of two (2) CPE units at Loma Linda University Medical Center.

The professors represent areas of expertise, such as biblical studies, theology, practical theology, marriage and family therapy, cultural psychology, American church history, health education, nursing, spiritual care, and ethics. In addition, clinical faculty members across many health-care professions are involved in the program. This diversity of specialists provides students a rich and balanced program of study.

All courses are taught from the Christian perspective. Students from more than sixty-five religions and eighty countries study here. A mutual and shared respect for various cultures and beliefs is emphasized on campus and in the classroom. Small class sizes allow for specified instruction and personal growth.

The program draws upon resources across the entire Loma Linda University campus. These include the Chaplain Services of LLUH and the Center for Whole Person Care—both of which provide a rich context in which to study chaplaincy. The Center for Whole Person Care is dedicated to promoting and supporting wholeness in individuals, as well as providing tools for health-care professionals across various disciplines to use in providing whole-person care to their patients. The center sponsors a number of programs, along with the Center for Christian Bioethics, to minister to the spiritual and intellectual needs of students, staff, and patients.

## Program learning outcomes

The following address competencies in four areas of chaplaincy. By the end of this program, the graduate should be able to:

- Integrate theory and practice competencies into chaplaincy;
- Exhibit professional identity and conduct as a chaplain;
- Demonstrate professional practice skills;
- Function effectively in organizational leadership.

## Transfer credits

Students are permitted to transfer up to 14 units of approved graduate-level courses from other accredited institutions into the M.S. in Chaplaincy Program.

## Admissions

In addition to Loma Linda University (p. 23) and School of Religion (p. 392) admissions requirements, the applicants to the M.S. in Chaplaincy Program are expected to:

- A four-year baccalaureate degree (or its equivalent) from an accredited institution
- Grade point average of B (3.0) or better in the overall program and in the major field
- Writing samples: CV, personal statement, and previous research paper (qualitative or quantitative)
- Three letters of recommendation (two academic and one pastoral)
- Admissions Interview
- One (1) unit of CPE highly preferred

## Program requirements

Students must complete 108 quarter credits from the list below, with an overall grade point average of B (3.0) or better, with no grade lower than C, and no grade lower than a B- in a core course.

| | | |
|---|---|---|
| **Core** | | |
| RELE 548 | Christian Social Ethics | 3 |
| RELE 567 | World Religions and Bioethics | 3 |
| RELE 589 | Biblical Ethics | 3 |
| RELG 504 | Research Methods in Religious Studies | 4 |
| RELR 520 | Clinical Training in Spiritual Care I | 4 |
| RELR 521 | Clinical Training in Spiritual Care II | 4 |
| RELR 526 | Pastoral and Professional Formation | 4 |
| RELR 527 | Crisis Care and Counseling | 3 |
| RELR 535 | Spirituality and Mental Health | 3 |
| RELR 540 | Wholeness and Health [1] | 3 |
| RELR 565 | Practical Theology and Methodology | 3 |
| RELR 567 | Pastoral Counseling | 4 |
| RELR 568 | Care of the Dying and Bereaved | 3 |
| RELR 574 | Preaching | 3 |
| RELR 584 | Culture, Psychology, and Religion | 3 |
| RELR 587 | Religion and the Social Sciences | 3 |
| RELT 500 | Biblical Hermeneutics | 3 |
| RELT 508 | Contemporary Christian Theology | 3 |
| RELT 520 | Church History | 3 |
| RELT 557 | Theology of Human Suffering | 3 |
| RELT 558 | Old Testament Thought | 3 |
| RELT 559 | New Testament Thought | 3 |
| **Electives** | | |
| Choose from the following or other courses as approved by advisor: | | 21 |
| RELE 515 | Faith and Flourishing | |
| RELE 522 | Bioethical Issues in Social Work | |
| RELE 524 | Bioethics and Society | |
| RELE 525 | Ethics for Scientists | |
| RELE 535 | Ethical Issues in Health-Care Management | |
| RELE 545 | Bioethics Case Conference I | |
| RELE 546 | Bioethics Case Conference II | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 565 | Aesthetics and Ethics | |
| RELE 568 | Bioethics and the Law | |
| RELE 577 | Theological Ethics | |
| RELE 588 | Philosophical Ethics | |
| RELR 525 | Health Care and the Dynamics of Christian Leadership | |
| RELR 536 | Spirituality and Everyday Life | |
| RELR 575 | Whole Person Care | |
| RELR 588 | Personal and Family Wholeness | |

| | | |
|---|---|---|
| RELT 501 | Religion and Society | |
| RELT 502 | Religion and Society | |
| RELT 503 | Religion and Society | |
| RELT 504 | Daniel and the Prophetic Tradition | |
| RELT 506 | Seventh-day Adventist Beliefs | |
| RELT 515 | Faith and Flourishing | |
| RELT 527 | The Bible and Ecology | |
| RELT 540 | World Religions and Human Health | |
| RELT 555 | The Adventist Experience | |
| RELT 560 | Jesus the Revealer: The Message of the Gospel of John | |
| RELT 565 | Vision of Healing: The Message of the Book of Revelation | |
| RELT 615 | Seminar in Philosophy of Religion | |
| RELT 617 | Seminar in Religion and the Sciences | |
| **Project** | | |
| RELG 696 | Project | 4 |
| Internship (12 units of RELG 795, listed below, count toward the 108 units required for ACP board certification) | | 12 |
| **Total Units** | | **108** |

| | | |
|---|---|---|
| **Internship** | | |
| Internship units do not count toward minimum didactic units required for the degree. | | |
| RELG 795 | Clinical Internship (12 units = 400 hours) | 48 |
| **Total Units** | | **48** |

[1] Fulfills service learning requirement

## Clinical internship

Students must also satisfactorily complete four (4) units of clinical pastoral education (CPE) at an accredited CPE Center—400 clinical hours consists of one (1) unit (1 unit consists of 10 weeks for an intensive unit or 16 weeks for an extended unit). Each registration of RELG 795 Clinical Internship earns one (1) unit of CPE required by the APC board for certification. Twelve (12) of the 48 internship units from one of the four CPEs can be counted toward both graduation and the APC board certification.

## Project

When students have completed the majority of their coursework and at least some clinical work, they must also be able to articulate, in written form, all chaplaincy competencies, as defined by the Association of Professional Chaplains (APC). This will be based on their theoretical understanding, reflection, and personal experiences.

## Noncourse requirements

### Annual Evaluation

Students will be evaluated on their academic and clinical competencies at the end of Spring quarters of their first and second years.

### Dean's Exit Interview

Graduate candidates are required to attend exit interviews with the Dean of the School of Religion during the Spring quarter of their graduation year.

## Normal time to complete the program

Three (3) years (11 consecutive academic quarters) — based on full-time enrollment; part time permitted

# Denominational Studies for Chaplains — Certificate

**Program director**
Jon Paulien

Students are encouraged to inquire regarding admissions.

The fully online Denominational Studies for Chaplains Program is designed for practicing chaplains who lack academic coursework in Adventist doctrine and who desire endorsement from the Adventist Chaplaincy Ministries (ACM) department of the General Conference of Seventh-day Adventists. This certificate will satisfy the denominational studies requirement.

The development of this certificate has been a collaborative effort between Loma Linda University and Loma Linda University Medical Center Chaplains Department, in consultation with ACM.

This certificate is a response to the stated need of ACM for denominational education that includes the following four areas:

1. Seventh-day Adventist history and heritage;
2. Seventh-day Adventist doctrines, beliefs, and practices;
3. Seventh-day Adventist perspectives on Daniel and Revelation, and how they inform the issues of suffering and pain;
4. Seventh-day Adventist health, wellness, and lifestyle issues.

## Teaching methodology

The educational model designed for this academic certificate will be through distance learning online modalities that use Canvas as its learning management system (LMS).

This certificate is a two-year program in which all courses and learning occur via the learning management system (LMS). The learning activities for each course facilitate opportunities for personal growth via the online, class-driven learning activities. Students can begin the program in any given quarter and are expected to follow the course requirements as they are offered, one per quarter in a continual sequence. The program includes an individual report, preparation and presentation of a portfolio, and an exit interview—all conducted via the LMS and facilitated via video conference communication technology.

## Program learning outcomes and performance

By the end of this program, the graduate should be able to:

1. Explain Adventist theological uniqueness and the biblical foundations of its doctrines;
2. Demonstrate competent use of Scriptures;
3. Explain Christian theology and history, with specific attention to Seventh-day Adventist life and thought;
4. Integrate Adventist doctrines into their ministry and as a representative of the Seventh-day Adventist Church;

5. Synthesize individual Adventist versions of philosophies of ministry within the health-care setting.

## Transfer credits

No transfer units are accepted for the Denominational Studies for Chaplains Program.

## Admissions

In addition to Loma Linda University (p. 23) and School of Religion (p. 392) admissions requirements, the applicants to the Denominational Studies for Chaplains Program are expected to present/complete:

1. A college baccalaureate degree from an accredited institution.
2. A minimum overall undergraduate grade point average of 3.00. A provisional acceptance for eight units will be granted to those with a minimum overall grade point average of 2.5. In order to change their status to regular standing, students will be required to earn a 3.00 grade point average for these eight units.
3. Documentation of having been a chaplain and received a recommendation from ACM.
4. Two recommendations (one professional/ministerial and one from a former professor or academic advisor).
5. Statement of research interest and sample paper.

## Program requirements

In order to receive the certificate in denominational studies for chaplains from Loma Linda University, a student must complete all courses listed below, with an overall grade point average of B (3.0) or higher, with no grade lower than a B- (2.7). No electives are offered.

| **Required** | | |
|---|---|---|
| RELR 540 | Wholeness and Health | 3 |
| RELR 541 | History of Seventh-day Adventist Chaplaincy and Healthcare Policy Making | 4 |
| RELT 500 | Biblical Hermeneutics | 3 |
| RELR 595 | Independent Study in Chaplaincy | 1 |
| RELT 504 | Daniel and the Prophetic Tradition | 3 |
| RELT 505 | Seventh-day Adventist History | 3 |
| RELT 506 | Seventh-day Adventist Beliefs | 3 |
| RELT 507 | The Saga of Adventists and Healthcare: Cornflakes, Baby Fae, and the Healing of the Nations | 3 |
| RELT 565 | Vision of Healing: The Message of the Book of Revelation | 3 |
| **Total Units** | | **26** |

### Normal time to complete the program

Two (2) years (eight [8] academic quarters) — based on less than half-time enrollment

# Religion and Society — M.A.

**Program director**
Zane Yi

The Master of Arts degree in Religion and Society, offering customizable options of study, is designed for those seeking to serve the church and world in the 21st century in a variety of capacities. The program is ideal for individuals seeking deeper biblical, theological, and philosophical insight, spiritual growth, practical competency, and cultural literacy in the context of a range of vocational settings—health care, the local church (non-ordained ministry), non-profit organizations, secondary education (teaching certifications must be obtained independently), and further graduate study.

Students may complete this program prior to beginning professional or graduate school. Students enrolled or enrolling in other LLU programs may be interested in pursuing it as a dual degree. Others may seek to complement already completed courses of study.

The curriculum covers the basic areas of theology, biblical studies, and Christian spirituality, and can also be customized around a particular area of interest. Using the resources of the School of Religion and the entire University, each student and their mentor will formulate and acquire faculty approval for a personalized area of emphasis that matches their interests and qualifications. Possible areas of emphases include:

- Biblical studies
- Christian theology
- Science and religion
- Health care
- Wholeness/whole-person care
- Spirituality
- Social ethics
- Bioethics

Students may progress through the program at their own pace (up to five years maximum). All students must have a demonstrated proficiency with technology and have access to personal computers and the Internet.

Professors in the program represent areas of expertise such as biblical studies, theology, philosophy, world religions, practical theology, marriage and family therapy, cultural psychology, American church history, health education, nursing, spiritual care, and ethics. This diversity of specialists provides students with a rich and balanced program of study.

A mutual and shared respect for various cultures and beliefs is emphasized on the campus and in the classroom. Small class sizes allow for personalized instruction and engaged participation.

The program draws upon resources from across the Loma Linda University campus. These include the Center for Whole Person Care, the Center for Christian Bioethics, and the Center for Understanding World Religions that offer multiple programs, conferences, and lecture series intended for student enrichment.

## Mentors

As soon as possible, but before the student has completed half of the program, the program's administrative committee will link the student to a mentor who will provide support and guidance. Until then, the program director will mentor the student.

## Program learning outcomes

By the end of this program, the graduate should be able to:

1. Responsibly interpret the Bible in an increasingly scientific, globalized, and pluralistic society;

a. Analyze major themes of Old Testament theology;
b. Analyze major themes of New Testament theology;
c. Apply basic principles of exegesis and hermeneutics to the Bible.

2. Assess Christian reflection and praxis as it engages with culture(s);
   a. Identify core tenants of classical, Christian theology from a Seventh-day Adventist perspective;
   b. Evaluate models of the relationship between church and culture;
   c. Analyze one instance of cultural/theological contextualization and preservation.
3. Demonstrate a broad, basic knowledge of the field of ethics;
   a. Compare major schools of normative ethics—deontological, consequentialist, and virtue;
   b. Articulate ethical emphases in Christian Scripture;
   c. Address a contemporary ethical issue utilizing Christian Scripture.
4. Demonstrate growth in spiritual maturity.
   a. Develop a personal theology of wholeness;
   b. Engage in practices that help attune one's self to the spiritual meaning of everyday activities;
   c. Recognize a commitment to community involvement and service as a crucial component of wholeness.

# Periodic review

In addition, each student's achievements will be assessed every 12 units to determine the advisability of their continuing in the program.

# Prerequisite

There are no prerequisites for this program; however, those who enter having taken few or no courses in religion must structure their programs considering the requirements. The opposite will be true for those who enter the program after having extensively studied religion—but not the other subject(s) they desire to explore.

# Core courses

Four of this program's 12 courses are required: RELT 501, 502, 503; and RELG 696. The religion in science cluster—RELT 501 Religion and Society, RELT 502 Religion and Society, and RELT 515 Faith and Flourishing—which may be taken in any sequence, provides intensive introductions to the field. One course is offered each quarter during the academic school year, and a course may be offered also in the summer. The fourth required course is the final project (RELG 696 Project). These four, three-unit courses, totaling 12 units, constitute one-fourth of the program. The remaining twelve courses, totaling 36 units and three-fourths of the program, fulfill core and course distribution requirements.

# Transfer credits

Students are permitted to transfer up to eight units of approved graduate-level courses from other accredited institutions into the Religion and Society Program.

# Admissions

In addition to Loma Linda University (p. 23) and School of Religion (p. 392) admissions requirements, the applicants to the M.A. in Religion and Society Program are expected to present/complete:

- A bachelors degree from an accredited institution. An undergraduate degree in religion is not required.
- An overall undergraduate Grade Point Average (G.P.A.) of at least 3.25.
- Acceptable scores in an approved standardized test such as the Graduate Record Exam (GRE), Medical College Admissions Test (MCAT) or Law School Admissions Test (LSAT).
- An essay (1,000 words) that specifies why the applicant is interested in this program, relevant background experiences, and how the program fits into personal and professional plans.
- A writing sample (usually drawn from previous academic work) emailed directly to religion@llu.edu.
- An interview.
- Three letters of recommendation from previous teachers or mentors.

In addition to these considerations, acceptance into this program depends upon whether, at the time the student wishes to study, the School of Religion's resources and their interests and goals overlap enough to make it a mutually beneficial experience.

## Provisional Admission

A student who is promising, even though they do not meet one or more of the admission requirements, may be given provisional acceptance for up to 12 units of study after which the administrative committee will determine whether or not they will be permitted to continue.

# Program requirements

In order to receive the Master of Arts in Religion and Society, the student will complete a minimum of 48 units of coursework as herein specified, with an overall grade point average of B+ or better, and no core course lower than a B.

| | | |
|---|---|---|
| **Required** | | |
| RELE 588 | Philosophical Ethics | 3 |
| RELE 589 | Biblical Ethics | 3 |
| RELR 536 | Spirituality and Everyday Life | 3 |
| RELR 540 | Wholeness and Health [1] | 3 |
| RELT 500 | Biblical Hermeneutics | 3 |
| RELT 501 | Religion and Society | 3 |
| RELT 502 | Religion and Society | 3 |
| RELT 515 | Faith and Flourishing | 3 |
| RELT 520 | Church History | 3 |
| RELT 558 | Old Testament Thought | 3 |
| RELT 559 | New Testament Thought | 3 |
| **Individual area of emphasis** | | |
| RELG 696 | Project | 4 |
| Select from the School of Religion or another school on campus | | 12 |
| **Total Units** | | **49** |

[1] Fulfills service learning requirement

## Areas of Emphasis

These are approved clusters of courses that focus on an area of student interest. Twelve units may be taken either at the School of Religion or elsewhere on campus, with approval.

## Individualized Program Proposal

Before completing half of the program (24 units), with the mentor, the student will submit an individualized program for approval to the administrative committee. This will detail courses and other experience that will fulfill the degree's requirements as well as establish the acceptable area of emphasis.

## Normal time to complete the program

Two (2) years (six [6] academic quarters) — based on full-time enrollment; part time permitted

# FACULTY OF GRADUATE STUDIES

## Interim Director's welcome

We are very pleased that you have chosen to continue your education at Loma Linda University in a graduate program coordinated by the Faculty of Graduate Studies (FGS). The FGS is an organization of scholars, scientists, and educators whose mission is to enhance the quality of research, scholarship, and discovery throughout the university. It cooperates with the eight schools in providing graduate programs that strive to meet the highest academic and intellectual standards.

Loma Linda University is a health sciences campus dedicated to creating learning environments that enable students to develop personal wholeness, to train for careers that serve local, national, and international communities, and to accept every person as having equal worth in the sight of God. Its mission is embodied in the Good Samaritan sculptures, a tableau that occupies a central position on the campus.

The FGS encourages students to engage in original research and creative study that will expand opportunities for wholeness, service, and mutual respect. You will find vigorous academic programs among the degrees sponsored by the faculty—studies that will stretch your mind and that will encourage you to expand the boundaries of knowledge, understand your world, and apply Christian principles to your life and profession.

Our faculty and staff are here to assist you as you prepare for a career of creative service. Feel free to contact us by email at <provost@llu.edu>.

Ronald Carter, Ph.D.
Provost and Interim Director, Faculty of Graduate Studies

# Foundations of graduate study

Recognizing the need to provide advanced education, the College of Medical Evangelists (CME) organized its School of Graduate Studies in 1954. The new school conferred a Ph.D. degree in 1958—the first Ph.D. to be awarded by a Seventh-day Adventist institution of higher education.

In 1961, when CME became Loma Linda University, the University assumed oversight of the graduate education conducted by La Sierra College in Riverside, California. By 1963, the School of Graduate Studies had been renamed the Graduate School, with a home in a new building named Frederick Griggs Hall, in honor of a former department chair. The two campuses comprising Loma Linda University—La Sierra and Loma Linda—separated in 1990.

In 2005, the Graduate School was restructured as the Faculty of Graduate Studies. Since then, FGS has continued to provide oversight of graduate programs, supported by other schools of the university, promoting and encouraging independent judgment, mastery of research techniques, contribution to scholarly communication, and intellectual achievement in the service of humankind.

## Philosophy

In the FGS at Loma Linda University, the essential concern of both faculty and students is the quest for meaning. Because this quest is served by knowledge, graduate students are obliged to achieve both broad and detailed mastery of their fields of study. They also participate with faculty in the process by which knowledge is augmented.

## Objectives

The FGS seeks to create an environment favorable to the pursuit of knowledge and meaning by:

1. Making available the education necessary for scholarly careers in the sciences and health professions to graduate students who wish to study in a Seventh-day Adventist Christian setting;
2. Encouraging development of independent judgment, mastery of research techniques, and contribution to scholarly communication.
3. Relating intellectual achievement to the service of humankind.

# General regulations

Students of the university are responsible for informing themselves regarding policies and regulations pertinent to registration, matriculation, and graduation, and for satisfactorily meeting those requirements. Section III provides the general setting for school programs. Subject and unit requirements for admission to individual professional programs are also outlined. It is important to review specific program requirements in the context of general requirements applicable to all programs (Section II).

## Application and admissions

Program admissions committees of the university intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by the university. The admissions committees of the schools accomplish this through examination of evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

## Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Some students with an overall grade point average between 2.5 and 3.0 may be admitted provisionally to graduate standing, provided the grades during the junior and senior years are superior or other evidence of capability is available. International applicants are not eligible for provisional admission.

## From master's to Ph.D. degree

### Bypassing master's degree

A graduate student at the university may proceed first to a master's degree program. If at the time of application the student wishes to qualify for the Doctor of Philosophy degree program, this intention should be declared, even if the first objective is to earn a master's degree.

If, after admission to the master's degree program, a student wishes to go on to the doctoral degree program, an application form should be submitted, along with letters of reference, to respective school(s) deans. If an award of the master's degree is sought, the student will be expected to complete that degree before embarking on doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field, and that are equivalent in quality and scope, to their doctoral program.

## Financial information

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this university must have been settled.

Registration is not complete until tuition and fees on the required installment are paid. Students should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

# Degrees overseen by the Faculty of Graduate Studies

The Faculty of Graduate Studies oversees the following doctoral and master's degrees, as well as combined degrees programs.

## Master's degrees

- Anatomy — M.S. (p. 276)
- Biology — M.S. (p. 259)
- Bioethics — M.A. (p. 393)
- Cancer, Developmental, and Regenerative Biology — M.S. (p. 248)
- Endodontics — M.S. (p. 226)
- Geology — M.S. (p. 271)
- Implant Dentistry — M.S. (p. 229)
- Infection, Immunity, and Inflammation — M.S. (p. 251)
- Neuroscience, Systems Biology, and Bioengineering — M.S. (p. 254)
- Nutrition — M.S. (p. 379)
- Orthodontics and Dentofacial Orthopedics — M.S. (p. 231)
- Pediatric Dentistry — M.S. (p. 233)
- Periodontics — M.S. (p. 234)

- Prosthodontics — M.S. (p. 235)
- Religion and Society — M.A. (p. 397)

## Doctoral degrees

- Anatomy — Ph.D. (p. 276)
- Biology — Ph.D. (p. 259)
- Cancer, Developmental, and Regenerative Biology — Ph.D. (p. 249)
- Earth Science — Ph.D. (p. 263)
- Epidemiology — Ph.D. (p. 384)
- Infection, Immunity, and Inflammation — Ph.D. (p. 252)
- Medical Scientist Training Program — M.D./Ph.D. (p. 283)
- Neuroscience, Systems Biology, and Bioengineering — Ph.D. (p. 255)
- Nursing — Ph.D. (p. 347)
- Nutrition — Ph.D. (p. 387)
- Physical Therapy — Ph.D. (p. 115)
- Psychology (clinical psychology) — Ph.D. (p. 170)
- Rehabilitation Science — Ph.D. (p. 60)
- Social Policy and Social Research — Ph.D. (p. 183)
- Systems, Families and Couples — Ph.D. (p. 167)

## Combined degrees programs

- Psychology *with* Bioethics (Ph.D./M.A., Psy.D./M.A (p. 404).)
- Social Welfare and Social Research *with* Bioethics (Ph.D./M.A. (p. 412))

# THE COMBINED DEGREE PROGRAMS OF THE UNIVERSITY

A number of combined degrees programs are offered—each intended to provide additional preparation in the biomedical sciences or in the clinical, professional, or basic areas related to the student's field of interest. The combined degrees programs provide opportunities for especially well-qualified (G.P.A. of 3.5 or higher) and motivated students to pursue professional and graduate education as well as prepare for careers in clinical specialization, teaching, or investigation of problems of health and disease in humans.

For admission to a combined degrees program, each student must have a baccalaureate degree and must already be admitted to the schools offering their chosen combined degrees program.

Students may be required to interrupt their professional study for two or more years (as needed) to accommodate courses and research for the graduate degrees sought.

The student's concurrent status is regarded as continuous until the program is completed or until discontinuance is recommended. The usual degree requirements apply.

Interested and qualified students may choose from the formally combined degrees programs identified below or from informal concurrent programs. Students wanting to pursue informal concurrent degree programs must be granted permission by the director of the primary program in order to proceed with their requests. Formal requests are required to adhere to the policy on concurrent graduate degree programs. Final permission for an informal concurrent degree program must be obtained from the appointed subcommittee of the provost.

If a student chooses to withdraw from one program at any time, they must meet all requirements for the remaining degree. A student who decides to return to the second program, after having completed the first program, must reapply, be admitted, and fulfill all requirements for the second degree.

## Programs

For convenience in locating a combined degrees program, some programs are listed twice—the second time with the program names reversed—e.g., Criminal Justice with Social Work and Social Work with Criminal Justice. Combined degrees programs that must be entered in a specified order are listed only once. For example, a master's degree student in bioethics cannot choose to add pharmacy (Pharm.D.), but a pharmacy student can choose to add the M.A. degree in bioethics. Such programs list the primary degree program first.

Counseling (BH) *with* Marital and Family Therapy (BH) *with* Drug and Alcohol Counseling (BH)—M.S./M.S./Certificate (p. 403)

Criminal Justice (BH) *with* Social Work (BH)—M.S./M.S.W. (p. 413)

Dentistry (SD) *with* Bioethics (SR)—D.D.S./M.A (p. 405)

Gerontology (BH) *with* Social Work (BH)—M.S./M.S.W. (p. 414)

Marital and Family Therapy (BH) *with* Counseling (BH)—*with* Drug and Alcohol Counseling Certificate (BH)—M.S./M.S./Certificate (p. 403)

Medical Scientist (SM)—M.D./Ph.D. (p. 283)

Medicine (SM) *with* Bioethics (SR)—M.D./M.A. (p. 406)

Medicine (SM) *with* Religion and Society (SR)—M.D./M.A. (p. 407)

Oral and Maxillofacial Surgery (SD) *with* Medicine (SM)—Post-D.D.S. specialty certificate/M.D. (p. 407)

Pharmacy (SP) *with* Bioethics (SR)—Pharm.D./M.A. (p. 409)

Pharmacy (SP) *with* Health Informatics (AH)—Pharm.D./M.S. (p. 410)

Pharmacy (SP) *with* Health Professions Education (AH)—Pharm.D./M.S. (p. 411)

Psychology (BH) *with* Bioethics (SR)—Psy.D./M.A. or Ph.D./M.A. (p. 404)

Social Welfare and Social Research (BH) *with* Bioethics (SR)—Ph.D./M.A (p. 412).

Social Work (BH) *with* Criminal Justice (BH)—M.S.W./M.S. (p. 413)

Social Work (BH) *with* Gerontology (BH)—M.S.W./M.S. (p. 414)

# Counseling—M.S. with Marital and Family Therapy—M.S. with Drug and Alcohol Counseling Certificate

Graduates of this dual-degree with certificate program receive a master's degree in Counseling, a master's degree in Marital and Family Therapy, and a Drug and Alcohol Counseling Certificate that allow them to sit for three national certifications in substance abuse treatment. Completion of the program requires a minimum of 11 quarters of full-time attendance. The 121-unit curriculum provides a mix of academic, experiential, and research activities essential for practice as a clinical counselor, marriage and family therapist, and drug and alcohol counselor. Students with the dual degree have licensure options providing maximum flexibility. Graduates of this program are qualified to sit for national counseling licensure and the California-specific LPCC license, as well as sit for MFT licensure in California and obtain MFT licensure around the country with fewer requirements—given the program's COAMFTE accreditation. Also, graduates may qualify for additional national certifications in addictions/drug and alcohol counseling as specified above.

For more information regarding the individual programs that constitute this dual-degree with certificate program, please review the campus-based M.S. in marital and family therapy (p. 160), M.S. in counseling (p. 156), and certificate in drug and alcohol counseling (p. 158) catalog pages.

## Admissions

Applicants must meet the admission requirements for each program: M.S. degree in counseling (p. 156), and M.S. degree in marital and family therapy (p. 160) and the Drug and Alcohol Counseling certificate (http://llucatalog.llu.edu/behavioral-health/drug-alcohol-counseling-certificate/).

## Program requirements

Students must maintain a grade point average of 3.0 on a 4.0 point scale (a letter grade of B) in order to progress successfully though the

program and complete the degree. In addition, students must meet the knowledge, skills, and professional performance competencies outlined by the program. Students must meet both course and cumulative G.P.A. standards and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| Courses applicable to both degrees: | | |
| COUN/MFAM 501 | Research Tools and Methodology: Quantitative | 3 |
| COUN/MFAM 502 | Research Tools and Methodology: Qualitative | 3 |
| COUN/MFAM 515 | Crisis Intervention and Client Advocacy | 3 |
| COUN/MFAM 524 | Psychopharmacology and Medical Issues | 3 |
| COUN/MFAM 528 | Culture, Socioeconomic Status in Therapy | 3 |
| COUN 540 | Professional Counseling Orientation | 3 |
| or MFAM 535 | Case Presentation and Professional Studies | |
| COUN/MFAM 547 | Social Ecology of Individual and Family Development | 3 |
| COUN/MFAM 556 | Psychopathology and Diagnostic Procedures | 3 |
| COUN/MFAM 568 | Groups: Process and Practice | 3 |
| COUN/MFAM 584 | Advanced Child and Adolescent Development | 3 |
| COUN/MFAM 604 | Social Context in Clinical Practice: Gender, Class, and Race | 3 |
| COUN/MFAM 614 | Law and Ethics | 3 |
| COUN/MFAM 624 | Individual and Systems Assessment | 3 |
| COUN/MFAM 638 | Substance Use Disorders, Relationships, and Recovery | 3 |
| COUN/MFAM 644 | Child Abuse and Family Violence | 3 |
| COUN/MFAM 674 | Human Sexual Behavior | 3 |
| COUN 675 | Dynamics of Aging | 1 |
| MFAM 553 | Family Systems Theory | 3 |
| RELR 540 | Wholeness and Health [1] | 3 |
| Discipline-specific courses: | | |
| **Marital and family therapy** | | |
| MFAM 536 | Case Presentation and Documentation | 3 |
| MFAM 537 | Case Presentation | 3 |
| MFAM 551 | Family Therapy: Foundational Theories and Practice | 3 |
| MFAM 552 | Couples Therapy: Theory and Practice | 3 |
| MFAM 564 | Family Therapy: Advanced Foundational Theories and Practice | 3 |
| MFAM 567 | Treating the Severely and Persistently Mentally Ill and the Recovery Process | 3 |
| MFAM 635 | Case Presentation and Legal Issues | 3 |
| MFAM 636 | Case Presentation and Client-Centered Advocacy | 3 |
| MFAM 637 | Case Presentation and Global Practices | 3 |
| Choose one theory course from the following: | | 2 |
| MFAM 539 | Solution-Focused Family Therapy | |
| MFAM 555 | Narrative Family Therapy | |
| MFAM 559 | Cognitive-Behavioral Couples Therapy | |
| MFAM 605 | Gestalt Family Therapy | |
| MFAM 606 | Emotionally Focused Couples Therapy | |
| MFAM 665 | Structural and Multidimensional Family Therapy | |
| **Counseling** | | |
| COUN 575 | Counseling Theory and Applications | 3 |
| COUN 576 | Exceptional and Medically Challenged Children [1] | 3 |
| COUN 577 | Assessment in Counseling [1] | 3 |
| COUN 579 | Career Theories and Applications [1] | 4 |
| COUN 678 | Consultation and Program Evaluation [1] | 3 |
| COUN 580 | Advanced Counseling Theory and Techniques | 4 |
| COUN 541 | Clinical Practicum Seminar – Early Counselor Development | 2 |
| COUN 542 | Clinical Internship Seminar – Spirituality | 2 |
| COUN 543 | Clinical Internship Seminar – Multicultural and Cross-Cultural Interactions | 2 |
| COUN 544 | Clinical Internship Seminar – Recovery-Oriented Care | 2 |
| COUN 546 | Clinical Internship Seminar – Substance Use Disorder Treatment | 2 |
| **Drug and alcohol counseling certificate:** | | |
| MFAM 645 | Advanced Treatment Strategies – Substance Use Disorders | 3 |
| MFAM 654 | Practicum in Drug and Alcohol Counseling [1] | 4 |
| **Total Units** | | **121** |

[1] One unit course taken four time over four quarters for a total of four units.

## Clinical hours

In addition to the above, students are required to meet Board of Behavioral Sciences (BBS), Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), and Department of Counseling and Family Sciences minimum clinical hour requirements for graduation.

Clinical hours overlap and can count for both degrees and certificate, in consultation with the Directors of Clinical Training.

At graduation, total student hours will range from 420 – 620 depending on population served while in clinical placement.

| | | |
|---|---|---|
| **Marital and family therapy (minimum COAMFTE requirement))** | | |
| MFAM 731 | Clinical Training | 6 |
| MFAM 732 | Clinical Training | 9 |
| **Counseling (minimum BBS requirement)** | | |
| **Drug & Alcohol Counseling certificate (minimum CFS requirement)** | | |

## Normal time to complete the program

3.67 years (11 academic quarters) based on full-time enrollment; part time permitted

# Bioethics—M.A. with Psychology — Psy.D. or Ph.D.

### Program director, Bioethics

Whitny Braun

### Chair, Department of Psychology

David Vermeersch

### Faculty

The faculty for the combined degrees Bioethics *with* Psychology Program is drawn from the School of Religion and from the Department of Psychology in the School of Behavioral Health.

## The program

This program combines study for the M.A. degree in bioethics (offered by the School of Religion) with either the Psy.D. or Ph.D. degree in psychology (offered by the Department of Psychology of the School of Behavioral Health). The purpose of the combined degrees program is to facilitate more efficient completion of graduate programs in ethics and psychology for the student interested in both areas. Students who complete the program should be prepared to make significant interdisciplinary contributions to the fields of psychology and ethics. To enter this combined degrees program, students must gain acceptances into both the M.A. degree in ethics curriculum and to a doctoral degree in psychology. Admission information is available at the School of Behavioral Health.

## Course requirements

Students in this combined degrees program will complete requirements with greater efficiency by taking a number of courses that fulfill requirements for both degrees. Approval for selective courses should be sought from both program advisors.

### M.A. curriculum

A total of 48 quarter units is required for the M.A. degree. The following courses constitute the core requirements for students completing the M.A. degree in bioethics when taken with psychology as part of the combined degrees program:

| | | |
|---|---|---|
| **Core requirements** | | |
| **Core requirements** | | |
| RELE 524 | Bioethics and Society | 3 |
| RELE 545 | Bioethics Case Conference I | 1 |
| RELE 588 | Philosophical Ethics | 3 |
| RELE 589 | Biblical Ethics | 3 |
| RELE 598 | Master's Seminar I | 3 |
| RELE 599 | Master's Seminar II | 2 |
| RELG 510 | Christian Service (1, 2) | 2 |
| **Religion electives** | | |
| Choose 17 units from the following: | | 17 |
| RELE 525 | Ethics for Scientists | |
| RELE 548 | Christian Social Ethics | |
| RELE 554 | Clinical Ethics Practicum I | |
| RELE 555 | Clinical Ethics Practicum II | |
| RELE 556 | Clinical Practicum III | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 566 | History of Health-Care Ethics | |
| RELE 567 | World Religions and Bioethics | |
| RELE 568 | Bioethics and the Law | |
| **Shared units with psychology** | | |
| The following 14 units are double counted with psychology (Ph.D. or Psy.D.) | | |
| PSYC 526 | Ethics and Legal Issues in Clinical Psychology | 3 |
| PSYC 551 | Psychobiological Foundations | 4 |
| PSYC 564 | Foundations of Social and Cultural Psychology | 4 |
| PSYC 567 | Human Diversity | 3 |
| **Total Units** | | **48** |

### Psychology—Ph.D. or Psy.D. curriculum

Students completing one of the doctoral curricula in psychology will complete all of the course requirements as listed in the School of Behavioral Health. (See Psychology Program for full information.)

# Dentistry — D.D.S. with Bioethics — M.A.

**Program director, Bioethics, School of Religion**
Whitny Braun

**Program coordinators, School of Dentistry**
Mark Estey, DDS

**Faculty**
The faculty for the combined degrees program in Bioethics *with* Dentistry is drawn from Loma Linda University's Schools of Religion and Dentistry.

## Admissions

Students are selected through a competitive process led by the School of Dentistry in conjunction with the School of Dentistry's Bioethics Program. Selection is based upon the recommendation of the School of Dentistry's academic dean and dean of students, and standard admission criteria for the M.A. degree in bioethics. DAT scores are accepted in lieu of the GRE.

## The program

The combined degrees Bioethics *with* Dentistry Program is designed to fit the schedule of D.D.S. degree students. Ethics in dentistry is well-established at Loma Linda University and its School of Dentistry is one of a select few dental schools in the nation known for expertise in ethical issues.

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units. However, the M.A./D.D.S. combined degrees reduce the total units required by 12 units in the following manner:

1. The eight units earned from the following four, two-unit courses in the dental curriculum can be counted for credit toward the M.A. degree in bioethics: a) RELR 717 Diversity and the Christian Health Professional, b) DNES 794 Public Health Dentistry, c) RELR 715 Christian Dentist in Community, and d) DNES 851 The Dentist and the Law. In order for these eight units to be counted toward the M.A. degree, the student must submit a supplemental eight-page paper that integrates the content of these four courses and relates the content to bioethics. These four courses have sufficiently similar content to bioethics that they warrant being applied to both the D.D.S. and the M.A. degree in bioethics, once the supplemental paper is approved.
2. Four units come from the deletion of RELE 734 Christian Ethics for Dentists from the combined degrees student's curriculum because its content is substantively duplicated in the Bioethics Program; and the deletion of a two-unit religion selective from the dental curriculum, which will now be taken in the bioethics selectives.

## M.A. degree requirements

The following courses from the D.D.S. curriculum will be counted double for the M.A. degree in bioethics once the supplemental papers, noted above, are approved.

| | | |
|---|---|---|
| DNES 794 | Public Health Dentistry | 2 |
| DNES 851 | The Dentist and the Law | 2 |
| RELR 715 | Christian Dentist in Community | 2 |
| RELR 717 | Diversity and the Christian Health Professional | 2 |
| **Total Units** | | **8** |

**A model curriculum of bioethics course work taken throughout the four years of the dentistry program**

| | | |
|---|---|---|
| **First Year** | | |
| **Winter Quarter** | | |
| RELE 545 | Bioethics Case Conference I | 1 |
| RELG 510 | Christian Service | 1 |
| **Second Year** | | |
| **Spring Quarter** | | |
| RELE 566 | History of Health-Care Ethics | 3 |
| **Third Year** | | |
| **Summer Quarter** | | |
| RELE 524 | Bioethics and Society | 3 |
| **Autumn Quarter** | | |
| RELE 564 | Ethics and Health Disparities | 3 |
| RELE 554 | Clinical Ethics Practicum I | 3 |
| **Winter Quarter** | | |
| RELE 555 | Clinical Ethics Practicum II | 3 |
| RELE 568 | Bioethics and the Law | 3 |
| **Spring Quarter** | | |
| RELE 567 | World Religions and Bioethics | 3 |
| RELE 556 | Clinical Practicum III | 3 |
| **Fourth Year** | | |
| **Summer Quarter** | | |
| RELE 589 | Biblical Ethics | 3 |
| **Winter Quarter** | | |
| RELE 598 | Master's Seminar I | 3 |
| RELE 556 | Clinical Practicum III | 3 |
| **Spring Quarter** | | |
| RELE 599 | Master's Seminar II | 2 |
| RELE 565 | Aesthetics and Ethics | 3 |
| | **Total Units:** | **40** |

[1] To be taken concurrently with RELE 524 Bioethics and Society. Contact program director for details.

# Medicine — M.D. with Bioethics — M.A.

### Program director, Bioethics, School of Religion
Whitny Braun

### Program liaison, School of Medicine
Vacant

### Faculty
The faculty for the combined degrees Bioethics with Medicine Program is drawn from Loma Linda University's School of Religion and School of Medicine.

## Admissions
Students are selected through a competitive process led by the School of Medicine in conjunction with the Bioethics Program. Selection is based upon the standard admission criteria for the M.A. degree in bioethics minus the GRE because the MCAT includes a critical-thinking component.

## The program
An M.A. degree in bioethics taken as a stand-alone degree requires 48 units in bioethics courses. However, the M.A./M.D. combined degrees student is able to reduce the total units required by sharing 18 units between the two programs in the following manner.

1. 12 units from three courses in the medical curriculum count as credit toward the M.A. degree in bioethics: a) MDCJ 538 Medical Neuroscience , b) PSYT 526 Psychopathology, and c) PRVM 517 Lifestyle and Preventive Medicine. Acceptance of these courses for M.A. degree credit requires an integrative, supplemental eight-page paper that relates the courses' content to bioethics. The rationale: These three courses in medicine have sufficiently relevant content to bioethics that they academically warrant being applied to the M.A. degree in bioethics requirements.
2. 3 units come from three School of Religion courses: a) RELE 708 Medicine and Ethics, b) RELE 714 Advanced Medical Ethics, and c) the deletion of one RELT course from the medical student's combined degrees curriculum because its content is substantively duplicated in the Bioethics Program. (Students are informed of the combined degrees option at the beginning of their first year and are encouraged not to take RELE 708 Medicine and Ethics during Autumn Quarter if they are contemplating the combined degrees program. The School of Medicine's determination about student acceptability for the combined degrees program can be made immediately after Autumn Quarter grades are posted.)

## M.A. degree requirements
The following courses from the M.D. curriculum will be double counted for the M.A. degree in bioethics once the supplemental papers, noted above, are approved.

| | | |
|---|---|---|
| MDCJ 538 | Medical Neuroscience | 3.5 |
| PRVM 517 | Lifestyle and Preventive Medicine | 4 |
| PSYT 526 | Psychopathology | 4.5 |
| RELE 708 | Medicine and Ethics | 1 |
| RELE 714 | Advanced Medical Ethics | 2 |
| **Total Units** | | **15** |

A model curriculum of bioethics coursework taken throughout the four years of medical school

| | | |
|---|---|---|
| **First Year** | | |
| **Winter Quarter** | | |
| RELE 588 | Philosophical Ethics | 3 |
| RELE 568 | Bioethics and the Law | 3 |

| | | |
|---|---|---|
| **Second Year** | | |
| **Summer Quarter** | | |
| RELE 524 | Bioethics and Society | 3 |
| **Autumn Quarter** | | |
| RELE 589 | Biblical Ethics | 3 |
| **Winter Quarter** | | |
| RELE 554 | Clinical Ethics Practicum I | 3 |
| RELG 510 | Christian Service | 2 |
| **Fourth Year** | | |
| **Winter Quarter** | | |
| RELE 545 | Bioethics Case Conference I | 1 |
| RELE 598 | Master's Seminar I | 3 |
| RELE 555 | Clinical Ethics Practicum II | 3 |
| **Spring Quarter** | | |
| RELE 556 | Clinical Practicum III | 3 |
| RELE 566 | History of Health-Care Ethics | 3 |
| RELE 599 | Master's Seminar II | 2 |
| | **Total Units:** | **32** |

# Medicine — M.D. with Religion and Society — M.A.

### Program director, Religion and Society, School of Religion
Zane Yi

### Program liaison, School of Medicine
Vacant

### Faculty
The faculty for the combined degrees Religion and Society with Medicine Program is drawn from Loma Linda University's Schools of Religion and Medicine.

## Admissions
Students are selected through a competitive process involving both the School of Medicine and School of Religion. Selection is based upon standard admission criteria for the M.A. degree in Religion and Society minus the GRE since the MCAT includes a critical-thinking component. Scholarship opportunities are available, please contact program directors for details.

## The program
The program is designed for physicians seeking to serve the church and world in the 21st century and ideal for the medical professional seeking deeper biblical, theological, and philosophical insight, spiritual growth, practical competency, and cultural literacy. The curriculum covers the basic areas of theology, biblical studies, and Christian spirituality, and can also be customized around a particular area of interest.

An M.A. degree in religion and society taken as a stand-alone degree requires 48 units in religion and related courses. However, the M.D./M.A. combined degree student is able to reduce the total units required by sharing units between the two programs in the following manner.

| | | |
|---|---|---|
| **First, Second, & Third Years** | | |
| Standard M.D. curriculum | | |
| **Fourth Year** | | |
| M.A. coursework | | |
| **Courses in M.D. curriculum shared with M.A. curriculum** | | |
| PRVM 517 | Lifestyle and Preventive Medicine [1] | 4 |
| RELE 708 | Medicine and Ethics | 1 |
| RELR 775 | Whole Person Care | 2 |
| RELT 707 | Medicine, Humanity, and God | 2 |
| or RELT 716 | God and Human Suffering | |
| **Summer Quarter** | | |
| RELE 589 | Biblical Ethics | 3 |
| **Autumn Quarter** | | |
| RELT 500 | Biblical Hermeneutics | 3 |
| RELT 501 | Religion and Society | 3 |
| RELT 520 | Church History | 3 |
| Elective | | 3 |
| **Winter Quarter** | | |
| RELT 502 | Religion and Society | 3 |
| RELT 558 | Old Testament Thought | 3 |
| Electives | | 6 |
| **Spring Quarter** | | |
| RELG 698 | Thesis | 3 |
| RELR 536 | Spirituality and Everyday Life | 3 |
| RELE 515 | Faith and Flourishing | 3 |
| RELT 559 | New Testament Thought | 3 |
| **Fifth Year** | | |
| Standard M.D. fourth-year curriculum | | |
| **Total Units** | | **48** |

[1] Requires submission of additional integration paper.

# Oral and Maxillofacial Surgery — Certificate with Medicine — M.D.

The M.D./OMS program is designed to provide an opportunity for qualified dentists to obtain the Doctor of Medicine degree in a customized three-year period. Clinical surgical health-care delivery is emphasized. The content of the program conforms to the Standards of the Commission on Dental Accreditation and is designed to prepare the surgeon for certification by the American Board of Oral and Maxillofacial Surgery. Oral and maxillofacial surgery residents begin their residency program on the OMS service. They subsequently enter the second half of the first-year class at Loma Linda University School of Medicine with advanced standing. The residents then complete the second, third, and fourth years of medical school. The fifth year of the OMS residency consists of a full ACGME accredited postgraduate transitional year composed primarily of general surgery rotations. During the final year, they function as chief resident.

## Application process
Application for admission should be submitted to the School of Dentistry by October 15 of the year prior to the summer of intended enrollment. The School of Dentistry participates in the Post Doctoral Application Service. Applicants are recommended to the School of Medicine for consideration in the six-year OMS program.

# Tuition

Students in the OMS program with the School of Medicine are charged tuition and fees for three years of the program; tuition for the remaining years is waived.

| | | |
|---|---|---|
| **First Year – Oral and Maxillofacial Surgery** | | |
| July – January | | |
| GRDN 609 | Professional Ethics | 2 |
| IMPD 547 | Implant Dentistry Grand Rounds | 1 |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery | 1 |
| OMFS 605 | Integrated Orthodontic and Surgical Correction of Dentofacial Deformities | 1 |
| OMFS 606 | Applied Surgical Anatomy | 1 |
| OMFS 608 | Surgical Oral and Maxillofacial Pathology Conference | 0.5 |
| OMFS 609 | Literature Review in Oral and Maxillofacial Surgery | 0.5 |
| OMFS 614 | Clinical Experience in Oral and Maxillofacial Surgery Practice | 7 |
| OMFS 616 | Application of Surgical Principles to Orthognathic Surgery | 1 |
| OMFS 617 | Critical Decision Making in Oral and Maxillofacial Surgery | 1 |
| OMFS 696 | Scholarly Activity in Oral and Maxillofacial Surgery | 1 |
| RELE 5__ | Graduate-level Ethics | 3 |
| **First Year – Medicine** | | |
| February – June | | |
| MCPF 510 | Christian Physician Formation | 4 |
| MCSD 510 | Clincal Skills Developement | 5.5 |
| MCVS 510 | Cardiovascular Block | 9 |
| MENR 510 | Endocrine & Reproductive Block | 9 |
| MPLM 510 | Pulmonary Block | 6 |
| RELR 749 | Marriage and Family Wholeness [1] | 2 |
| or RELT 734 | Foundations for International Health-Care Missions | |
| **Second Year - Medicine** | | |
| Mid June – Mid August (Oral and Maxillofacial Surgery) | | |
| OMFS 614 | Clinical Experience in Oral and Maxillofacial Surgery Practice | 7 |
| August – April | | |
| MAIN 610 | Application & Integration Block | 9.5 |
| MCPF 610 | Christian Physician Formation | 2 |
| MCSD 610 | Clinical Skills Development | 3 |
| MGIL 610 | Gastrointestinal and Liver Block | 5.5 |
| MNHB 610 | Neuroscience & Human Behavior Block | 16 |
| MREN 610 | Renal and Urinary Block | 7 |
| RELR 775 | Whole Person Care | 2 |
| Select one of the following: | | 2 |
| RELR 749 | Marriage and Family Wholeness (If not taken first year) | |
| RELT 716 | God and Human Suffering | |
| RELT 734 | Foundations for International Health-Care Missions (If not taken first year) | |
| **Third Year – Medicine** | | |
| April – April | | |
| FMDN 701 | Family Medicine Clerkship (6 weeks) | 9 |
| GYOB 701 | Gynecology and Obstetrics Clerkship (6 weeks) | 9 |
| MCPF 710 | Christian Physician Formation | 3 |
| MEDN 701 | Medicine Clerkship (8 weeks) | 12 |
| NEPS 710 | Neurology/Psychiatry Clerkship (8) | 12 |
| PEDS 701 | Pediatrics Clerkship (8 weeks) | 12 |
| RELE 714 | Advanced Medical Ethics | 2 |
| SURG 701 | Surgery Clerkship (8 weeks) | 12 |
| **Fourth Year - Medicine** | | |
| May – October | | |
| EMDN 821 | Emergency Medicine Clerkship (2 weeks) | 3 |
| MDCJ 821 | Preventive Medicine and Population Health | 6 |
| SURG 821 | Surgery Subinternship (ENT/4 weeks) | 6 |
| SURG 822 | Surgery Intensive Care (4 weeks) | 6 |
| Select 12 units (8 weeks) from the following: | | 12 |
| ANAT 891 | Anatomy Elective | |
| ANES 891 | Anesthesiology Elective | |
| BCHM 891 | Biochemistry Elective | |
| DERM 891 | Dermatology Elective | |
| EMDN 891 | Emergency Medicine Elective | |
| FMDN 891 | Family Medicine Elective (General Family Medicine) | |
| GYOB 891 | Gynecology and Obstetrics Elective | |
| MDCJ 891 | Whole Person Care | |
| MEDN 891 | Medicine Elective | |
| NEUR 891 | Neurology Elective | |
| NEUS 891 | Neurosurgery Elective | |
| OPHM 891 | Ophthalmology Elective | |
| ORTH 891 | Orthopaedic Surgery Elective | |
| OTOL 891 | Otolaryngology Elective | |
| PATH 891 | Pathology Elective | |
| PEDS 891 | Pediatrics Elective | |
| PHRM 891 | Pharmacology Elective | |
| PHSL 891 | Physiology Elective | |
| PMRH 891 | Physical Medicine and Rehabilitation Elective | |
| PRVM 891 | Preventive Medicine Elective | |
| PSYT 891 | Psychiatry Elective | |
| RADS 891 | Radiology Elective | |
| RDMN 891 | Radiation Medicine Elective | |
| SURG 891 | Surgery Elective | |
| UROL 891 | Urology Elective | |
| USMLE Step 2 CK and CS (must be completed prior to the awarding of the M.D. degree in October) | | |
| **Fourth Year into Fifth Year – Transitional Year** | | |
| November – October | | |
| Students do not enroll through LLU during this year | | |
| General Surgery Internship including 8 weeks of anesthesia (one year) | | |
| USMLE Step 3 | | |
| **Fifth Year – Oral and Mixillofacial Surgery** | | |
| November – June | | |
| IMPD 547 | Implant Dentistry Grand Rounds | 1 |
| IMPD 611 | Introduction to Implant Dentistry | 2 |
| IMPD 612 | Advanced Implant Dentistry | 2 |

| | | |
|---|---|---|
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery | 1 |
| OMFS 605 | Integrated Orthodontic and Surgical Correction of Dentofacial Deformities | 1 |
| OMFS 608 | Surgical Oral and Maxillofacial Pathology Conference | 0.5 |
| OMFS 609 | Literature Review in Oral and Maxillofacial Surgery | 0.5 |
| OMFS 614 | Clinical Experience in Oral and Maxillofacial Surgery Practice | 7 |
| OMFS 615 | Current Trends in Medicine and Surgery | 2 |
| OMFS 617 | Critical Decision Making in Oral and Maxillofacial Surgery | 1 |
| **Sixth Year – Oral and Maxillofacial Surgery** | | |
| July – June | | |
| GRDN 601 | Practice Management | 2 |
| OMFS 604 | Selected Topics in Oral and Maxillofacial Surgery (1.0) | 4 |
| OMFS 605 | Integrated Orthodontic and Surgical Correction of Dentofacial Deformities (1.0) | 4 |
| OMFS 608 | Surgical Oral and Maxillofacial Pathology Conference (0.5) | 2 |
| OMFS 609 | Literature Review in Oral and Maxillofacial Surgery (0.5) | 2 |
| OMFS 614 | Clinical Experience in Oral and Maxillofacial Surgery Practice (7.0) | 28 |
| OMFS 615 | Current Trends in Medicine and Surgery | 2 |
| OMFS 617 | Critical Decision Making in Oral and Maxillofacial Surgery (1.0) | 4 |
| OMFS 696 | Scholarly Activity in Oral and Maxillofacial Surgery | 1 |
| **Total Units** | | **280.5** |

[1] Chosen in consultation with the SM Associate Dean for Student Affairs

# Pharmacy — Pharm.D. with Bioethics — M.A.

### Program director, Bioethics, School of Religion
Whitny Braun

### Program director, School of Pharmacy
Michael D. Hogue

### Faculty
The faculty of the M.A./Pharm.D. combined degrees program is primarily drawn from Loma Linda University's School of Pharmacy and School of Religion.

## Admissions
Students are selected through a competitive process led by the School of Pharmacy in conjunction with the Bioethics Program. The School of Pharmacy academic dean recommends students, triggering a streamlined admissions process of the M.A. degree in bioethics. HSRT scores are accepted in lieu of the GRE for pharmacy students.

## The program
The M.A./Pharm.D. combined degrees program is designed to fit the schedule of Pharm.D. students. Loma Linda University has been a leader in bioethics education for health-care professionals for nearly half a century. The School of Pharmacy places a high premium on moral values and is a pioneer as one of the very few pharmacy schools in the nation to offer a Pharm.D./M.A. combined degrees program.

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units in bioethics courses. However, the M.A./Pharm.D. combined degrees allows students to double count 25 units of the required 48 units as follows:

1. Eight (8) units come from three courses in the pharmacy curriculum that are counted for M.A. degree in bioethics credit: a) RXSA 555 Epidemiology and Public Health, b) RXSA 547 Pharmacy Law, and c) RXSA 751 Social-Behavioral Aspects of Pharmacy Practice. Acceptance of these courses for M.A. degree credit requires an integrative, supplemental eight-page paper that relates the courses' content to bioethics.
2. Eight (8) units come from the substitution of three School of Religion courses in the Pharm.D. curriculum with courses in the Bioethics Program because content is duplicated.
3. Nine (9) units of additional credit come from three electives in bioethics taken by Pharm.D. students.

## M.A. degree requirements

**School of Pharmacy courses that apply to the M.A. degree in bioethics**

| | | |
|---|---|---|
| RXSA 555 | Epidemiology and Public Health | 3 |
| RXSA 547 | Pharmacy Law | 2 |
| RXSA 751 | Social-Behavioral Aspects of Pharmacy Practice | 3 |
| **Total Units** | | **8** |

**A model curriculum of bioethics coursework taken throughout the four years of the pharmacy curriculum**

**First Year**

**Spring Quarter**

| | | |
|---|---|---|
| RELE 567 | World Religions and Bioethics | 3 |
| RELE 565 | Aesthetics and Ethics | 3 |

**Second Year**

**Summer Quarter**

| | | |
|---|---|---|
| RELE 524 | Bioethics and Society | 3 |

**Autumn Quarter**

| | | |
|---|---|---|
| RELE 588 | Philosophical Ethics | 3 |
| RELE 545 | Bioethics Case Conference I | 1 |

**Winter Quarter**

| | | |
|---|---|---|
| RELE 568 | Bioethics and the Law | 3 |

**Spring Quarter**

| | | |
|---|---|---|
| RELE 515 | Faith and Flourishing | 3 |
| RELE 566 | History of Health-Care Ethics | 3 |

**Third Year**

**Summer Quarter**

| | | |
|---|---|---|
| RELE 589 | Biblical Ethics | 3 |
| RELG 510 | Christian Service | 1 |

**Autumn Quarter**

| | | |
|---|---|---|
| RELE 554 | Clinical Ethics Practicum I | 3 |

**Winter Quarter**

| | | |
|---|---|---|
| RELE 598 | Master's Seminar I | 3 |
| RELE 555 | Clinical Ethics Practicum II | 3 |

| | | |
|---|---|---|
| **Spring Quarter** | | |
| RELE 599 | Master's Seminar II | 2 |
| RELE 556 | Clinical Practicum III | 3 |
| | **Total Units:** | **40** |

# Pharmacy — Pharm.D. with Health Informatics — M.S.

The School of Pharmacy will interview pharmacy students who express interest in the M.S. degree in health informatics. An online admission application for the program is required to facilitate enrollment, but the School of Pharmacy grants formal approval.

The deadline for submitting the application is June 1 of each year; decisions will be made by July 1 of each year. Selection will be based on the following criteria:

- For pharmacy students starting in the second year—
  - Minimum G.P.A. of 3.5 or ranked at the top 10 percent of the class.
- For pharmacy students starting in the first year—
  - Minimum G.P.A. of 3.5 or ranked at the top 10 percent of the class.
  - Evidence of past coursework in informatics.

| **First Year** | | **Units** |
|---|---|---|
| RELT 706 | Adventist Beliefs and Life | 2 |
| RXEE 580 | Introductory Pharmacy Practice Experience—Community I | 3 |
| RXPC 561 | Pharmaceutical Care I | 4 |
| RXPS 501 | Pharmaceutical Calculations | 2 |
| RXPS 502 | Pharmaceutics I | 4 |
| RXPS 503 | Pharmaceutics II | 3 |
| RXPS 515 | Pharmaceutics Laboratory I | 0.5 |
| RXPS 516 | Pharmaceutics Laboratory II | 0.5 |
| RXPS 541 | Foundations of Biomedical Science I | 4 |
| RXPS 542 | Foundations of Biomedical Science II | 4 |
| RXRX 500A | Professional Development | 1.5 |
| RXRX 500B | Professional Development | 1.5 |
| RXSA 547 | Pharmacy Law | 2 |
| RXSA 555 | Epidemiology and Public Health | 3 |
| RXSA 650[1] | Biostatistics | 3 |
| RXTH 560 | Pharmacist-Guided Self Care | 5 |
| RXTH 570 | Introduction to Disease Management | 2.5 |
| **Second Year** | | |
| RELE 705 | Ethics in Pharmacy Practice | 3 |
| RELR 709 | Christian Perspectives on Death and Dying | 2 |
| RXDI 664 | Drug Information and Literature Evaluation | 3 |
| RXEE 680 | Introductory Pharmacy Practice Experience—Community II | 2 |
| RXEE 690 | Introduction to Hospital Pharmacy Practice | 2 |
| RXPS 543 | Foundations of Biomedical Science III | 4 |
| RXPS 544 | Foundations of Biomedical Science IV | 4 |
| RXPS 610 | Pharmacokinetics | 4 |
| RXRX 600A | Professional Development | 1.5 |
| RXRX 600B | Professional Development | 1.5 |
| RXSA 646 | Principles of Management | 3 |
| RXSA 751 | Social-Behavioral Aspects of Pharmacy Practice | 3 |
| RXTH 671 | Fluids and Electrolytes | 2 |
| RXTH 674 | Renal and Respiratory Diseases | 3.5 |
| RXTH 683 | Endocrine | 3.5 |
| RXTH 684 | Cardiovascular I | 3.5 |
| RXTH 685 | Cardiovascular II | 3.5 |
| Health informatics courses: | | |
| Autumn Quarter: | | |
| HLIF 510 | Health-Care Information Systems | 4 |
| HLIF 515 | The U.S. Health-Care System | 4 |
| Winter Quarter: | | |
| HLIF 548 | Human Computer Interactions | 2 |
| HLIF 565 | Technical Structures in Health Informatics | 3 |
| Spring Quarter: | | |
| AHCJ 555 | Writing for Health-Care Professionals | 3 |
| HLIF 525 | Management of Health-Care Data and Information | 2 |
| HLIF 545 | System Design, Implementation, and Management | 3 |
| Summer Quarter: | | |
| **Third Year** | | |
| RELE 706 | Advanced Ethics in Pharmacy Practice | 2 |
| RELT 740 | World Religions and Human Health | 3 |
| RXEE 790 | Introduction to Clinical Pharmacy Practice | 2 |
| RXPC 761 | Pharmacy Practice I | 2 |
| RXPC 762 | Pharmacy Practice II | 2 |
| RXPC 763 | Pharmacy Practice III | 3 |
| RXRX 700A | Professional Development | 1.5 |
| RXRX 700B | Professional Development | 1.5 |
| RXSA 743 | Health Systems, Reimbursement, and Pharmacoeconomics | 3 |
| RXTH 704 | Special Populations | 3 |
| RXTH 770 | Infectious Diseases I | 3.5 |
| RXTH 771 | Central Nervous System II | 3.5 |
| RXTH 772 | Infectious Diseases II | 3.5 |
| RXTH 773 | Central Nervous System I | 3.5 |
| RXTH 774 | Gastrointestinal Disorders | 2.5 |
| RXTH 775 | Oncology | 2.5 |
| Health informatics courses: | | |
| Autumn Quarter: | | |
| HLIF 526 | Quality and Performance Improvement for Health Care | 2 |
| HLIF 530 | Data Analytics and Decision Support | 3 |
| HLIF 555 | Health-Care Vendor and Project Management | 3 |
| Winter Quarter: | | |
| HLIF 520 | Data Management: Modeling and Development | 3 |
| HLIF 550 | Systems Security in Health Care | 2 |
| Spring Quarter: | | |
| HLIF 540 | Leadership Perspectives and Practice | 4 |
| HLIF 570 | Professional Portfolio | 2 |
| HLIF 575 or 584 | Capstone Project and Special Topics in Health Informatics | 2 |

| | | |
|---|---|---|
| **Fourth Year** | | |
| Six (6) of the following eight (8) APPE courses required: | | |
| RXEE 821 | Advanced Pharmacy Practice Experience I | 6 |
| RXEE 822 | Advanced Pharmacy Practice Experience II | 6 |
| RXEE 823 | Advanced Pharmacy Practice Experience III | 6 |
| RXEE 824 | Advanced Pharmacy Practice Experience IV | 6 |
| RXEE 825 | Advanced Pharmacy Practice Experience V | 6 |
| RXEE 826 | Advanced Pharmacy Practice Experience VI | 6 |
| RXEE 827 | Advanced Pharmacy Practice Experience VII | 6 |
| RXEE 828 | Advanced Pharmacy Practice Experience VIII | 6 |
| | **Total Units:** | **214.5** |

[1] Fulfills AHRM 514 Biostatistics for M.S. degree in health informatics.

[2] 700-level religion courses taken in the PharmD program will satisfy the religion requirement for the M.S. degree in health informatics.

### Normal time to complete the program

Four (4) years (13 academic quarters); full-time enrollment required

# Pharmacy — Pharm.D. with Health Professions Education— M.S.

The School of Pharmacy will interview pharmacy students who express interest in the M.S. degree in health professions education. An online admission application for the program is required to facilitate enrollment, but the School of Pharmacy grants formal approval.

The deadline for submitting the application is June 1 of each year; decisions will be made by August 1 of each year. Selection will be based on the following criteria for a PY2 start year:

- Preferred G.P.A. of 3.5
- Two letters of recommendation of School of Pharmacy faculty
- Approval from the School of Pharmacy dean or academic dean

| **First Year** | | **Units** |
|---|---|---|
| RELT 706 | Adventist Beliefs and Life | 2 |
| RXEE 580 | Introductory Pharmacy Practice Experience—Community I | 3 |
| RXPC 561 | Pharmaceutical Care I | 4 |
| RXPS 501 | Pharmaceutical Calculations | 2 |
| RXPS 502 | Pharmaceutics I | 4 |
| RXPS 503 | Pharmaceutics II | 3 |
| RXPS 515 | Pharmaceutics Laboratory I | 0.5 |
| RXPS 516 | Pharmaceutics Laboratory II | 0.5 |
| RXPS 541 | Foundations of Biomedical Science I | 4 |
| RXPS 542 | Foundations of Biomedical Science II | 4 |
| RXRX 500A | Professional Development | 1.5 |
| RXRX 500B | Professional Development | 1.5 |
| RXSA 547 | Pharmacy Law | 2 |
| RXSA 555 | Epidemiology and Public Health | 3 |
| RXSA 650[1] | Biostatistics | 3 |
| RXTH 560 | Pharmacist-Guided Self Care | 5 |
| RXTH 570 | Introduction to Disease Management | 2.5 |
| **Second Year** | | |
| RELE 705 | Ethics in Pharmacy Practice | 3 |
| RELR 709 | Christian Perspectives on Death and Dying | 2 |
| RXDI 664[1] | Drug Information and Literature Evaluation | 3 |
| RXEE 680 | Introductory Pharmacy Practice Experience—Community II | 2 |
| RXEE 690 | Introduction to Hospital Pharmacy Practice | 2 |
| RXPS 543 | Foundations of Biomedical Science III | 4 |
| RXPS 544 | Foundations of Biomedical Science IV | 4 |
| RXPS 610 | Pharmacokinetics | 4 |
| RXRX 600A | Professional Development | 1.5 |
| RXRX 600B | Professional Development | 1.5 |
| RXSA 646 | Principles of Management | 3 |
| RXSA 751 | Social-Behavioral Aspects of Pharmacy Practice | 3 |
| RXTH 671 | Fluids and Electrolytes | 2 |
| RXTH 674 | Renal and Respiratory Diseases | 3.5 |
| RXTH 683 | Endocrine | 3.5 |
| RXTH 684 | Cardiovascular I | 3.5 |
| RXTH 685 | Cardiovascular II | 3.5 |
| Health professions education courses: | | |
| Autumn Quarter: | | |
| AHCJ 509 | Transformational Teaching and Learning | 3 |
| AHCJ 515 | Curriculum Development in Higher Education | 3 |
| Winter Quarter: | | |
| AHCJ 556 | Administration in Higher Education | 3 |
| AHCJ 564 | Collaborative Learning in Higher Education | 3 |
| Spring Quarter: | | |
| AHCJ 506 | Educational Evaluation and Clinical Assessment | 3 |
| NGNE 500 | Teaching and Learning Theory | 3 |
| Summer Quarter: | | |
| AHCJ 555 | Writing for Health-Care Professionals | 3 |
| **Third Year** | | |
| RELE 706 | Advanced Ethics in Pharmacy Practice | 2 |
| RELT 740 | World Religions and Human Health | 3 |
| RXEE 790 | Introduction to Clinical Pharmacy Practice | 2 |
| RXPC 761 | Pharmacy Practice I | 2 |
| RXPC 762 | Pharmacy Practice II | 2 |
| RXPC 763 | Pharmacy Practice III | 3 |
| RXRX 700A | Professional Development | 1.5 |
| RXRX 700B | Professional Development | 1.5 |
| RXSA 743 | Health Systems, Reimbursement, and Pharmacoeconomics | 3 |
| RXTH 704 | Special Populations | 3 |
| RXTH 770 | Infectious Diseases I | 3.5 |
| RXTH 771 | Central Nervous System II | 3.5 |
| RXTH 772 | Infectious Diseases II | 3.5 |
| RXTH 773 | Central Nervous System I | 3.5 |
| RXTH 774 | Gastrointestinal Disorders | 2.5 |
| RXTH 775 | Oncology | 2.5 |
| Health professions education courses: | | |
| Autumn Quarter: | | |
| HPED 535 | Current Issues in Health Professions Education | 3 |
| AHCJ 566 | Theoretical Foundations of Leadership | 3 |

| | | |
|---|---|---|
| Winter Quarter: | | |
| HPED 581 | Capstone Project in Health Professions Education I | 3 |
| HADM 528 | Organizational Behavior in Health Care | 3 |
| Spring Quarter: | | |
| HPED 582 | Capstone Project in Health Professions Education II | 3 |
| AHCJ 600 | Active Online Learning | 3 |
| **Fourth Year** | | |
| Six (6) of the following eight (8) APPE courses required: | | |
| RXEE 821 | Advanced Pharmacy Practice Experience I | 6 |
| RXEE 822 | Advanced Pharmacy Practice Experience II | 6 |
| RXEE 823 | Advanced Pharmacy Practice Experience III | 6 |
| RXEE 824 | Advanced Pharmacy Practice Experience IV | 6 |
| RXEE 825 | Advanced Pharmacy Practice Experience V | 6 |
| RXEE 826 | Advanced Pharmacy Practice Experience VI | 6 |
| RXEE 827 | Advanced Pharmacy Practice Experience VII | 6 |
| RXEE 828 | Advanced Pharmacy Practice Experience VIII | 6 |
| | **Total Units:** | **211.5** |

[1] Course units count toward the M.S. in health professions education.

### Normal time to complete the program

Four (4) years (13 academic quarters); full-time enrollment required

# Social Welfare and Social Research — Ph.D. with Bioethics — M.A.

Closed to admission for the 2020-2021 academic year.

### Program director, Bioethics

Whitny Braun

### Program director, Social Welfare and Social Research, Department of Social Work and Social Ecology

Larry Ortiz

### Faculty

The faculty for the combined M.A./Ph.D. in Bioethics *with* Social Welfare and Social Research Program is drawn from the School of Religion and from the Department of Social Work and Social Ecology in the School of Behavioral Health.

## Purpose of the program

The purpose of the combined M.A./Ph.D. in Bioethics *with* Social Welfare and Social Research Program is to facilitate an integrated and more efficient completion of two graduate degrees for students with strong interests in both bioethics and social policy. Students who complete this combined degrees program will be prepared to make significant interdisciplinary contributions to the field of social policy and ethics. Individuals working in the area of social policy must be able to undertake and publish research on social problems. This requires the ability to apply ethical theory to real-world policy scenarios. Graduates will be able to provide leadership to the social policy arena by conducting interdisciplinary research on various issues and agendas that have significant moral implications.

## Admissions

To enter the proposed program, students must gain separate acceptance to both graduate programs. The Social Policy and Social Research Program director recommends students. This recommendation triggers a streamlined admissions process for the M.A. degree in bioethics.

## Coursework requirements

If an M.A. degree in bioethics is taken as a stand-alone degree, the requirement is 48 units. However, the M.A./Ph.D. combined degrees student is able to double count 13 of the needed 48 units.

To the extent possible, research projects in both programs focus on the interface of ethics and social policy.

### M.A.

| | | |
|---|---|---|
| **Ethics core** | | |
| RELE 524 | Bioethics and Society | 3 |
| RELE 545 | Bioethics Case Conference I | 1 |
| RELE 589 | Biblical Ethics | 3 |
| RELE 598 | Master's Seminar I | 3 |
| RELE 599 | Master's Seminar II | 2 |
| RELG 510 | Christian Service (1-2) [2] | 2 |
| Electives | | 21 |
| RELE 525 | Ethics for Scientists | |
| RELE 548 | Christian Social Ethics | |
| RELE 554 | Clinical Ethics Practicum I | |
| RELE 555 | Clinical Ethics Practicum II | |
| RELE 556 | Clinical Practicum III | |
| RELE 564 | Ethics and Health Disparities | |
| RELE 566 | History of Health-Care Ethics | |
| RELE 567 | World Religions and Bioethics | |
| RELE 568 | Bioethics and the Law | |
| **Shared units with social welfare and social policy (Ph.D.)** | | |
| The folowing 13 units are doubled counted | | |
| RELE 588 | Philosophical Ethics | 3 |
| SPOL 613 | Social Science Concepts I | 3 |
| SPOL 614 | Social Science Concepts II | 3 |
| SPOL 655 | Research Methods II | 4 |
| **Total Units** | | **48** |

### Ph.D.

| | | |
|---|---|---|
| **Theory** | | |
| SPOL 610 | Diversity Theory and Global Perspectives | 3 |
| SPOL 613 | Social Science Concepts I | 3 |
| SPOL 614 | Social Science Concepts II | 3 |
| **Policy** | | |
| SPOL 616 | History and Philosophy of Social Welfare Policy | 3 |
| SPOL 658 | Advanced Policy Analysis and Research | 3 |
| **Research** | | |
| SPOL 654 | Research Methods I | 4 |
| SPOL 655 | Research Methods II | 4 |
| SPOL 667 | Research Methods Practicum Seminar | 2 |
| **Statistics** | | |
| CFSD 601 | Statistics I | 4 |

| | | |
|---|---|---|
| or PSYC 501 | Advanced Statistics I | |
| CFSD 602 | Statistics II | 4 |
| or PSYC 502 | Advanced Statistics II | |
| CFSD 603 | Statistics III | 4 |
| or PSYC 503 | Advanced Multivariate Statistics | |
| SPOL 665 | Statistical Practicum Seminar | 2 |
| Advanced statistics electives | | 4 |
| **Integrative seminars** | | |
| SPOL 601 | Integrative Seminar: Pro-seminar [1] | 3 |
| SPOL 602 | Integrative Seminar: Global Perspective [1] | 6 |
| SPOL 603 | Integrative Seminar: Implementation Science [1] | 3 |
| SPOL 604A | Integrative Seminar: Academic Practice | 1 |
| SPOL 604B | Integrative Seminar: Academic Practice | 1 |
| SPOL 604C | Integrative Seminar: Academic Practice | 1 |
| **Dissertation** | | |
| SPOL 681 | Dissertation Proposal I | 3 |
| SPOL 682 | Dissertation Proposal II | 3 |
| SPOL 683 | Dissertation Proposal III | 3 |
| SPOL 697 | Research [1] | 12 |
| **Religion** | | |
| RELE 588 | Philosophical Ethics | 3 |
| RELR 540 | Wholeness and Health [2] | 3 |
| RELT 557 | Theology of Human Suffering | 3 |
| **Electives** | | **4** |
| **Total Units** | | **92** |

[1] Course repeated to full unit requirement
[2] Fulfills service learning requirement

# Social Work — M.S.W. with Criminal Justice — M.S.

**Program director**
Kimberly Freeman

Loma Linda University's motto, "To make man whole," provides a powerful context in integrated practice. Both social work and criminal justice—within a behavioral health framework—emphasize recovery, healing, and restoration.

A multidisciplinary approach considers the biological, psychological, social, and spiritual well-being of victims, offenders, and communities; and provides a deeper understanding of crime and the struggle of the modern criminal justice system in a behavioral health context. The combined degrees program offers a unique opportunity for individuals interested in working in settings such as mental health court, detention centers, forensic inpatient programs, and forensic outpatient behavioral health systems.

## Mission

The mission, program goals, and objectives build on elements from the M.S.W and M.S. in criminal justice degrees. Please refer to each of these programs for this content.

## General overview

The combined M.S.W./M.S. in criminal justice program is a seven-quarter, full-time curriculum that begins with the social work core coursework required for all students. Coursework during the first year of study includes the generalist practice curriculum, which is grounded in the liberal arts and the person-in-environment framework. Within this framework, students learn to promote social well-being, and build on the strength and resiliency of all human beings through a range of prevention and intervention practice methods when working with diverse individuals, families, groups, organizations, and communities. During their second year, students complete a clinical practice specialization along with specialized courses and practicum in forensic behavioral health. Students choosing this area will focus on the needs of individuals in the criminal or juvenile justice systems who experience severe mental illness and who may also present with co-occurring substance use. Students will gain knowledge and skills in treatment programming. In addition, students will be prepared to assess and provide expert testimony regarding continued institutionalization versus readiness for community treatment.

Students gain knowledge and skills in treatment programming within a forensic mental health framework. This context prepares students to assess and provide expert testimony regarding continued institutionalization versus readiness for outpatient psychosocial rehabilitation, including the development and implementation of recovery and resiliency informed treatment plans. An integrated practicum and seminar class in criminal justice typically begins in the Summer Quarter of the second year.

The combined degrees emphasize a thoughtful reflection about integrated issues in both social work and criminal justice, providing students with a deeper understanding of practice issues affecting the field.

## Liberal arts preparation

M.S.W. and criminal justice curricula are built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses, which must be completed before advancement to candidacy (prior to beginning the advanced curriculum).

Unit values are stated as quarter units. Content from multiple courses may be used to meet most requirements.

## Program options

Alternate program options have been designed to address the varying needs of students: namely, a full-time, two-year option; a three-year, part-time option; and a four-year, part-time option.

## Admissions

### Admission requirements

Students wishing to take the dual degree must be admitted to both the M.S.W. (p. 187) and the M.S. in Criminal Justice (p. 180) programs separately. Applicants should refer to the admissions criteria for each program.

## Program requirements

The 90-unit curriculum for the M.S.W. and M.S. degrees in Criminal Justice provides a mix of academic, experiential, and research activities essential for practice. Students must maintain a grade point average

of 3.0 on a 4.0 point scale (a letter grade of B) in order to progress successfully though the program and complete the degree. In addition, students must meet the knowledge, skills, and professional performance competencies outlined by the program. Students must meet both course and cumulative G.P.A. standards and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| **Generalist curriculum** | | |
| SOWK 510 | Diversity Theory in Practice and Research | 3 |
| SOWK 513 | Human Behavior in a Culturally Diverse Environment | 5 |
| SOWK 514 | Social Welfare History and Policy | 5 |
| SOWK 517 | Practice I: Individuals | 4 |
| SOWK 518 | Practice II: Groups | 3 |
| SOWK 519 | Practice III: Organizations and Communities | 3 |
| SOWK 520 | Practice IV: Families [1] | 3 |
| SOWK 548 | Research Methods | 5 |
| SOWK 574 | Practice V: Social Work Administration | 3 |
| SOWK 578 | Field Orientation [1] | 0 |
| SOWK 585 | Legal and Ethical Aspects in Health and Behavioral Health Services | 3 |
| **Required cognates** | | |
| RELR 540 | Wholeness and Health | 3 |
| **Core criminal justice courses** | | |
| CRMJ 515 | Crime and Society | 3 |
| CRMJ 517 | Criminal Procedure and Rules of Evidence | 3 |
| CRMJ 519 | Expert Testimony: Procedure and Practice | 2 |
| CRMJ 574 | Theories of Crime and Restitution | 3 |
| **Clinical specialization and forensic behavioral health** | | |
| CRMJ 620 | Forensic Mental Health | 3 |
| SOWK 613 | DSM: Diagnosis Within the Context of Diversity and Difference | 4 |
| SOWK 617 | Global Practice | 3 |
| SOWK 647 | Integrated Behavioral Health | 2 |
| SOWK 648 | Co-occurring Processes and Interventions | 3 |
| SOWK 659 | Recovery in Behavioral Health | 2 |
| SOWK 661 | Psychodynamic Therapies | 4 |
| SOWK 662 | Behavioral and Cognitive Therapies | 4 |
| SOWK 663 | Crisis and Trauma Interventions | 3 |
| SOWK 675 | Supervision | 3 |
| SOWK 681 | Behavioral Health Policies and Systems | 2 |
| **Degree completion options** | | **6** |
| Non-thesis option: [6] | | |
| SOWK 695A | Advanced Research Methods | |
| SOWK 695B | Advanced Research Methods | |
| SOWK 695C | Advanced Research Methods | |
| Thesis option: [2] | | |
| SOWK 697 | Applied Research | |
| SOWK 698 | Thesis | |
| **Practicum and seminar [5]** | | |
| CRMJ 787 | Advanced Professional Practicum and Seminar | |
| SOWK 757A | Generalist Practicum and Seminar [3] | |
| SOWK 757B | Generalist Practicum and Seminar [3] | |
| SOWK 757C | Generalist Practicum and Seminar [3] | |
| SOWK 787A | Advanced Clinical Case Consultation [4] | |
| SOWK 787B | Advanced Clinical Case Consultation [4] | |
| SOWK 787C | Advanced Clinical Case Consultation [4] | |
| **Total Units** | | **90** |

1. Not eligible for waiver.
2. Thesis option is available for students meeting program criteria.
3. Hours: 160 + 20; Not eligible for waiver
4. Hours: 200 + 20
5. 700-numbered courses are not calculated into the total didactic units required for the degree.
6. SOWK 695 ABC is equivalent to SOWK 695.

### Normal time to complete the program

Seven (7) academic quarters (includes didactic courses and practicums) — based on full-time enrollment; part time permitted

# Social Work — M.S.W. with Gerontology — M.S.

**Program director**
Kimberly Freeman

Social work and gerontology—within a behavioral health framework —address the models of wellness, recovery, and resiliency needed for working with older adults and their caregivers. The program's multidisciplinary approach considers the biological, psychological, social, and spiritual well-being of older adults and provides students with knowledge and skills in providing resources, clinical services, and opportunities to older adults and their families. As such, the combined M.S.W. and M.S. degree in gerontology program offers a unique opportunity for individuals interested in working with older adults within a variety of behavioral health settings.

## Mission, goals, and objectives

The mission, program goals, and objectives build on elements from both the M.S.W. (p. 185) and M.S. degrees in gerontology (p. 181).

## General overview

The combined M.S.W./M.S. degrees in gerontology program is a seven-quarter, full-time curriculum that begins with the social work core coursework required for all students. Coursework during the first year of study includes the generalist practice curriculum, which is grounded in the liberal arts and the person-in-environment framework. Within this framework, students learn to promote social well-being, and build on the strength and resiliency of all human beings through a range of prevention and intervention practice methods when working with diverse individuals, families, groups, organizations, and communities. During their second year, students complete a clinical practice specialization along with specialized courses in gerontology and geriatric practice. An integrated practicum and specialized seminar class in gerontology typically begins in the summer quarter of the final year.

## Liberal arts preparation

The combined M.S.W. and M.S. degrees in gerontology curriculum is built upon a liberal arts perspective. Individual applicants whose

undergraduate degrees do not reflect this perspective may be asked to enroll in additional courses.

Please note: Any prerequisite requirements must be completed before admission to the combined degrees M.S.W/ M.S. program.

# Program options

Alternate program options have been designed to address the varying needs of students. As such, the program offers two-, three-, and four-year options.

# Admissions

**Admissions**

Students wishing to take the dual degree must be admitted to both the M.S.W. (p. 187) and the M.S. in Gerontology (p. 182) programs separately. Applicants should refer to the admissions criteria for each program.

# Program requirements

The M.S.W./M.S. in Gerontology degrees consists of 90 units of didactic coursework in addition to professional practica experiences. The dual degree program provides the mix of academic, experiential, and research activities essential for master's degree level students. Students must maintain a grade point average of 3.0 on a 4.0 point scale (a letter grade of B) in order to progress successfully though the program and complete the degree. In addition, students must meet the knowledge, skills, and professional performance competencies outlined by the program. Students must meet both course and cumulative G.P.A. standards and course repeat expectations set by the School of Behavioral Health in the general regulations (p. 146) section of this CATALOG.

| | | |
|---|---|---|
| **Generalist curriculum** | | |
| SOWK 510 | Diversity Theory in Practice and Research | 3 |
| SOWK 513 | Human Behavior in a Culturally Diverse Environment | 5 |
| SOWK 514 | Social Welfare History and Policy | 5 |
| SOWK 517 | Practice I: Individuals | 4 |
| SOWK 518 | Practice II: Groups | 3 |
| SOWK 519 | Practice III: Organizations and Communities | 3 |
| SOWK 520 | Practice IV: Families [1] | 3 |
| SOWK 548 | Research Methods | 5 |
| SOWK 574 | Practice V: Social Work Administration | 3 |
| SOWK 585 | Legal and Ethical Aspects in Health and Behavioral Health Services | 3 |
| SOWK 578 | Field Orientation [1] | 0 |
| **Required cognates** | | |
| RELR 540 | Wholeness and Health | 3 |
| **Gerontology core courses** | | |
| GERO 515 | Diversity and Aging | 3 |
| GERO 615 | Economics and Management Issues of Older Adult Services | 4 |
| GERO 617 | Bio-psycho-social-spiritual Theories of Aging | 4 |
| **Clinical specialization and geriatric practice** | | |
| GERO 654 | Therapeutic Interventions with Older Adults | 3 |
| SOWK 613 | DSM: Diagnosis Within the Context of Diversity and Difference | 4 |
| SOWK 617 | Global Practice | 3 |
| SOWK 647 | Integrated Behavioral Health | 2 |
| SOWK 648 | Co-occurring Processes and Interventions | 3 |
| SOWK 659 | Recovery in Behavioral Health | 2 |
| SOWK 661 | Psychodynamic Therapies | 4 |
| SOWK 662 | Behavioral and Cognitive Therapies | 4 |
| SOWK 663 | Crisis and Trauma Interventions | 3 |
| SOWK 675 | Supervision | 3 |
| SOWK 681 | Behavioral Health Policies and Systems | 2 |
| **Degree completion options** | | **6** |
| Non-thesis option: [6] | | |
| SOWK 695A | Advanced Research Methods | |
| SOWK 695B | Advanced Research Methods | |
| SOWK 695C | Advanced Research Methods | |
| Thesis option: [2] | | |
| SOWK 697 | Applied Research | |
| SOWK 698 | Thesis | |
| **Total Units** | | **90** |

| | | |
|---|---|---|
| **Professional practica experience** [5] | | |
| GERO 787 | Advanced Professional Practicum and Seminar | 4 |
| Generalist practicum and seminar | | |
| SOWK 757A | Generalist Practicum and Seminar [3] | 3 |
| SOWK 757B | Generalist Practicum and Seminar [3] | 3 |
| SOWK 757C | Generalist Practicum and Seminar [3] | 3 |
| Clinical practicum and seminar | | |
| SOWK 787A | Advanced Clinical Case Consultation [4] | 4 |
| SOWK 787B | Advanced Clinical Case Consultation [4] | 4 |
| SOWK 787C | Advanced Clinical Case Consultation [4] | 4 |
| **Total Units** | | **25** |

1. Not eligible for waiver.
2. Thesis option is available for students meeting program criteria.
3. Hours: 160 + 20; Not eligible for waiver
4. Hours: 200 + 20
5. 700-numbered courses are not calculated into the total didactic units required for the degree.
6. SOWK 695ABC is equivalent to SOWK 695.

## Normal time to complete the program

Seven (7) academic quarters (includes didactic courses and practicums) — based on full-time enrollment; part time permitted

# ONLINE PROGRAMS

Applicants/students must reside in a state for which LLU has received authorization to deliver online programs. Please refer to the state authorization map (https://home.llu.edu/llu-state-authorization/) to determine eligibility.

Coding Specialist — Certificate (p. 86)

Denominational Studies/Chaplains — Certificate (p. 396)

Epidemiology — M.P.H. (p. 372)

Health and Wellness Coaching — School Certificate (p. 369)

Health-Care Administration — B.S. (p. 58), M.H.A. (p. 374)

Health Education — Dr.P.H. (p. 385)

Health Education and Wellness Coaching — M.P.H. (p. 376)

Health Geoinformatics — Certificate (p. 369)

Health Informatics — M.S. (p. 87)

Health Information Management — B.S., Certificate (p. 88)

Health Policy and Leadership — Dr.P.H. (p. 386)

Health Professions Education — M.S., Certificate (p. 62)

Nursing — RN to B.S. (p. 326)

Plant-Based Nutrition — M.S. (p. 379)

Play Therapy — Certificate (p. 183)

Population Medicine — M.P.H. (p. 380)

Preventive Care — Dr.P.H. (p. 389)

Radiation Sciences — B.S. (p. 135), M.S.R.S. (p. 138)

Respiratory Care — B.S., postprofessional (p. 68); M.S.R.C. (p. 70)

## Hybrid programs

(requires some attendance on campus and/or at an affiliated clinical site)

Cardiac Electrophysiology — A.S. (p. 123)

Clinical Leadership — D.S.W. (p. 178)

Drug and Alcohol Counseling — Certificate (p. 158)

Marital and Family Therapy — M.S. (p. 160), D.M.F.T (p. 163).

Nursing — D.N.P. (p. 334) with the following concentrations:

- Acute Care Adult-Gerontology Nurse Practitioner
- Acute Care Pediatric Nurse Practitioner
- Clinical Nurse Specialist: Adult-Gerontology
- Clinical Nurse Specialist: Pediatrics Nurse Practitioner
- Family Nurse Practitioner Nurse Practitioner
- Primary Care Adult-Gerontology Nurse Practitioner
- Primary Care Pediatrics Nurse Practitioner
- Psych Mental Health Nurse Practitioner
- M.S. to D.N.P.

Occupational Therapy — O.T.D., postprofessional (p. 103)

Orthotics and Prosthetics — M.S.O.P., entry-level hybrid track (p. 105)

Radiologist Assistant — M.S.R.S. (p. 141)

Social Work — M.S.W. (p. 185)

Special Imaging: Computed Tomography (CT) — Certificate (p. 143)

Speech-Language Pathology — S.L.P.D. (p. 84)

# COURSES

## Allied Health—Conjoint (AHCJ)

### Courses

**AHCJ 101. Introductory Chemistry. 4 Units.**
Basic survey of matter, energy, and measurement. Includes atoms and molecules; chemical bonding; chemical reactions and reaction rates; gases, liquids, and solids; solutions and colloids; acids and bases; nuclear chemistry. Prerequisite: High school algebra or equivalent.

**AHCJ 102. Introductory Organic Chemistry. 4 Units.**
Introduces the study of compounds that contain carbon. Covers alkenes, alkynes, and aromatic compounds; alcohols, phenols, ethers, and halides; aldehydes and ketones; carboxylic acids and esters; amines and amides. Prerequisite: AHCJ 101; or equivalent.

**AHCJ 103. Introductory Biochemistry. 4 Units.**
Introduces the chemistry of living systems, including carbohydrates, lipids, proteins, and nucleic acids; enzyme chemistry; bioenergetics; carbohydrate, lipid, and protein metabolism; biosynthetic pathways; protein synthesis; chemical transmitters and immunoglobulins; body fluids, nutrition, and digestion. Prerequisite: AHCJ 101, AHCJ 102; or equivalent.

**AHCJ 105. Procedures in Phlebotomy. 5 Units.**
Designed for individuals who are interested in laboratory medicine and would like to become certified phlebotomists. Includes instruction in medical terminology, laboratory safety, basic anatomy and physiology, specimen-collection techniques, hazards/complications, quality assurance methods, and medicolegal issues of phlebotomy. Clinical rotation arranged at Loma Linda University Medical Center and affiliates. Prerequisite: Current CPR certificate.

**AHCJ 111. Introductory Physics. 4 Units.**
Focuses on mechanics and properties of matter and heat; emphasizes concepts. Per week: lecture three hours, laboratory three hours. Designed for students entering programs in the allied health sciences and nursing.

**AHCJ 112. Introductory Physics. 4 Units.**
Focuses on sound, light, electricity and magnetism, atomic and nuclear physics, and relativity; emphasizes concepts. Per week: lecture three hours, laboratory three hours. Designed for students entering programs in the allied health sciences and nursing.

**AHCJ 115. Introduction to Health Care Professions I. 2 Units.**
Introduces health-care professions, including their entry-level educational requirements at the undergraduate level. Content includes concepts of health care as practiced within the U.S health-care system, roles of specific professions, job descriptions and scopes of practice for the clinical disciplines being profiled, modes of interprofessional interaction, work environments of profiled disciplines, educational requirements and costs, employment analysis and salary ranges.

**AHCJ 116. Introduction to Health Professions II. 2 Units.**
Introduces health-care professions, including their entry-level educational requirements at the graduate level. Content includes concepts of health care as practiced within the U.S. health-care system, roles of specific professions, job descriptions and scopes of practice for the clinical disciplines being profile,; modes of inter-professional interaction, work environments of profiled disciplines, educational requirements and costs, employment analysis and salary ranges.

**AHCJ 124. Introductory Medical Anthropology. 4 Units.**
An interdisciplinary study of human health and disease, health-care delivery systems, and biocultural adaptations in terms of biological, social, and psychological factors. Holistically examines health behaviors in terms of cultural, age, gender, sexual preference, religion, race, ethnicity, life experience, and economic diversity. Addresses barriers to care, problem-solving skills, and effective practice in a variety of settings by the health professional.

**AHCJ 135. Essentials of Human Anatomy and Physiology. 5 Units.**
Studies the structure and function of the human body, including organ systems. Prerequisite to many certificate and associate degree programs. Lecture and laboratory required.

**AHCJ 151. General Chemistry I. 4 Units.**
First quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: High school chemistry; college algebra.

**AHCJ 152. General Chemistry II. 4 Units.**
Second quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: AHCJ 151.

**AHCJ 153. General Chemistry III. 4 Units.**
Third quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: AHCJ 152.

**AHCJ 225. History of Radiation and Imaging 1890-1940. 3 Units.**
History of imaging and radiation from 1890 to 1940. Evolution of imaging practices and the use of radiation in society. Highlights the nature of change in imaging and use of radiation for medical, commercial, industrial, and military purposes. Examines cultural, institutional, and technological precedents that, along with geography, set the stage for advancements in technology and changes of ideologies.

**AHCJ 226. History of Radiation and Imaging 1940-Present Day. 3 Units.**
History of imaging and radiation from 1940 to the present. Recent evolution of imaging practices and the use of radiation in society. Highlights the nature of change in imaging and use of radiation for medical, commercial, industrial, and military purposes. Examines cultural, institutional, and technological precedents that, along with geography, set the stage for advancements in technology and changes of ideologies.

**AHCJ 228. Hispanic Culture for Allied Health Professionals. 4 Units.**
Introduces basic humanities concepts relevant to the Hispanic culture and its influence on how health care is provided today. Includes cultural awareness, heritage, health beliefs and practices, and culturally competent care and communication.

**AHCJ 241. Microbiology. 2.5 Units.**
Designed for students in the health sciences. History, classification, morphology, growth, control, transmission, and pathology of selected bacteria, viruses, fungi, rickettsia, and parasites. Host defenses against microbial pathogens, including specific and nonspecific immunity. Per week: lecture thirty hours, laboratory thirty hours. Course covers two quarters. Grade given upon completion of the 241, 242 sequence. Prerequisite: A college-level chemistry course.

**AHCJ 242. Microbiology. 2.5 Units.**
Designed for students in the health sciences. History, classification, morphology, growth, control, transmission, and pathology of selected bacteria, viruses, fungi, rickettsia, and parasites. Host defenses against microbial pathogens, including specific and nonspecific immunity. Per week: lecture 30 hours, laboratory 30 hours. Course covers two quarters. Grade given upon completion of AHCJ 241, 242 sequence. Prerequisite: AHCJ 241.

**AHCJ 250. Human Anatomy and Physiology I. 5 Units.**
A 5-unit course covering structure and function of: cells; primary tissues; the integument; osseous tissue and the skeletal system; muscle tissues and skeletal muscles; as well as an introduction to the nervous system. For students entering two- and four-year health professional programs such as physical therapy, occupational therapy, cardiopulmonary sciences, communication sciences and disorders, radiation technology, nursing, and other programs with an anatomy and physiology prerequisite.

**AHCJ 251. Human Anatomy and Physiology II. 5 Units.**
A 5-unit course covering the organization and functions of the central and peripheral nervous systems and the visceral organ systems. For students entering two- and four-year health professional programs—such as physical therapy, occupational therapy, cardiopulmonary sciences, communication sciences and disorders, radiation technology, nursing, and other programs with an anatomy and physiology prerequisite. Prerequisite: AHCJ 250, or equivalent.

**AHCJ 305. Infectious Disease and the Health-Care Provider. 1 Unit.**
Current issues related to infectious diseases, with emphasis on principles of epidemiology and etiology of HIV/AIDS. Disease pathology and modes of transmission as compared to hepatitis, tuberculosis, and influenza. Development of ethical response to psychosocial, economic, and legal concerns. Strategies and programs for education, prevention, and identification of resources. Impact on health-care workers; risk factors and precautions for blood-borne pathogens.

**AHCJ 308. Professional Communications. 1,2 Unit.**
Forms of written and verbal communication routinely required in the performance of the health-care manager's duties. Projects include memos, letters, confidential FAX cover design, short reports, meeting notices, minutes, and creation of agendas.

**AHCJ 314. Managing Stress. 3 Units.**
Introduces stress management from a mind, body, and spirit perspective. Integration of component parts to provide a unified, composite basis for managing stress with whole person care. Integrates evidence-based, health psychology research for managing stress through lifestyle, and use of humor, music, exercise, rest/relaxation, religion/spirituality, and other relevant areas. Introduces tools needed to assess stress while striving for health and balance.

**AHCJ 315. Psychosocial Aspects of Health Care. 3 Units.**
Addresses psychosocial topics which optimize therapeutic outcomes. Focus on clinical competence and professional excellence involving health health-care providers affected by pathology, impairment, functional limitation, and/or disability. Recommends roles and intervention strategies for health-care providers; including, those practicing nursing, physical and occupational therapy, speech-language pathology, physician assistant, respiratory therapy, social work, and medical laboratory science.

**AHCJ 318. Emotional Intelligence and Leadership Skills for Health-Care Professionals. 3 Units.**
Examines the foundational concepts of emotional and social intelligence. Students assess their strengths, design action plans to enhance their emotional and social intelligence competencies, and apply emotional and social intelligence concepts and theories to their personal and professional behavioral practices and to the management and leadership of others. Course based on a framework specific to the health-care environment.

**AHCJ 320. ADL and Assistive Devices. 3 Units.**
Introduces the implied adaptations necessary for an individual with disabilities to lead an effective life. Promotes an integrative perspective on all the biomechanical engineering that is necessary for activities of daily living and raises awareness of how orthotic and prosthetic devices interface in their purpose. Teaches the basic medical, custom seating principles.

**AHCJ 323. Economics and Business Management. 3 Units.**
Establishes principles of economics, financial management, and law as they apply to health-care settings, including: starting a new service, reimbursement, capital and operational budgeting, reading financial statements, and cost-saving measures.

**AHCJ 324. Psychosocial Models and Interventions. 2 Units.**
Models of stress, crisis, and psychological trauma related to health-care providers. Psychosocial reactions and responses of populations, individuals, and care providers to societal disruption and trauma, medical emergencies, and death and dying. Suicide intervention, critical incident debriefings, and death notification. Roles of psychiatrists, psychologists, social workers, family therapists, and chaplains. Provision of temporary, adequate psychological care during psychosocial crisis.

**AHCJ 325. U. S. Health-Care Delivery System. 2 Units.**
Overview of U.S. health-care delivery, including the history of health-care institutions, accrediting bodies, organizations that provide health care; regulations and standards, reimbursement methods used, and the professionals who provide services. Presents course from a systems perspective, including research into the future of health care.

**AHCJ 326. Fundamentals of Health Care. 2 Units.**
Foundation of basic patient care information and skills for allied health professionals entering the clinical environment. Integrated basic care knowledge and skills required by each profession.

**AHCJ 328. Wholeness Portfolio I. 1 Unit.**
Students develop an introductory portfolio that demonstrates progression toward the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 329. Organic Chemistry with Laboratory. 5 Units.**
Studies carbon chemistry as related to organic compounds found in the human organism.

**AHCJ 331. Human Resource Management. 3 Units.**
Theory and practice of the management of people at work. Organizational behavior concepts and the problems of employee procurement, training, and motivation. Job evaluation, wage administration, employee benefits, and negotiating with labor unions. Preparation for both managing people and directing a department in a complex organization.

**AHCJ 334. Biochemistry. 4 Units.**
Chemistry and metabolism of carbohydrates, lipids, nucleic acids, and proteins. Chemical basis of life processes. Lecture and laboratory demonstrations to support student competency.

**AHCJ 343. Cultural Perspectives in Professional Practice III. 3 Units.**
Third in a four-course sequence that progressively enhances students' abilities to provide culturally sensitive care within a Western clinical context. Focuses on professional and academic aspects of writing; including, mastery of critical thinking processes that increase students' abilities to solve problems, form opinions, and make decisions. Emphasis on reflective and technical writing, including research papers that follow APA guidelines, and oral presentations.

**AHCJ 344. Cultural Perspectives in Professional Practice IV. 3 Units.**
Fourth course in a four-course sequence that progressively enhances students' ability to provide culturally sensitive care within a Western clinical context. Emphasizes mastery of professional and academic aspects of writing; as well as of critical thinking processes that enhance the ability to solve problems, form opinions, and make decisions. Additional practice in writing research papers that follow APA guidelines; as well as in making oral presentations.

**AHCJ 362. Anatomy. 3 Units.**
Gross anatomy of the musculoskeletal system—emphasizing spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerves, and blood supply. A cadaver-based course.

**AHCJ 368. Lifestyle Health and Wholeness. 3 Units.**
Explores cardiovascular, metabolic, communicable, and nutritional lifestyle outcomes related to risk factors, screening approaches, and risk reduction. Includes whole person care utilizing natural means such as minimizing the use of prescription drugs, food supplements, and diet fads. Explores disease prevention and treatment through whole person lifestyle and evidence-based measures; inclusive of a perspective that explores the influence of religiosity on lifestyle health.

**AHCJ 369. Therapeutic Humor in Health Care. 3 Units.**
Distinguishes between humor and laughter and how each affects physiological, psychological, and sociological health. Discusses ways that health-care providers can incorporate humor into the care of patients and their families. Utilizes published research studies to support the efficacy of humor in health care as an evidenced-based practice. Designed for health-care providers who want to become knowledgeable and to utilize therapeutic humor in whole person care.

**AHCJ 375. Physiology. 3 Units.**
Physiology of the human body—including cellular, neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 402. Pathology I. 4 Units.**
Fundamental mechanisms of disease, including cell injury; inflammation, repair, regeneration, and fibrosis; and vascular, cardiac, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, endocrine, and integumentary pathologies.

**AHCJ 403. Pathology II. 3 Units.**
Fundamental mechanisms of disease, including the central and peripheral nervous systems, bone and joint, skeletal muscle, developmental, genetic, infectious, and parasitic pathologies; and neoplasia. Prerequisite: AHCJ 402.

**AHCJ 404. Pharmacology. 1,2 Unit.**
Introduces pharmacology, including study of pharmacokinetics, pharmacodynamics, and actions of pharmaceuticals commonly encountered in various allied health professions. Different sections register for 1 or 2 units. Identical topics for both sections, with greater depth and detail for 2-unit course.

**AHCJ 407. Financial Management. 2 Units.**
Financial aspects of health care involving prospective reimbursement system, analysis of various health-care reimbursement schemes, and hospital financial disbursements. Budget variance analysis, analysis of cost components, operating statements, and productivity related to a department budget. Special projects may be assigned as needed. Per week: lecture two hours.

**AHCJ 410. Pathology for Health Professionals. 3 Units.**
Studies the fundamental mechanisms of pathology pertaining to the neuromusculoskeletal systems. Focuses on the functional consequences of human diseases.

**AHCJ 412. Anatomy. 9 Units.**
Gross anatomy of the musculoskeletal system, emphasizing spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerve, and blood supply. A cadaver-based course.

**AHCJ 418. Physiology I. 4 Units.**
Physiology of the human body, including cellular, neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 422. History of Disability. 3 Units.**
Reviews the power issues relating to disabilities in the history of the United States. Delineates the patient's rights from a historical context. Focuses on the contents and implementation of Americans with Disabilities Act (ADA). Outlines what role the ADA plays in the everyday practice of rehabilitation sciences.

**AHCJ 426. Introduction to Computer Applications. 2 Units.**
Hands-on instruction in Word, Excel, and PowerPoint. Lectures, laboratory assignments, quizzes, projects, and a practical examination. (Course not taught every quarter.).

**AHCJ 448. Human Resource Management. 3 Units.**
Human resource management from the department head point of view. Assesses the employment process from justification of a position until the position is filled and productive. Emphasizes position evaluation and development of the job description. Reviews labor unions from a management point of view. Wage analysis and employee benefits.

**AHCJ 465. Seminars in Leadership. 2 Units.**
Prepares graduates for entry into the new work requirements. Through observation and participation, students explore the responsibility of today's employee to successfully integrate customer and community service and social responsibility.

**AHCJ 493. Senior Portfolio I. 3 Units.**
Allows students to progress toward building competence in SAHP and program outcomes (including diversity) for graduates.

**AHCJ 494. Senior Portfolio II. 3 Units.**
Building on Portfolio I, students synthesize their learning and demonstrate their progress in building toward SAHP and program outcomes (including diversity), and beyond.

**AHCJ 496. Special Topics in Allied Health Studies. 1-4 Units.**
Lecture and discussion on a current topic in allied health studies. May be repeated for a maximum of 4 units applicable to degree program.

**AHCJ 498. Wholeness Portfolio II. 1 Unit.**
Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 499. Directed Study. 1-4 Units.**
Individual arrangements for students to study under the guidance of a program faculty member. May include readings, literature review, or other special or research projects. Minimum of thirty hours required for each unit of credit. Laboratory may be required in addition to class time. A maximum of 4 units applicable to any degree program.

**AHCJ 506. Educational Evaluation and Clinical Assessment. 3 Units.**
Introduces principles and techniques of designing evaluation activities and tests for measuring classroom learning and instructional products. Includes criteria-referenced approaches, formative and summative instruments, critical incident observations, portfolio assessment, and other measurement concepts.

**AHCJ 507. Pharmacology in Rehabilitation. 3 Units.**
Principles of pharmacology as related to diagnosis, prevention, and treatment of disease, including a presentation of the pharmacology and therapeutic value of drugs used in rehabilitation medicine. Related topics include pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, and drug toxicity—with special consideration given to pediatric and geriatric pharmacology.

**AHCJ 509. Transformational Teaching and Learning. 3 Units.**
Explores theories and styles of learning and personality factors that relate to learning. Includes implications of effective intellectual, emotional, and social functioning within the context of structuring education for the adult learner. Includes analysis of the teaching process —from the setting of objectives, selection of content, and design of classroom and clinical teaching strategies (with particular emphasis on alternatives to lecturing) to assessment and evaluation.

**AHCJ 510. Human Gross Anatomy. 9 Units.**
Gross anatomy of the musculoskeletal system, with emphasis on spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerves, and blood supply. A cadaver-based course.

**AHCJ 514. Kinesiology: Motor Control and Learning. 3 Units.**
Advanced kinesiology, including movement science dealing with behavioral basis of motor control and motor learning from an information-processing perspective.

**AHCJ 515. Curriculum Development in Higher Education. 3 Units.**
Examines principles of curriculum development. Selection, organization, and evaluation of learning experiences. Examines the nature, place, and interrelationship of general and specialized education in higher education.

**AHCJ 516. Clinical Imaging. 3 Units.**
Explores modern imaging techniques used to assess muscoskeletal disorders and cardiovascular pathologies. Includes radiographs, CAT scans, MRIs, bone densitometry, PET scans. Emphasizes clinical ultrasound imaging as used in physical therapy.

**AHCJ 519. Graduate Wholeness Portfolio. 1 Unit.**
Students develop a portfolio that demonstrates the graduate student's progression toward the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 520. Advanced Anatomy Dissection. 1 Unit.**
Integrates study of the structure and function of the human body with advanced dissection techniques. Detailed and rigorous coverage of the following regions; head and neck, upper extremities, lower extremities, and trunk. Opportunities for participation in human anatomical data collection, data analysis, literature review, and synthesis of drafts of scientific papers.

**AHCJ 524. Pharmacology. 2 Units.**
Introduces pharmacology, including study of pharmacokinetics, pharmacodynamics, and actions of pharmaceuticals commonly encountered in various allied health professions.

**AHCJ 528. Lifestyle Health and Wholeness. 3 Units.**
Explores cardiovascular, metabolic, communicable, and nutritional lifestyle outcomes related to risk factors, screening approaches, and risk reduction. Includes whole person care utilizing natural means such as minimizing the use of prescription drugs, food supplements, and diet fads. Explores disease prevention and treatment through whole person lifestyle and evidence-based measures; inclusive of a perspective that explores the influence of religiosity on lifestyle health.

**AHCJ 541. Managing Stress. 3 Units.**
Provides a comprehensive approach to stress management that focuses on the integration, balance, and harmony of mind, body, spirit, and emotions. Examines the balance among the research of health psychology, the psychology of lifestyle, the science of psychoneuroimmunology, and holistic healing. Provides tools needed to identify and manage stress, as well as to achieve health and balance.

**AHCJ 544. Advanced Functional Neuroanatomy. 3 Units.**
Analyzes and applies neuroanatomy to lesions of the human nervous system; clinical significance of such lesions.

**AHCJ 545. Legal and Ethical Issues in the Health Professions. 3 Units.**
History and structure of federal and state governments, including torts, contracts, administrative law, criminal law, and reporting issues. Legal and ethical issues in patient confidentiality and release of patient information. The impact of technology on the collection and dissemination of patient information. Medical-legal liability issues, including corporate compliance.

**AHCJ 546. Therapeutic Humor in Health Care. 3 Units.**
Distinguishes between humor and laughter and how each affects physiological, psychological, and sociological health. Discusses ways that health-care providers can incorporate humor into the care of patients and their families. Utilizes published research studies to support the efficacy of humor in health care as an evidenced-based practice. Designed for health-care providers who want to become knowledgeable and to utilize therapeutic humor in whole person care.

**AHCJ 548. Human Resource Management in the Health-Care Environment. 3 Units.**
Discusses human resource management issues from the viewpoint of the health-care professional. Includes the legal foundation governing human resource management, as well as the impact that leadership has on the employee's quality of work, motivation, and performance management. Human resource planning and job analysis, recruitment and selection, employee pay and benefit plans, labor management and collective bargaining. Opportunity for role playing and negotiation experiences. Paper required.

**AHCJ 549. Professional Responsibility in Allied Health Professions. 3 Units.**
Provides graduate students an advanced overview that combines aspects of substantive law and ethical guidelines in the profession. Focuses in part on handling problems that include the canons of ethics; duty to patients, the workplace, and the profession. Also covers legal aspects, such as conflicts of interest, solicitation, and professional discipline.

**AHCJ 550. Organizational Theory. 3 Units.**
Introduces students to the concepts needed to understand and predict the behavior of people in health-care organizations today. Covers foundations of organizational structure, leadership, politics, and conflict management.

**AHCJ 555. Writing for Health-Care Professionals. 3 Units.**
Writing for health professionals for professional publication. Selection of journal, preparation of abstract, manuscript or research paper for potential publication.

**AHCJ 556. Administration in Higher Education. 3 Units.**
Leadership philosophy and styles of administrative leadership in higher education, with particular application to health professions educational programs. Includes personnel management; budgeting; contracting for clinical placement; group leadership in committees; faculty selection, development, and evaluation; strategic planning; and policy development.

**AHCJ 557. Integrating Emotional Intelligence Leadership into the Healthcare Professions. 3 Units.**
Students examine their personal emotional and social competencies and apply these foundational concepts in the health care and educational environments. Specifically focuses on developing EI in leadership and supervisory roles. Emphasizes developing EI competencies in staff, faculty, and/or students.

**AHCJ 560. Physiology. 4 Units.**
Physiology of the human body, including neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 564. Collaborative Learning in Higher Education. 3 Units.**
Collaborative learning, theories of group-individual interaction, and the communication process. Educational orientation to the utilization of groups to enhance motivation, commitment, and learning in higher education.

**AHCJ 566. Theoretical Foundations of Leadership. 3 Units.**
A web-based course that introduces students to the discipline of leadership. Focuses on the relevance of leadership through study of trait theory, situational leadership, transactional v. transformational leadership, leadership v. management, and leadership ethics. Students will reflect upon theoretical approaches, correlate those approaches with personal experience, and apply those approaches in the professional setting.

**AHCJ 567. Personal Leadership. 3 Units.**
A Web-based course that focuses on the discovery and growth of an individual's personal leadership style. Students reflect upon various leadership qualities at the personal level, complete the Life Styles Inventory (LSI-1), analyze data from the LSI-1, and discuss the recommendations for increased effectiveness.

**AHCJ 568. Spirituality and Health: The Wholeness Connection. 3 Units.**
Examination of physiological mechanisms of the central nervous, neuroendocrine, and immune systems, and religious/spiritual beliefs and practices impacting physical and mental health. Includes integrative psychoneuroimmunology and how devout religious/spiritual beliefs and practices affect a sense of well-being, quality of life, and longevity. Explores applications of spiritual care to practice; including, the theology of healing, body/spirit connections, and roles of faith and meaning.

**AHCJ 569. Computers and Electronics for Clinicians. 3 Units.**
Explains the roles of computers and electronics in a clinical setting. Equipment used in a classroom setting.

**AHCJ 575. Couples, Families, and Disabilities. 3 Units.**
Examines the effects disabilities have on couples and family systems, and contributions family members make during the rehabilitation of disabled individuals. Looks at discourse patterns taking place within a disabled person; within the disabled person's family and social support system; and, most importantly, within the context of the individual, the family, and medical and rehabilitation providers. Addresses issues of human sexuality, reproduction, and disability.

**AHCJ 576. Basics of Marketing. 1 Unit.**
Provides an overview of the principles of developing a marketing strategy. Illustrates how marketing can assist an organization in arriving at a competitive advantage; and in creating, capturing, and sustaining value in the eyes of the buyer.

**AHCJ 577. Science of Happiness. 3 Units.**
Focuses on a fundamental finding from positive psychology that happiness is inextricably linked to wholeness, strong social ties, and contributing to something bigger than self. Students learn about the cross-disciplinary research supporting this view, spanning the fields of psychology, neuroscience, biology, and religion.

**AHCJ 579. Instructional Effectiveness. 3 Units.**
Develops strategies for instructional effectiveness, as well as processes for evaluation and assessment, that apply to face-to-face and online interactions.

**AHCJ 586. Curricula Planning in Health Sciences. 3 Units.**
Applies curriculum-development theories and approaches to the health science arena. Students develop a learning-centered curriculum.

**AHCJ 587. Introduction to Approaches in Music Therapy. 3 Units.**
Assesses the strengths and needs of clients and utilizes music interventions—creating, singing, moving to, and/or listening to music—to address the physical, emotional, cognitive, and social needs in support of accomplishing individualized therapeutic goals.

**AHCJ 588. Fundamentals of Human Resource Management. 3 Units.**
Introduces students to the fundamentals of human resource management in the private, public, and nonprofit sectors. Covers employee development, legal compliance, and diversity management from a health-care perspective.

**AHCJ 589. Strategic Planning in Health-Care Organizations. 3 Units.**
Applies health-care systems knowledge and skills to real-life assessment scenarios. Focuses on integrating systems components and analyzing their interactions in the health-care industry. Emphasizes development of systems assessment techniques that facilitate understanding of the traits of a particular organization; its strengths, weaknesses, areas of growth, and changes needed. Includes an organizational assessment and application of didactic content presented in other courses.

**AHCJ 599. Directed Teaching. 3 Units.**
Student develops a specialty module and presents it in a classroom or clinical setting. Includes course application, course syllabus, measuring instrument, student course evaluation, and lesson plans. Prerequisite: Consent of instructor or of program director.

**AHCJ 600. Active Online Learning. 3 Units.**
Online course (organized around the AVLL standard for online instruction). Focuses on integration of active learning strategies, meaningful interactions, and stimulating learning experiences. Modules include: introduction, course organization, a safe learning environment, the relational basis of learning, integration of faith, appropriate assessment, and the needs of individual learners.

**AHCJ 699. Directed Study. 1-6 Units.**
Individual arrangements for advanced students to study under the guidance of a program faculty member. May include reading, literature review, and/or other special projects. Minimum of thirty hours required for each unit of credit.

**AHCJ 705. Infectious Disease and the Health Care Provider. 1 Unit.**
Current issues related to infectious diseases, with emphasis on principles of epidemiology and etiology of HIV/AIDS. Disease pathology and modes of transmission as compared to hepatitis, tuberculosis, and influenza. Development of ethical response to psychosocial, economic, and legal concerns. Strategies and programs for education, prevention, and identification of resources. Impact on health-care workers; risk factors and precautions for blood-borne pathogens.

**AHCJ 721. Wholeness Portfolio I. 1 Unit.**
Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 722. Wholeness Portfolio II. 1 Unit.**
Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

# Allied Health Research Methods (AHRM)

## Courses

**AHRM 354. Statistics for the Health Professions. 3 Units.**
Fundamental procedures in collecting, summarizing, analyzing, presenting, and interpreting data. Measures of central tendency and variation, probability, binomial and normal distribution, hypothesis testing and confidence intervals, t-tests, chi-square, correlation, and regression. Introduction to SPSS statistical package for computer data analysis.

**AHRM 471. Statistics and Research for Health Professionals I. 3 Units.**
Presents statistical methods relative to research design for health professionals, with introduction to SPSS statistical package for computer data analysis. Discusses philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics.

**AHRM 472. Statistics and Research for Health Professionals II. 3 Units.**
Advanced conceptual frameworks, data analyses, and techniques in quantitative and qualitative research. Emphasizes process for obtaining and using evidence-based research. Prerequisite: AHRM 471.

**AHRM 475. Health-Care Research and Statistics. 4 Units.**
Statistical methods presented in the context of health-care research. Rationale for research questions, definition of populations, roles of variables, reliability and validity of research tools, common research designs, internal and external validity of research designs. Descriptive statistics, confidence interval, hypothesis testing concepts, t-tests, chi-square tests, correlation and regression. Interpretation of computer output. Evaluation of the health-care literature.

**AHRM 514. Biostatistics. 3 Units.**
Fundamental procedures of collecting, summarizing, presenting, analyzing, and interpreting data. Sampling, measures of central tendency and variation, probability, binomial distribution, normal distribution, sampling distributions and standard error, confidence intervals, hypothesis testing, t-tests, chi-square, correlation, and regression. Introduces computer analysis for solution of statistical problems.

**AHRM 518. Nonparametric Statistics for the Health Professions. 3 Units.**
Introduces nonparametric statistical methods in the context of applications for health professionals. Uses the SPSS statistical package for data analysis. Students learn to identify, design, analyze, and interpret studies using nonparametric statistics. Nonparametric tests covered include the Mann-Whitney U test, Wilcoxon signed-ranks test, Friedman test, Kolmogorov-Smirnov test, Spearman rank correlation, and chi-square tests. Prerequisite: Beginning statistics course.

**AHRM 571. Statistics and Research for Health Professionals I. 3 Units.**
Presents statistical methods relative to research design for health professionals, with introduction to SPSS statistical package for computer data analysis. Discusses philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics. Critical analysis of scientific literature related to an identified professional practice area, which results in an evidence-based practice paper.

**AHRM 572. Statistics and Research for Health Professionals II. 3 Units.**
Advanced conceptual frameworks, data analyses, and techniques in quantitative and qualitative research. Emphasizes process for obtaining and using evidence-based research. Data analysis of a small data set in order to answer a research question and write a formal results section complete with appropriate tables and graphs. Prerequisite: AHRM 571.

**AHRM 581. Research and Statistics I. 3 Units.**
In-depth study of research designs: their advantages and disadvantages, including pretest/posttest designs; posttest-only, control group designs; time series designs; factorial designs; randomized block and repeated-measures designs; and incomplete block designs. Introduces clinical trials, sequential research designs; and single case, experimental designs. Measures and analyzes validity and reliability. Survey-instruments(s) design. Power calculations for choosing appropriate sample sizes.

**AHRM 582. Research and Statistics II. 3 Units.**
Analyzes data using one-way ANOVA with multiple comparisons, factorial ANOVA designs, randomized complete and incomplete block designs, and repeated measures. Introduces multiple correlation and regression and model building using multiple regression techniques. Evaluates research literature that uses multivariate analysis for data analysis. Introduces nonparametric statistics. Interprets multivariate analysis computer output.

**AHRM 595. Research and Statistics Concepts and Methods: Intermediate. 3 Units.**
In-depth study of research designs, including completely randomized and randomized block designs. Use of and interpretation of statistical tests such as ANOVA, multiple linear regression, multivariate analysis, and correlations; includes introduction to nonparametric statistical tests. Measures and analyzes data for validity and reliability studies. Evaluates research literature that uses multivariate data.

**AHRM 604. Research-Proposal Writing. 3 Units.**
Student prepares a research proposal, including components essential for submission to the Institutional Review Board. Emphasizes writing skills in preparation of literature review, purpose, conceptual framework, proposed methodology, and statistical analysis. Includes ways in which proposal serves as the basis for a published article.

**AHRM 605. Critical Analysis of Scientific Literature. 2,3 Units.**
Critical evaluation of scientific literature. Includes critical assessment of study rationale, population inclusion/exclusion criteria, sampling and randomization techniques, sample size, appropriateness of research design, choice of data analysis, structure and content of tables and graphs, interpretation of statistical results, and applications to practice. Additional evaluation time required for third unit of credit.

# Anatomy (ANAT)

## Courses

**ANAT 301. Head and Neck Anatomy, DH. 4 Units.**
Gross anatomy of the head and neck. Lecture and demonstration.

**ANAT 303. General and Oral Histology and Embryology. 3 Units.**
Microscopic study of fundamental cells, organs, tissues, and systems of the body. Analyzes in detail the pulp, periodontal tissues, alveolar process, oral mucosa, and calcified tissues of the tooth. Includes development of head and neck structures.

**ANAT 507. Stem Cell Biology and Medicine. 4 Units.**
Provides students with information on the latest developments in animal and human stem cell research and on the potential application of stem cells to medicine. Explores the derivation, manipulation, and differentiation of embryonic, germ, and adult stem cells. Lectures presented by faculty participating in stem cell research in areas of their expertise.

**ANAT 510. Gross Anatomy. 8.5 Units.**
Supports the organ system curriculum in the first year of medical education. Teaches students the morphological setting upon which clinical knowledge and experiences are built. Approaches anatomy from a gross structural perspective. Students use knowledge to recognize clinical variations and abnormalities in preparation for their medical careers.

**ANAT 515. Human Embryology. 2 Units.**
Reviews the morphologic processes and molecular basis of human development. Includes the production of human gametes, fertilization, gastrulation, placentation, and development of the major organ systems. Emphasizes clinically relevant features of pregnancy and developmental processes that are susceptible to malformation.

**ANAT 516. Neuroscience GS. 6 Units.**
Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology.

**ANAT 525. Special Topics: Advanced Dissection. 1-4 Units.**
Detailed dissection of a specified body region. Demonstration and lecture. May be repeated for additional credit. Offered on demand. Prerequisite: ANAT 541; or equivalent with approval of program director or department chair.

**ANAT 527. Advanced Clinical Anatomy for Nurse Anesthetists. 5 Units.**
Emphasizes detailed description and applied anatomy of the body systems (cardiovascular, respiratory renal, hepatic nervous, and endocrine) relevant to the nurse anesthetist.

**ANAT 529. Gross Anatomy and Embryology. 10.5 Units.**
Provides the morphological foundation upon which clinical knowledge and experiences are built. Supports the organ-system curriculum in the freshman year. Approaches anatomy from gross structural and embryological perspectives. Provides students with the knowledge necessary to recognize clinical variations and abnormalities during their medical careers.

**ANAT 541. Gross Anatomy GS. 7 Units.**
Anatomy of the head, neck, locomotor system, thorax, abdomen, pelvis, and perineum. Correlated with radiology, applied features, and embryological development. Summer and Autumn quarters.

**ANAT 542. Cell Structure and Function GS. 7 Units.**
The microscopic structure of cells, tissues, and organs of the human body. Autumn Quarter.

**ANAT 544. Human Embryology Lecture. 2 Units.**
The plan of development as it pertains to humans. Considers principles.

**ANAT 548. Introductory Flow Cytometry. 1 Unit.**
Introduction to basic flow cytometry-based techniques used to identify experimental, basic science and translational research questions, and to develop research proposals. Includes flow cytometry sample preparation, and data collection, analysis, and presentation.

**ANAT 558. Applied Gross Anatomy GS. 3 Units.**
Emphasizes practical application of the anatomical knowledge covered in human gross anatomy. Considers applied anatomy problems involving biomechanical functions of the body, as well as application of anatomical principles to specific fields of human activity. Prerequisite: ANAT 541; or consent of instructor.

**ANAT 594. Directed Study in Anatomy. 1-7 Units.**
Intensive study of a selected topic approved by the chair of the department. Individual guidance by a staff member.

**ANAT 697. Research. 1-8 Units.**

**ANAT 699. Dissertation. 1-5 Units.**

**ANAT 891. Anatomy Elective. 1.5-18 Units.**
A self-designed and self-directed dissection elective in the fourth year of the MD curriculum with emphasis on the head, neck, abdomen, pelvis, thorax, back, or limbs—correlating basic anatomy with clinical applications.

# Anesthesiology (ANES)

## Courses

**ANES 891. Anesthesiology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of anesthesiology, including research.

# Anthropology (ANTH)

## Courses

**ANTH 315. Cultural Anthropology. 4 Units.**
Advanced course in ethnology and social organization. Explores the nature of culture, giving special attention to such features as technology, economic activities, community organization, kinship and marriage, social control, magic and religion, the arts, and other forms of cultural behavior. Presents a wide array of examples from societies around the world.

# Behavioral Health—Conjoint (BHCJ)

## Courses

**BHCJ 303. Cultural Learning. 4 Units.**
Students develop skills in learning a culture by applying principles from two modes of inquiry: ethnography and ethnology. Practice gathering cultural information and data through ethnographic interviews, as well as through research in the human relations area files. Focuses on developing knowledge of a particular culture in which the student has an interest.

**BHCJ 501. Critical Thinking. 4 Units.**
Develops in postbaccalaureate students critical-thinking skills, including: evaluating ideas, using dialogical learning for deep reliable knowledge, thinking inductively and deductively, accurately conceptualizing for better decision making and behavioral choices, applying critical thinking to academic success and life-long learning.

**BHCJ 502. Classroom Teaching Strategies. 3 Units.**
Addresses pedagogical issues including, but not limited to: developing a healthy learning environment in the classroom, developing effective teaching strategies, fostering effective learning strategies in students, preparing syllabi, lecturing, managing classroom discussion, evaluating students¿ performance.

**BHCJ 505. Personal Finance. 2 Units.**
Comprehensive introduction to responsibilities within professional practice and personal finance management. Includes financial management, loans and debt reduction strategies, retirement planning, risk management, and human resource management; and, personal and practice decisions based on related legal, ethical, and financial issues.

**BHCJ 514. Editing, Style, and Grammar for Academic Writing and Publication. 2 Units.**
Focuses on mastery of the editing stage of academic manuscript preparation. Applicable to all academic works, including publishable research results, term papers, dissertations, theses, and proposals. Covers the self-editing option, editing techniques, grammar, punctuation, and style. Addresses APA and other styles.

**BHCJ 515. Researching and Writing Graduate Level Papers. 2-4 Units.**
Provides skills for critical writing, including organization, development of idea, and presentation of conclusion. Develops skills applicable to the preparation of term papers in the students' disciplines.

**BHCJ 550. Fundamentals of Dialectical Behavior Therapy. 2 Units.**
Examines the theory, empirical foundations, and applications of dialectical behavior therapy (DBT), an evidenced-based psychosocial treatment initially developed for suicidal individuals with borderline personality disorder (BPD). Familiarizes students with the techniques of DBT, as well as the latest research on and adaptations for use of DBT with other populations.

**BHCJ 585. Sociology of Communities. 4 Units.**
Examines classical and contemporary theories of community. Provides a theoretical foundation for applied social science professional programs that require an understanding of the community in contemporary society.

**BHCJ 615. Writing for Thesis/Dissertation. 2-4 Units.**
Develops skills necessary for researching and writing theses and dissertations. Includes researching literature in electronic and library sources; and collecting, filtering, paraphrasing, and organizing data from literature. Develops editing skills that may be applied to any prose writing involved in producing a thesis or dissertation—including proposals, abstracts, introductions, reviews of literature, write-ups of data analyses, and conclusions.

**BHCJ 649. Integration of Behavioral Health in Primary Care. 2 Units.**
Introduces the integration of behavioral health in primary care settings. Focuses on how a wholistic (bio-psychosocial-spiritual) approach to behavioral health care (including the integration of diet and exercise) can improve emotional well-being and health-care outcomes. All students in the school's behavioral health disciplines encouraged to take this course.

# Biochemistry (BCHM)

## Courses

**BCHM 510. Fundamentals of Human Biochemistry. 2.5 Units.**
Supports the organ system curriculum in the first year of medical education. Combines lectures, in-class quizzes, and case-based exercises to teach the biochemical basis for cell structure and function, emphasizing an integrated approach to the understanding of protein structure and function; intermediary metabolism of carbohydrates, lipids, proteins, and nucleic acids; and the metabolic patterns of selected tissues.

**BCHM 515. Introduction to Bioinformatics. 2 Units.**
Introduces bioinformatics methods and their application to biological research. Provides a conceptual understanding of the algorithms behind standard bioinformatics software, as well as practical experience in programs and databases commonly utilized in biological research.

**BCHM 517. Scientific Foundations of Nurse Anesthesia Practice. 2 Units.**
Provides students with an understanding and appreciation of scientific phenomena and with the ability to apply scientific methods, critical thinking, and problem-solving skills in exploring, conserving, and managing their environments.

**BCHM 518. Fundamentals of Human Biochemistry. 2.5 Units.**
Provides a foundation in the nature and properties of biological molecules in the human body. Presents the biochemical basis for cell structure and function. Emphasizes an integrated approach to protein structure and function; the intermediary metabolism of carbohydrates, lipids, proteins, and nucleic acids; and, metabolic patterns of selected tissues.

**BCHM 519. Medical Biochemistry, Molecular Biology, and Genetics. 4.5 Units.**
Comprehensive course in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, provides a biochemical/genetic/molecular basis for understanding disease, and examines the mechanisms for genetic information flow in prokaryotic and eukaryotic cells. Course restricted to Biomedical Science Program (certificate).

**BCHM 529. Fundamentals of Human Biochemistry and Genetics. 4.5 Units.**
A lecture sequence for first-year medical students in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, and examines the mechanisms for genetic information flow in eukaryotic cells.

**BCHM 530. Biochemical Basis of Human Disease SM. 2 Units.**
A series of lectures for second-year medical students designed to provide a biochemical/genetic/molecular basis for understanding human diseases.

**BCHM 544. Advanced Topics in Biochemistry. 2-4 Units.**
Recommended for the Ph.D. degree (2+2+2). Recent examples include proteins: modern methods of study; selected cellular events in carcinogenesis; enzyme kinetics; transgenic plants for human health.

**BCHM 551. Special Problems in Biochemistry. 2-6 Units.**

**BCHM 605. Seminar in Stem Cells and Cancer. 1 Unit.**
Discussion of contemporary primary literature and exploration of stem cell biology related to cancer. Introduction to concepts in the cancer field, stem cell biology, critical evaluation of scientific literature, and cutting-edge research techniques. Prerequisite: IBGS 511, IBGS 512, IBGS 522, IBGS 523.

**BCHM 610. Cancer Journal Club. 1 Unit.**
A journal-club format that includes discussion of recent advances in cancer research. Critical evaluation of the experimental approaches used in the papers discussed–designed to enhance students' problem-solving and presentation skills, and to develop an appreciation for the rigor needed to conduct hypotheses-driven cancer research.

**BCHM 697. Research. 1-10 Units.**

**BCHM 699. Dissertation. 1-5 Units.**

**BCHM 891. Biochemistry Elective. 1.5-12 Units.**
Fourth-year elective that allows the student to create materials for team-based learning in the biochemical basis of human disease. Includes identifying a disorder that has clear and characteristic biochemical manifestations; as well as preparing a set of teaching notes, assessment tools, and application exercises.

# Biology (BIOL)

## Courses

**BIOL 116. Introduction to Human Biology. 3 Units.**
Introductory course in human biology. Explores basic principles of human anatomy and physiology and their relationships to social functioning. Fulfills the human biology prerequisite for the master's degree Social Work Program.

**BIOL 205. Biostatistics. 4 Units.**
Introductory statistics course that provides background and experience in biology and ecology data analysis. Topics include interpretation of data, appropriate use of tables and figures, study design, hypothesis testing, confidence intervals, the normal curve, probability, discrete and continuous data including ANOVA, correlation, and regression. Biological and ecological examples are used throughout the course.

**BIOL 305. Statistics Using the R Software Package. 1 Unit.**
Provides an overview of the R statistical package for performing statistical tests. Equips students with a basic working knowledge of this software for a variety of statistical procedures.

**BIOL 406. Marine Biology. 4 Units.**
Surveys marine species of the world and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Four class hours per week, plus all-day field trips (usually on Sunday).

**BIOL 407. Herpetology. 3 Units.**
Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Focuses field experience on Southern California herpetology. Two hours lecture, three-hour laboratory each week.

**BIOL 409. Mammalogy. 4 Units.**
Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory.

**BIOL 414. Biology of Marine Invertebrates. 4 Units.**
Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Three class hours per week, one-day field trip alternate weeks, or the equivalent.

**BIOL 415. Ecology. 3 Units.**
Covers the interaction between living organisms and their environment, animal and plant diversity, and the biotic and abiotic factors that contribute to organisms interacting with their environment. Encompasses the ecologies of terrestrial, freshwater, and marine environments. Also covers population ecology, including population dynamics, population growth, and population genetics, and the interaction of organisms at the individual, community, and ecosystem levels.

**BIOL 426. Invertebrate Paleontology. 4 Units.**
Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Considers principles and methods involved in the study and analysis of invertebrate fossils. Per week: class three hours, plus one three-hour laboratory.

**BIOL 427. Vertebrate Paleontology. 4 Units.**
Fossil vertebrates, with emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Per week: class three hours, plus one three-hour laboratory.

**BIOL 428. Genetics and Speciation. 4 Units.**
Introduces genetic mechanisms of biological change. Processes of inheritance through time evaluated in their ecological context.

**BIOL 437. Animal Behavior. 4 Units.**
Behavioral mechanisms of animals and their role in survival. Lectures and projects.

**BIOL 439. Behavioral Ecology. 4 Units.**
Examines in depth how behavior contributes to the survival of animals, with emphasis on behavioral strategies that reflect adaptation to the animal's environment.

**BIOL 444. Paleobotany. 4 Units.**
Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Per week: class three hours, plus one three-hour laboratory or field trip.

**BIOL 449. Biodiversity and Conservation. 3 Units.**
Examines contemporary issues related to diminishing biodiversity on regional and global scales, and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

**BIOL 456. Techniques in Vertebrate Ecology. 3 Units.**
Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

**BIOL 465. Introduction to GIS for the Natural Sciences. 2 Units.**
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

**BIOL 466. Multivariate Statistics. 3 Units.**
Practical, software-based application of multivariate statistics to complex data sets, including both null hypothesis testing and practical significance. Builds on the foundation of an introductory statistics course.

**BIOL 475. Philosophy of Science and Origins. 4 Units.**
Concepts in the history and philosophy of science, and the application of these principles in analyzing current scientific trends.

**BIOL 479. Readings in Biology. 1-4 Units.**
Studies, analyzes, and discusses current and classic papers.

**BIOL 488. Current Topics in Biology. 1-4 Units.**
Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

**BIOL 495. Undergraduate Research. 1-4 Units.**
Student pursues original investigation and/or literature study under the direction of a faculty member. May be repeated for additional credit.

**BIOL 497. Special Projects in Biology. 1-4 Units.**
Student responsible for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

**BIOL 502. Orientation to Graduate Biology. 1 Unit.**
Introduces students to skills and strategies for successfully navigating through EBS as graduate biology students. Provides opportunities for discussion, activities related to topic areas, discovery, group exchange, instruction, and critical evaluation and decision making regarding ethical practices in research.

**BIOL 504. Biology of Marine Invertebrates. 4 Units.**
Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Per week: class three hours; one-day field trip alternate weeks, or the equivalent.

**BIOL 505. Marine Biology. 4 Units.**
Surveys marine species of the world, and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Per week: class four hours, plus all-day field trips (usually on Sundays).

**BIOL 507. Herpetology. 3 Units.**
Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Field experience focuses on southern California herpetology. Per week: Two hours lecture and a three-hour laboratory.

**BIOL 515. Biogeography. 3 Units.**
Present and past distribution and migrations of the natural populations of organisms.

**BIOL 517. Ecological Physiology. 4 Units.**
Studies the interface between the individual and the environment, with emphasis on unusual environments, in order to explore the limits of physiological systems. Per week: class four hours. Offered alternate years.

**BIOL 518. Readings in Ecology. 2 Units.**
Studies, analyzes, and discusses current and classic papers.

**BIOL 529. Mammalogy. 4 Units.**
Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory. Additional work required beyond BIOL 409.

**BIOL 539. Behavioral Ecology. 4 Units.**
Examines in depth how behavior contributes to the survival of animals, with an emphasis on behavioral strategies that reflect adaptation to the animal's environment.

**BIOL 545. Genetics and Speciation. 4 Units.**
Comparative analysis of species concepts, mechanisms of speciation, and analysis of micro- and macroevolution. Prerequisite: A course in genetics and philosophy of science.

**BIOL 546. Techniques in Vertebrate Ecology. 3 Units.**
Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

**BIOL 549. Biodiversity and Conservation. 3 Units.**
Examines contemporary issues related to diminishing biodiversity on regional and global scales and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

**BIOL 555. Molecular Genetics. 3 Units.**
An overview of the molecular basis of life, with emphasis on DNA as an information storage medium. The systems of information retrieval found in prokaryotes and eukaryotes.

**BIOL 558. Philosophy of Science. 4 Units.**
Studies selected topics in the history and philosophy of science, and applies these principles in analyzing contemporary scientific trends.

**BIOL 559. Philosophy of Science and Origins. 1 Unit.**
Studies selected topics in the history and philosophy of science, and applies these principles in analyzing current scientific trends. Provides an advanced update in the topic for students who have had a similar course at the undergraduate level.

**BIOL 565. Introduction to GIS for the Natural Sciences. 2 Units.**
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students who are beginning a research project.

**BIOL 566. Multivariate Statistics. 3 Units.**
Practical, software-based application of multivariate statistics to complex data sets, including both null hypotheses testing and practical significance. Builds on the foundation of an introductory statistics course.

**BIOL 588. Current Topics in Biology. 1-5 Units.**
Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

**BIOL 589. Readings in Biology. 1-4 Units.**
Studies, analyzes, and discusses current and classic papers on an individual basis with advisor.

**BIOL 607. Seminar in Biology. 0.5 Units.**
Seminar presentations by guest scientists on recent research and developments in biological science. No student presentation required.

**BIOL 616. Research and Experimental Design. 2 Units.**
Concepts, methods, and tools of research, including experimental design and data analysis. Cross-listing: GEOL 616.

**BIOL 617. Proposal Writing and Grantsmanship. 2 Units.**
Develops skills in writing proposals and acquiring funding for research. Increases understanding of the culture of research. Reviews the infrastructure of science funding and identifies individualized sources of potential funding. Presents successful proposal-writing strategies for both governmental and nongovernmental sources of funding. Emphasizes development of effective writing skills during preparation of the student's thesis or dissertation proposal.

**BIOL 618. Writing for Publication. 1 Unit.**
Explores the mechanics and processes of preparing, submitting, revising, and resubmitting a manuscript for publication in a peer-reviewed journal. Designed for students who are well along in the process of writing their first manuscript for publication. Prepares students to handle the manuscript revision process when the manuscript is returned from reviewers, as well as the final stage of resubmission to the journal.

**BIOL 658. Advanced Philosophy of Science readings. 2 Units.**
Reading and discussion of selected references in the philosophy of science, and the application of these concepts in the practice of scientific research and interpretation, including their influence on scientific study of origins. Best taken near the end of a student's graduate program. Two-hour class session per week.

**BIOL 664. Science Communication Outreach. 1 Unit.**
Guided immersion into science communication outreach. Principles of communication outreach and small group work presented. Student teams devise project that engages a specific, identified community. Small teams collaboratively interact with community to address a need, present findings, evaluate impact, and reflect on experience. Cross-listing: GEOL 664.

**BIOL 695. Special Projects in Biology. 1-4 Units.**
Student responsible for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

**BIOL 697. Research. 1-8 Units.**
See department checklist for recommended number of units.

**BIOL 698. Thesis Research. 1-8 Units.**
Credit for research and for writing the master's thesis. Grade received does not indicate whether thesis is completed and approved.

**BIOL 699. Dissertation Research. 1-8 Units.**
Credit for research and for writing the doctoral dissertation. Grade received does not indicate whether dissertation is completed and approved.

# Biomedical Sciences (BMSC)

## Courses

**BMSC 510. Master of Medical Science Seminar. 7 Units.**
Focuses on strategies for success in medical school and examines clinical case studies relevant to concurrent content in basic science courses.

# Biomedical Sciences/Endocrine and Reproductive (BENR)

## Courses

**BENR 510. Endocrine and Reproductive Block. 7 Units.**
Develops understanding of endocrine and reproductive structure, function and dysfunction. Applies concepts in endocrine and reproductive cases to develop differential diagnoses, determine appropriate diagnostic testing, and formulate basic management plans.

# Biomedical Sciences/Foundations (BFDN)

## Courses

**BFDN 510. Foundations Block. 14 Units.**
Introduces knowledge, skills, values and attitudes to become self-directed, life-long learners. Presents foundational concepts in anatomy and embryology, biochemistry, molecular biology and genetics, cell structure and general pathology, and physiology.

# Biomedical Sciences/Hematology and Immunology (BHMI)

## Courses

**BHMI 510. Hematology and Immunology Block. 6 Units.**
Focuses on hematologic and immunologic processes. Compares normal structure and function with dysfunction and disease. Develops knowledge and skills necessary for evaluation of laboratory findings in normal, non-neoplastic and neoplastic hematologic and lymphoid conditions.

# Biomedical Sciences/ Musculoskeletal and Skin (BMSK)

## Courses

**BMSK 510. Musculoskeletal and Skin Block. 3.5 Units.**
Focuses on knowledge and skills specific to orthopedic, dermatologic and rheumatologic conditions. Integrates basic science disciplines in comparing normal structure, function, and dysfunction. Continues development of clinical application of disease mechanisms.

# Cancer, Developmental and Regenerative Biology (CDRB)

## Courses

**CDRB 544. Special Topics in Cancer, Developmental and Regenerative Biology. 2-4 Units.**
Addresses advanced topics in cancer, developmental, and regenerative biology. Specific content varies from quarter to quarter. May be repeated for additional credit.

**CDRB 550. Clinical Exposure in Oncology. 1 Unit.**
Exposes students to various aspects of cancer care as they observe physicians delivering care to patients at all stages of cancer--newly diagnosed, preoperative, postsurgical, and survivorship. Discussion of diagnosis, workup, stage, and treatment plan. Attendance at didactic lectures, tumor board, and grand rounds that highlight the importance of a multidisciplinary approach to cancer management. Prerequisite: CDRB 555.

**CDRB 555. Biology of Cancer. 4 Units.**
Interdisciplinary approach to study of the causation, characterization, and prevention of cancer. Offered alternate years. Prerequisite: IBGS 511; IBGS 512; IBGS 522; IBGS 523.

# Cardiac Electrophysiology Technology (CEPT)

## Courses

**CEPT 245. Cardiovascular Anatomy and Physiology. 3 Units.**
Explores normal and pathological cardiovascular anatomy and physiology. Emphasizes myocardial excitation, contraction, intracardiac flow, intracardiac pressure, valve function, coronary anatomy, and ventricular function. Studies in detail the electrical conduction system and cardiovascular hemodynamic principles. Introduces pathological coronary anatomy, as well as abnormalities of the cardiovascular system.

**CEPT 248. Cardiovascular Patient Assessment. 2 Units.**
Principals of assessment for the patient with cardiovascular disorders, including: health history, physical assessment techniques, interpretation of laboratory data, diagnostic data, chest radiography, auscultation, and diagnostic procedures. Interview techniques and the development of patient care techniques specific to the cardiovascular patient.

**CEPT 251. Cardiac Electrophysiology and Rhythm Recognition I. 2 Units.**
Clinical use of diagnostic tests and procedures related to cardiac electrophysiology disease states. Introduces anatomical and physiologic concepts of rhythm generation and cardiac electrophysiology pathways, with emphasis on basic rhythm recognition and evaluation.

**CEPT 252. Cardiac Electrophysiology and Rhythm Recognition II. 2 Units.**
Application and interpretation of the 12-lead system. Emphasis on recognition of the acute myocardial infarction and common myocardial pathologies; includes axis deviation, acute ischemic conditions, electrolyte imbalances, bundle-branch block, and infarct imposters. Highlights patient assessment, data collection, and use of the 12-lead to guide rapid intervention. American Heart Association advanced cardiac life support certificate issued upon successful course completion.

**CEPT 253. Cardiac Electrophysiology and Rhythm Recognition III. 3 Units.**
Clinical use of diagnostic tests and procedures related to intracardiac catheter placement and the electrograms created during EP studies/procedures. Improves recognition and interpretation of intracardiac electrograms. Introduces anatomical and physiological concepts of rhythm generation and cardiac electrophysiology pathways. Emphasizes basic intracardiac electrogram recognition, which, combined with practice, leads to greater interpretation proficiency during cardiac EP procedures/studies. Prerequisite: CEPT 251, CEPT 252.

**CEPT 258. Fundamentals of Biomedical Science. 2 Units.**
Study and application of basic sciences related to physiology and pathophysiology, integrating the concepts into the fundamentals of biomedical electronics—specifically the physical sciences to cardiac management.

**CEPT 261. Cardiac Electrophysiology Science I. 3 Units.**
Principles of cardiac electrophysiology, including electrophysiology conduction, pathways and mapping, measurements of refractory periods, aberrant conduction of the myocardium, tests of sinus node function, atrial and ventricular extrastimulus testing, pacing protocols for diagnostic electrophysiology studies, and cardiac resynchronization. Emphasizes application to the clinical setting.

**CEPT 262. Cardiac Electrophysiology Science II. 3 Units.**
Medical instrumentation and clinical application used in cardiac electrophysiology. In-depth study of the technical knowledge used for diagnostic, interventional, and therapeutic modalities. Applies scientific principles to the operation of laboratory equipment. Identifies correct patient-specific or appropriate device system adjustments.

**CEPT 263. Cardiac Electrophysiology Science III. 3 Units.**
Continues CEPT 261 and 262, developing advanced knowledge, skills, and application of mapping and monitoring systems. Explores device features, therapy options, and hands-on troubleshooting in depth. Includes case study review.

**CEPT 271. Cardiology Diseases and Therapeutics I. 2 Units.**
Overview of pathophysiology of cardiac diseases. Describes appropriate therapy for acute and chronic cardiovascular disease states. Emphasizes scientific support for treatment modalities and reviews current treatment trends for cardiovascular diseases.

**CEPT 272. Cardiology Diseases and Therapeutics II. 2 Units.**
Addresses major cardiac pathologies, congenital and acquired. Focuses on cardiac rehabilitation science and current therapy of the cardiac patient. Includes applied knowledge of relevant risk factors and fosters appreciation of cardiovascular disease prevention. Emphasizes the function of exercise in disease prevention, as well as the role nutrition plays in promoting cardiovascular health. Discusses testing protocols and exercise prescription, along with evidence-based therapies.

**CEPT 275. Cardiovascular Pharmacology. 3 Units.**
Pharmacological agents currently used in the treatment of cardiovascular disease management, including biophysical, biochemical, and cellular basis of treatment, pharmacokinetics, pharmacodynamics, and therapeutics. Emphasizes pharmaceuticals commonly given to and used to treat cardiac patients.

**CEPT 281. Cardiac Electrophysiology Procedures I. 3 Units.**
Indications for technology-based evaluations and diagnostic and therapy interventions. Focuses on interventions that minimize procedural and device-related complications. Includes information related to patient monitoring and comfort. Laboratory practice and techniques.

**CEPT 282. Cardiac Electrophysiology Procedures II. 3 Units.**
Continues to explore advanced cardiovascular diagnostic and therapeutic procedures. Laboratory practice and techniques.

**CEPT 285. Cardiology. 3 Units.**
Assists the health-care provider to develop assessment skills and to increase knowledge of medical management of the patient with acute and chronic cardiovascular disorders. Focuses on anatomy and physiology, underlying pathophysiology, advanced history taking and physical assessment, cardiovascular pharmacology, electrical modalities, cardiac diagnostic testing, and current research.

**CEPT 321. Cardiac Electrophysiology Clinical Practicum I. 1.5 Unit.**
Introduces the clinical setting. Orients the student to environments in which the CEP specialist works. Student participates in or conducts a health history and physical assessment of the cardiac patient and learns proper documentation procedures. Hands-on experience to assist development of basic clinical skills. Introduces procedures, diagnostic examinations, and equipment utilized in cardiac procedures. Three days of clinical rotations per week.

**CEPT 322. Cardiac Electrophysiology Clinical Practicum II. 1.5 Unit.**
Provides clinical experience and application of cardiac electrophysiology procedures, interventions, instrumentation, and patient-care interactions. Preceptors in clinical settings facilitate experiences that enable students to develop and enhance competencies related to cardiac testing and procedures. Includes practice with components of communicating effectively with clients, their families, and other members of the health-care team. Three days of clinical rotations per week. Prerequisite: CEPT 321.

**CEPT 323. Cardiac Electrophysiology Clinical Practicum III. 2 Units.**
Assists students in gaining specific experiences through clinical assignments, enabling them to develop and enhance competencies in cardiac testing and patient evaluation. Guided by clinical preceptors, students rotate through multiple environments relevant to the practice of cardiac electrophysiology, as well as several clinical environments, in order to gain advanced competencies in all content areas. Prerequisite: CEPT 322.

**CEPT 324. Cardiac Electrophysiology Clinical Practicum IV. 2 Units.**
Provides student rotations through several clinical environments in order to gain advanced competencies in all content areas. Includes but is not limited to Holter scanning, cardiac rehabilitation, exercise testing, pacemaker technologies, and cardiac mapping. Prerequisite: CEPT 323.

**CEPT 345. Case Studies in Cardiac Electrophysiology. 2 Units.**
Presents cardiac electrophysiology concepts though a case study model. Student reviews and presents case studies that integrate knowledge of cardiac disease, treatments, diagnostic tests, and procedures. Utilizes a simulated patient care setting to improve and develop critical thinking skills.

**CEPT 348. Cardiac Electrophysiology Seminar. 3 Units.**
A comprehensive view of the rapidly evolving field of interventional cardiology. Studies new developments, technological innovations, and advances in clinical application.

# Child Life Specialist (CHLS)

## Courses

**CHLS 501. Hospitalized Infant and Toddler Development. 3 Units.**
Emphasizes the development of infants and toddlers in hospital settings. Presents theory and research regarding socialization, emotional development, and temperament. Discusses bereavement, appropriate health, safety, and nutritional practices, and use of tools for effective practice.

**CHLS 502. Introduction to the Child-Life Profession. 3 Units.**
Teaches the evolution and history of child life, as well as the theoretical framework that guides the profession. Discusses topics such as professionalism and ethics as they relate to child-life practice. Exposes students to relevant research that constitutes an integral component of evidence-based practice. Shares clinical expectations for matriculation and certification through the Association of Child Life Professionals.

**CHLS 503. Preparation for Clinical Placement. 3 Units.**
Helps students develop a child-life specialist identity for clinical practice through readings, discussion of clinical practice placements, and formation of a personal philosophy. Students construct a cover letter, resume, and portfolio; as well as research clinical placement sites and become aware of the child-life specialist placement application and interviewing requirements. Discusses ACLP eligibility requirements and internship curriculum modules.

**CHLS 504. Child Life Administration and Program Development. 3 Units.**
Introduces students to the history and development of the child life profession. Health-care environment, administrative issues, program development, and outcome assessment process. Develops competencies and skills necessary to effectively administer a child life program.

**CHLS 505. Cross-Cultural Perspectives in Health Care. 3 Units.**
Introduction to the diversity of cultures and its impact on the delivery of health-care services. Explores characteristics of composition, cultural practices and preferences, and health-care issues faced by selected cultures. Presents human differences, preferences, biases, and stereotypes. Fosters development of awareness, sensitivity, and competence required to affirm diversity in health-care and practice settings.

**CHLS 506. Therapeutic Play for Children Affected by Illness and Injury. 3 Units.**
Teaches the developmental aspects of play therapy, in collaboration with the developmental stages of the child/teen and family in the context of a health-care setting. Provides student with an experiential understanding of play therapy, recreation therapy, education, and practice.

**CHLS 507A. Aspects of Illness and Disease. 3 Units.**
Teaches the child life student about the childhood disease process and describes the pathophysiology, symptoms, diagnostic testing, and treatment of disease. How disease affects the child and family's behavioral, social, and emotional development and coping strategies.

**CHLS 507B. Aspects of Illness and Disease. 3 Units.**
Provides students with information regarding the effects of disease and/or injury on the physical, emotional, and social needs of children/adolescents and their families. Discusses medical terminology as it relates to the hospitalized child. Provides students with techniques--from medical, psychological, and social aspects--to effectively deal with behaviors that accompany hospitalization.

**CHLS 508. Grief and Loss. 3 Units.**
Promotes understanding of various theories, and practices specific interventions that assist hospitalized children/teens or adult family members when they encounter issues of death, loss and/or grief. Students examine how these issues affect them personally and professionally; and describe their own epistemology regarding death, loss and grief. Examines these issues from a family-system's perspective in a hospital setting.

**CHLS 509. Child-Life Assessment. 3 Units.**
Orients students to child life in hospitals and other health-care environments; and gives attention to stress and coping assessments, along with other interventions used to assist patients and families. Examines additional interventions and significant variables, such as providing emotional support for families and encouraging optimum development of children facing a broad range of challenging experiences. Addresses roles and responsibilities of membership on an interdisciplinary team.

**CHLS 600. Child Life Theory and Practice. 3 Units.**
Examines children and their families in a health care setting from the perspective of a child life specialist. Demonstrates the role of the child life specialist in minimizing the stress and anxiety experienced during hospitalization. Focuses on educational and play components, as well as the general support and scope of practice that are unique to the field of child life.

**CHLS 604. Child Life Internship Seminar I. 4 Units.**
Blends didactic and experiential learning in order to bridge the gap between child-life theory and the application of child-life principles. Prepares students for clinical work in the field of child life. Discusses the clinical requirements recommended by the Association of Child Life Professionals (ACLP), with emphasis on the ACLP's standards of clinical practice. Enrollment requires registration for CHLS 701: Clinical Training. Prerequisite: CHLS 608.

**CHLS 605. Child Life Internship Seminar II. 4 Units.**
Blends didactic and experiential learning in order to bridge the gap between child-life theory and the application of child-life principles. Prepares students for work in the field of child life through the principles of clinical coursework shared in class. Discusses the clinical requirements recommended by the Association of Child Life Professionals (ACLP) and gives special attention to the standards of clinical practice set forth by the official documents of ACLP. Prerequisite: CHLS 608.

**CHLS 606. Parenting Medically Fragile Children. 3 Units.**
Introduces students to parenting issues related to the medically fragile child. Provides knowledge of theories, techniques, skills, available community resources, and legal and ethical considerations that pertain to this specific group.

**CHLS 607. Child Life Professional. 3 Units.**
Prepares students for entering the professional field of child life by demonstrating clinical assessment, documentation, and skills related to child life practice. Includes application of ethical principles, as well as issues of professionalism. Requires a 100-hour practicum.

**CHLS 608. Child Life Practicum. 1 Unit.**
Students carry out assigned playroom duties: supervise activities that foster creativity, divert patients from stress and worry, and normalize their environment; and provide opportunities for patients and families to socialize and engage in developmentally appropriate activities. Students assist with bedside interaction and interventions and assist staff with escorting patients to other locations of the hospital for special programming.

**CHLS 609. Global Practice: Child Life Specialist. 3 Units.**
Introduction to child life practice in a global context. Examines ethical and practice issues associated with delivery of pediatric psychosocial services in health-care systems in underdeveloped and developed environments. Gives critical attention to issues of pediatric and adolescent growth and development, family-centered care, grief and loss, and advocacy. Shares models for learning and collaboration within the context of health-care delivery.

**CHLS 610. Child Life Internship II. 4 Units.**
Blends didactic and experiential learning in order to bridge the gap between child-life theory and the application of child-life principles. Prepares students for work in the field of child life through the principles of clinical course work shared in class. Discusses the clinical requirements recommended by the Association of Child Life Professionals (ACLP) and gives special attention to the standards of clinical practice set forth by the official documents of ACLP.

**CHLS 694. Directed Study: Child Life Specialist. 1-4 Units.**
Individual study in areas of special interest concerning the pediatric patient and family. May be repeated for credit at the discretion of the faculty.

**CHLS 700. Clinical Training. 2 Units.**
A child-life practicum designed as an introductory experience for individuals interested in pursuing the child-life profession. Students enroll in an approved hospital site, complete 100-120 hours, and meet with a supervisor who meets ACLP requirements.

**CHLS 701. Clinical Training. 6 Units.**
Hands-on clinical training experience that provides the student with an opportunity to build on coursework and put theory into practice while working in a variety of hospitals and related settings under the direction of a certified child-life specialist (CCLS). 600 hours required through ACLP.

**CHLS 702. Clinical Training. 6 Units.**
Hands-on clinical training experience that provides the student with an opportunity to build on coursework and put theory into practice while working in a variety of hospitals and related settings under the direction of a certified child-life specialist (CCLS). 600 hours required through ACLP. Prerequisite: CHLS 608.

# Clinical Laboratory Science/Medical Technology (CLSM)

## Courses

**CLSM 105. Procedures in Phlebotomy. 4 Units.**
Training in venipuncture and skin puncture, medical terminology, laboratory safety, CPR, basic anatomy and physiology, specimen-collection techniques, hazards/complications, quality assurance methods, and medicolegal issues of phlebotomy. Clinical rotation arranged at Loma Linda University Medical Center and affiliates. CPR training and certificate arranged for students not already certified. Prerequisite: Current CPR certificate.

**CLSM 303. Urine and Body Fluid Analysis I. 2 Units.**
Urinalysis screening procedure and its application in the diagnosis of renal, systemic, and metabolic diseases. Analysis and morphology of body fluids. Lecture and laboratory.

**CLSM 307. Medical Parasitology. 3 Units.**
Medically important parasites: life cycles, clinical features, infective diagnostic stages. Demonstrations, slide studies, and diagnostic procedures. Lecture and laboratory.

**CLSM 309. Quantitative Analysis (Chemical). 4 Units.**
Provides a rigorous background in chemical principles particularly important to analytical clinical chemistry. Develops an appreciation for the task of judging the accuracy and precision of experimental data and the application of statistical methods. Covers both fundamental and practical aspects of chemical analysis; neutralization titrations; acid-base titrations; spectrophotometric methods; and electrochemical and chromatographic methodologies. Lecture and laboratory.

**CLSM 315. Physiology. 4 Units.**
Physiology of the human body including cellular, neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine systems.

**CLSM 321. Hematology I. 4 Units.**
Examines normal hematologic physiology, cellular development, and hemostasis in the human. Introduces pathophysiology, with emphasis on clinical and laboratory evaluation of hematologic status. Theory and background of laboratory procedures used in diagnosis and treatment of hematologic and other diseases. Stresses proficiency in evaluation of normal and abnormal cellular morphology. Lecture and laboratory.

**CLSM 322. Hematology II. 4 Units.**
Theory and background of routine and special laboratory procedures used in diagnosis and treatment of hematologic and other diseases. Emphasizes peripheral blood-cell morphology, hematopoeses, maturation, and kinetics. Pathophysiology of hematologic disorders, including anemias and hematologic malignancies. Correlation of hemostasis testing with clinical hemostatic disorders. Lecture and laboratory. Prerequisite: CLSM 321.

**CLSM 325. Clinical Immunology. 3 Units.**
Presents the basic principles of immunology. Topics covered include humoral and cell-mediated immunity, complement, autoimmunity, immunodeficiency, hypersensitivity, tumor immunology, transplant immunology, virology, syphilis serology, and immunologic laboratory techniques. Emphasizes principles, laboratory procedures, and clinical significance. Lecture and laboratory.

**CLSM 327. Clinical and Pathogenic Microbiology I. 5 Units.**
Introduces microbiological concepts, leading to an in-depth study of the major groups of pathogenic bacteria and their relationship to human disease. Emphasizes clinical laboratory identification methods and procedures. Lecture and laboratory.

**CLSM 328. Clinical and Pathogenic Microbiology II. 5 Units.**
Nature and control of microorganisms encountered in clinical material and various anatomical sites. Emphasizes antimicrobial agents, mycology, and virology, including hepatic viruses and HIV/AIDS. Lecture and laboratory. Prerequisite: CLSM 327; or consent of instructor.

**CLSM 331. Biochemistry. 5 Units.**
Chemical structure and metabolism of carbohydrates, amino acids, lipids, and nucleic acids. Protein synthesis, functions, and analysis. Enzymes and their structure, function, kinetics, and regulation. Lecture and laboratory.

**CLSM 332. Clinical Chemistry I. 4 Units.**
Clinical chemistry procedures and their clinical significance in medicine, with focus on the following areas: fluids and electrolytes, acid-base balance, carbohydrates and diabetes mellitus, and proteins. Presents quality assurance, method evaluation, and establishment of reference ranges. Lecture and laboratory. Prerequisite: CLSM 331; or consent of instructor.

**CLSM 333. Clinical Chemistry II. 4 Units.**
Clinical chemistry procedures and their clinical significance in medicine, with focus on the following areas: lipids, lipoproteins, cardiovascular disease, enzymes, liver function, the endocrine system; thyroid, parathyroid, adrenal cortex and catecholamines, and steroids; reproduction, pregnancy, and fetal well-being; therapeutic drug monitoring and toxicology. Lecture and laboratory. Prerequisite: CLSM 332.

**CLSM 341. Immunohematology I. 3 Units.**
Fundamentals of antigen-antibody reactions. Studies major blood-group systems, compatibility testing, and antibody-identification techniques. Clinical analysis of hemolytic disease of the newborn. Lecture and laboratory.

**CLSM 342. Immunohematology II. 3 Units.**
Blood collection, donor testing, component preparation, and quality management in the collection facility. Identification of multiple antibodies, typing discrepancies, hemotherapy, hazards of transfusion, and investigation of autoimmune hemolytic disease. Lecture and laboratory. Prerequisite: CLSM 341.

**CLSM 396. CLS Junior Seminar. 1 Unit.**
Prepares student for entry into the senior year clinical practicum. Introduces student to the clinical laboratory and its operations by direct observation and discussions to include pre-analytical, analytical, and postanalytical areas. Students expected to apply knowledge acquired from all disciplines within the junior year curriculum. Visits to off-site locations may be required.

**CLSM 411. Urine and Body Fluid Analysis II. 1 Unit.**
Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Urinalysis screening procedures and applications in the diagnosis of renal, systemic, and metabolic diseases. Processing, analysis, and morphologic evaluation of body fluids. Prerequisite: CLSM 303.

**CLSM 413. Diagnostic Microbiology. 6 Units.**
Correlates theory and clinical experience with, and applies them to, analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of diagnostic bacteriology, mycology and virology. Emphasizes isolation and identification of pathogenic microorganisms. Includes susceptibility testing, instrumentation, and rapid identification methods. Prerequisite: CLSM 307, CLSM 327, CLSM 328.

**CLSM 414. Clinical Parasitology. 2 Units.**
Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of medical parasitology. Emphasizes testing for and identification of pathogenic parasites. Prerequisite: CLSM 307.

**CLSM 422. Hematology III. 6 Units.**
Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of hemostasis, cellular quantification and identification techniques, and clinical hematology. Includes white cell, red cell, platelet, and hemostatic disorders. Prerequisite: CLSM 321, CLSM 322.

**CLSM 434. Clinical Chemistry III. 5 Units.**
Correlates and applies theory and clinical experience with analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review include: carbohydrates, proteins, lipids, enzymology, electrolytes, acid-base balance, endocrine system, and therapeutic drug monitoring. Prerequisite: CLSM 333.

**CLSM 435. Immunoassay and Molecular Diagnostic Techniques. 3 Units.**
Reviews common immunoassay and molecular diagnostic assay methodologies utilized in the clinical laboratory. Includes immunoassay technologies (EIA, ELISA, EMIT, FPIA), and chemiluminescence; and, molecular diagnostic techniques (nucleic acid extraction and purification, gel electrophoresis, nucleic acid hybridization and blots, DNA sequencing, and amplification technologies). Examines signal, target amplification, and real-time technologies. Addresses laboratory design and safety issues. Prerequisite: CLSM 325; or consent of the instructor.

**CLSM 442. Immunohematology III. 3 Units.**
Applies theory and techniques routinely used in transfusion medicine. Emphasizes correlation with clinical experience. Directed study and review include type and screen, antibody identification, investigation of hemolytic disease of the newborn, hemotherapy, and hazards of transfusion. Assesses and interprets data. Overview of donor facilities: donor criteria, records management, component preparation, blood storage, and infectious disease testing. Prerequisite: CLSM 341, CLSM 342.

**CLSM 451. Clinical Laboratory Management I. 2 Units.**
Introduces management theory, including: management styles, professional communications, business ethics, group theory, team building, process management, process control, and personnel.

**CLSM 452. Clinical Laboratory Management II. 2 Units.**
Financial management, with emphasis on concepts, tools, and strategies underlying financial decision making. Topics include health-care reimbursement systems, coding, billing, development of operating budgets, and financial reports. Concepts of financial negotiations, inventory management, and financial planning. Integrates and applies analytical techniques used in the service industries.

**CLSM 453. Clinical Laboratory Management III. 2 Units.**
Introduces theories of quality management, organization, strategic planning, and the decision-making process. Reviews and analyzes government agencies, legislation, and regulatory bodies that impact laboratory management. Compares quality systems-management philosophies.

**CLSM 455. Special Procedures. 4 Units.**
Clinical and theory-based assessment and interpretation of data. Evaluation and comparisons of methodologies including immunoassays, thin-layer and high-pressure liquid chromatography, electrophoresis, spectrophotometry, toxicology, amino acids assay, rapid-detection testing for bacteria and viruses, polymerase and ligase chain reactions, Western blot assays, serology, and current immunologic techniques. Prerequisite: CLSM 325, CLSM 333.

**CLSM 471. Clinical Practicum I. 5 Units.**
Thirteen weeks of supervised clinical laboratory experience in selected areas, including parasitology, hematology, urinalysis, and body fluids. Student performs tests routinely done in these areas of the clinical laboratory.

**CLSM 472. Clinical Practicum II. 5 Units.**
Thirteen weeks of supervised clinical laboratory experience in selected areas, including: microbiology and immunohematology, with experience in transfusion services and in a blood-collection facility. Student performs tests routinely done in these areas of the clinical laboratory. Emphasizes clinical-laboratory quality-control procedures and evaluation.

**CLSM 473. Clinical Practicum III. 5 Units.**
Thirteen weeks of supervised clinical laboratory experience in selected areas, including: chemistry and special procedures. Student performs tests routinely done in these areas of the clinical laboratory. Incorporates experience in administrative duties.

**CLSM 474A. Clinical Correlations. 1 Unit.**
Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine--including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 474B. Clinical Correlations. 1 Unit.**
Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine--including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 474C. Clinical Correlations. 1 Unit.**
Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine--including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 496. Clinical Laboratory Science Seminar I. 1 Unit.**
Explores aspects of the Clinical Laboratory Scientist profession such as instrumentation, and method selection and evaluation. Prerequisite: Satisfactory completion of Clinical Laboratory Science Program junior-year courses, or consent of instructor.

**CLSM 497. Clinical Laboratory Science Seminar II. 1 Unit.**
Continues with method selection and evaluation, and incorporates skills developed and knowledge obtained in the Clinical Laboratory Science Program junior year. Prerequisite: CLSM 496; or consent of instructor.

**CLSM 498. Clinical Laboratory Science Seminar III. 2 Units.**
Introduction to alternative roles of the clinical laboratory scientist. Topics include professional development and lifelong learning, educational methodologies, and clinical study design (research). Prerequisite: CLSM 497; or consent of instructor.

**CLSM 499. Clinical Laboratory Science Independent Study. 1-5 Units.**
Project or paper to be submitted on a topic of current interest in an area related to medical technology. Regular meetings provide student with guidance and evaluation. Elected on the basis of need or interest.

# Coding Specialist (HLCS)

## Courses

**HLCS 236. Pharmacology. 2 Units.**
Introduces pharmacology, including a review of pharmaceuticals used in diagnosis, prevention, and treatment of disease as commonly encountered in medical records.

**HLCS 238. Essentials of Human Diseases. 3 Units.**
Surveys human diseases, including the etiology, pathogenesis, and clinical manifestations of commonly encountered diseases.

**HLCS 239. Introduction to Health Records Science. 3 Units.**
Introduces health-care facilities and the information systems involving health records. In-depth study of health record content, confidentiality of health-care information, and professional ethics.

**HLCS 241. Medical Terminology. 2 Units.**
Prefixes, suffixes, and root words used in the language of medicine. Terms pertaining to pathology and surgery. Terms studied by body system: gastroenterology, cardiology, neurology, musculoskeletal, dermatology, ophthalmology, otorhinolaryngology, and respiratory.

**HLCS 242. Coding I. 4 Units.**
Principles and conventions of ICD-10-CM and ICD-10-PCS coding in diseases and procedures pertaining to infectious diseases; diseases of blood, endocrine, respiratory, digestive, genitourinary, skin, and musculoskeletal systems; and mental disorders.

**HLCS 243. Coding II. 4 Units.**
Principles and conventions of ICD-10-CM and ICD-10-PCS coding in diseases and procedures pertaining to pregnancy, perinatal conditions, poisonings, injuries, complications of medical and surgical care, the circulatory system, and neoplasms. Prerequisite: HLCS 242.

**HLCS 245. Coding III. 4 Units.**
Principles of current procedural coding terminology (CPT) at the intermediate level, including: surgical coding for all body systems; medical procedures; anesthesia coding; radiology, pathology, and laboratory coding for inpatient and outpatient health-care settings. Modifier assignment. Also includes laboratory practice on 3M software. Prerequisite: HLCS 243.

**HLCS 247. Computer Applications in Health Care. 2 Units.**
Introduces health-care information systems concepts and applications. Focuses on software application in the health-care arena. Specific topics addressed include: general system theory; data management; interoperability; health record applications (e.g., encoder, ADT-R, ROI, etc); electronic health records; personal health records; mobile technology; telemedicine; bioinformatics; heath information exchange; patient informatics applications; and emerging trends in health information technology.

**HLCS 250. Reimbursement and Coding Compliance. 4 Units.**
Addresses principles of billing and third-party reimbursement relating to physician professional coding and APC assignment for health-care institutions. Includes E&M coding conventions and modifiers. Covers principles of health-service billing, including billing terminologies, billing processes, and universal billing forms for various physician-practice settings. Overview of coding guideline compliance, physician querying, severity of illness systems, and clinical documentation improvement. Prerequisite or concurrent: HLCS 245.

**HLCS 260. Seminar and Portfolio for Health-Care Professionals. 2 Units.**
Requires development of a portfolio that illustrates mastery of the program learning outcomes. Provides students with a format to demonstrate acquisition of the knowledge and skills necessary to enter the workforce, including preparation for any relevant professional credentials, resume-building, and interview-skill development.

**HLCS 292. Computer Applications in Health Care II. 1 Unit.**
Introduces health-care information systems concepts and applications. Focuses on software application in the health-care arena. Specific topics addressed include: general system theory; interoperability; specific health record applications (encoder, ADT-R, ROI, etc); electronic health records; personal health records; and patient informatics applications. One hour required each week.

**HLCS 961. Coding Practicum I. 2 Units.**
Provides 12-week (six hours per week) coding laboratory as a capstone experience after completing all academic coursework in coding. Enables application of all state and national coding and reimbursement regulations to a variety of inpatient and outpatient records. Provides opportunity to improve speed and accuracy prior to entering the job force.

**HLCS 962. Coding Practicum II. 2 Units.**
Continuation of HLCS 961. Includes an additional coding laboratory experience (12 weeks, 6 hours per week) under direct supervision of an instructor. Prerequisite: HLCS 961.

# Communication Sciences and Disorders (CMSD)

## Courses

**CMSD 217. Beginning Sign Language. 3 Units.**
Focuses on learning American Sign Language (ASL) for conversational purposes. Finger spelling, a sign vocabulary of approximately 500 words, and acquisition of the basic grammatical rules of ASL. ASL contrasted with the various sign systems currently being used in educational settings in this country.

**CMSD 267. Speech-Language Pathology Assistant Fieldwork. 2 Units.**
Guided observation of clinical management of individuals with communication disorders. Supervised clinical experience in assisting the speech-language pathologist in a school and hospital setting. Course may not be taught every year.

**CMSD 284. Introduction to Speech-Language Pathology and Audiology. 3 Units.**
Major types of disorders. Etiology and treatment. Survey course for students majoring in speech-language pathology and audiology, prospective teachers, and others who may encounter speech-language or hearing disorders in their professions.

**CMSD 314. Language Science. 4 Units.**
Introduces techniques of linguistic analyses used in the study of phonology, morphology, syntax, and semantics.

**CMSD 318. Transcription Phonetics. 3 Units.**
Student develops transcription skills using the International Phonetic Alphabet.

**CMSD 324. Language Disorders of Children. 4 Units.**
Impairments of language development in children. Formal and informal assessment of children. Program planning and remediation procedures. Prerequisite or concurrent: CMSD 388.

**CMSD 334. Speech Sound Disorders in Children. 4 Units.**
Definition, classification, etiology, diagnosis, and treatment of phonological/articulation disorders. Prerequisite or concurrent: CMSD 318.

**CMSD 367. SLPA Practicum and Ethics. 4 Units.**
Discussion of scope of practice and requirements for licensure for SLPAs in the state of California. Discussion of ethical issues related to the profession. Guided observation of clinical management of individuals with communication disorders. Supervised clinical experience in assisting the SLP in a school or hospital setting.

**CMSD 368. SLPA Scope of Practice. 1 Unit.**
Addresses the laws, regulations, ethics, and clinical principles and procedures within the scope of practice of the speech-language pathologist assistant. Prerequisite or concurrent: CMSD 369.

**CMSD 369. SLPA Fieldwork Experience. 3 Units.**
Guided observation of clinical management of individuals with communication disorders. Supervised clinical experience in assisting the speech-language pathologist in a school, hospital, or private clinical setting. Prerequisite or concurrent: CMSD 368.

**CMSD 376. Anatomy of Speech-Hearing Mechanism. 4 Units.**
Anatomy and physiology of auditory-vocal communicative process.

**CMSD 388. Communication across the Life Span. 4 Units.**
Overview of language development and normal changes over the life span. Development of language from infancy to adolescence, and the effects of aging on communication. Includes study of hearing.

**CMSD 424. Adult Language Pathology. 4 Units.**
Impairment of language and speech related to organic neuropathology.

**CMSD 426. Behavior Management Applications with Special Populations. 4 Units.**
Addresses the principles of behavior modification and discrete trials training as they apply to persons with autism, developmental delays, congenital syndromes, and attention deficit hyperactivity disorders.

**CMSD 436. Speech and Hearing Science. 4 Units.**
Outline of fundamental properties of sound creation, transmission, and reception. Utilizes those properties for an in-depth analysis of English consonants, vowels, and prosodies; focusing on applications within the fields of communication sciences and disorders, and audiology.

**CMSD 444. Organic Speech Disorders. 4 Units.**
Introduces the classification, cause, manifestations, assessment, and treatment of craniofacial disorders/cleft palate, tongue thrust, dysarthria, apraxia of speech, and dysphagia.

**CMSD 445. Techniques for ESL and Accent Modification. 2 Units.**
Principles and procedures for teaching English as a second language (ESL) and accent modification to bilingual speakers of English.

**CMSD 448. Disorders of Fluency. 3 Units.**
Overview of fluency disorders in children and adults. Addresses the nature of developmental stuttering and introduces basic therapy techniques used to promote fluency.

**CMSD 449. Voice Disorders. 3 Units.**
Introduction to healthy and disordered voice. Overview of definition, classification, etiology, diagnosis, and treatment of voice disorders. Vocal characteristics of pitch, intensity, quality, and resonance are discussed.

**CMSD 454. Introduction to Audiology. 4 Units.**
Anatomy and physiology of the auditory mechanism. Nature of the acoustic stimulus, disorders of the ear, problems of the hard-of-hearing. Pure-tone audiometry. Applicable toward California audiometric certification.

**CMSD 464. Introduction to Aural Rehabilitation. 4 Units.**
Explores methods and techniques used with hearing-impaired children and adults who depend on hearing aids, cochlear implants, or assistive devices to develop or improve auditory and visual reception and speech production. Prerequisite: CMSD 454.

**CMSD 467. Speech-Language Pathology and Audiology Practicum. 1-4 Units.**
Supervised practice in diagnosis and therapy.

**CMSD 477. Bilingualism and Biculturalism. 3 Units.**
Focuses on clinical competencies and cultural sensitivity necessary and appropriate for addressing the needs of bicultural and bilingual persons. The impact of such knowledge is addressed as it pertains to speech-language pathology assessment and intervention.

**CMSD 485. Clinical Methods in Speech-Language Pathology. 4 Units.**
Principles and procedures of speech-language therapy within and across disorders. Methods of determining treatment effectiveness. Regulations governing public school services.

**CMSD 486. Diagnostic Methods in Speech-Language Pathology. 4 Units.**
Purposes for assessment. Procedures employed in describing and diagnosing speech-language impairments.

**CMSD 488. Autism Spectrum Disorders. 4 Units.**
Characteristics, classifications, theories of etiologies, and principles of management of the autism spectrum disorders. Emphasizes assessment methods and intervention. Prerequisite: CMSD 324, CMSD 426, CMSD 485, CMSD 486.

**CMSD 499. Speech-Language Pathology and Audiology Independent Study. 1-2 Units.**
Student submits a project or paper on a topic of current interest in an area related to speech-language pathology and audiology. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest.

**CMSD 511. Graduate Portfolio I. 2 Units.**
The first in a series of two courses that provides students with a format for demonstrating their acquisition of the knowledge and skills that prepare them for entry into the profession. Students learn the requirements for professional accreditation and certification, and of licensing entities; and develop a professional portfolio. Emphasizes ethical, business, and legislative considerations in speech-language pathology.

**CMSD 512. Graduate Portfolio II. 1 Unit.**
The second in a series of two courses that teaches students the requirements for professional accreditation and certification, and of licensing entities; and that helps them continue to develop an organized means of demonstrating the knowledge and skills acquired during their graduate program. Requires development of a professional portfolio.

**CMSD 514. Anatomy of Speech-Hearing Mechanism. 3 Units.**
Addresses anatomy and physiology of basic human auditory-vocal communicative processes. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 515. Transcription Phonetics. 2 Units.**
Student develops transcription skills using the International Phonetic Alphabet. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 516. Speech and Hearing Science. 3 Units.**
Introduces and explores basic theories in acoustics, psychoacoustics, and speech perception and production. Includes basic physics and algebra, as well as the application of scientific principles to clinical practice.

**CMSD 520. Communication across the Life Span. 3 Units.**
Overview of language development and normal changes over the life span. Development of language from infancy to adolescence, and the effects of aging on communication. Includes study of hearing. Includes monthly meetings to discuss clinical applications.

**CMSD 521. Language Disorders of Children. 3 Units.**
Addresses impairments of language development in children, formal and informal assessment of children, and programming and planning of remediation procedures. Students meet monthly to discuss application to clinical populations. Prerequisite or concurrent: CMSD 520.

**CMSD 522. Organic Speech Disorders. 3 Units.**
Introduces the classification, cause, manifestations, assessment, and treatment of craniofacial disorders/cleft palate, tongue thrust, dysarthria, apraxia of speech, and dysphagia. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 523. Seminar in Early Childhood Language Disorders. 3 Units.**
Addresses the principles and procedures in assessment and interventions of language disorders in children. Emphasizes early-language learners (birth to 3 years).

**CMSD 525. Seminar in School-Aged Child Language Disorders. 3 Units.**
Addresses the principles and procedures of assessment and intervention of preschool, primary, and adolescent school-age children with language disorders. Emphasizes school-age learning in the areas of semantics, syntax, pragmatics, narrative, and phonological awareness.

**CMSD 529. Adult Language Pathology. 3 Units.**
Addresses impairment of language and speech related to organic neuropathology. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 530. Language Science. 3 Units.**
Introduces techniques of linguistic analysis used in the study of phonology, morphology, syntax, and semantics. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 531. Service-Learning in Speech-Language Pathology I. 1 Unit.**
Provides foundational knowledge and practice in service-learning, an integration of academic material with meaningful service in the community, followed by reflection. Addresses the concept of civic engagement, which extends beyond mere assistance to partnering with members of the community for mutual benefit and support.

**CMSD 532. Service-Learning in Speech-Language Pathology II. 1 Unit.**
Builds on the foundations formed in CMSD 531. Students collaborate with community partners to complete a service-learning project. Critical thought, reflection, collaboration, and team-learning skills are emphasized. Includes practical service-learning experiences. Prerequisite: CMSD 531.

**CMSD 534. Speech Sound Disorders in Children. 3 Units.**
Addresses definition, etiology, characteristics, prevention, assessment, and intervention for phonological/articulation disorders. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 535. Voice Disorders. 3 Units.**
Discusses diagnosis and intervention techniques used with children and adults displaying a variety of voice disorders. Includes demonstration and operation of instrumentation used for physiological and acoustic analysis of abnormal voice production.

**CMSD 536. Speech and Hearing Science. 3 Units.**
Fundamental properties of sound creation, transmission, and reception. Utilizes those properties for an in-depth analysis of English consonants, vowels, and prosodies; focusing on applications within the fields of communication sciences and disorders, and audiology. Prerequisite: CMSD 515.

**CMSD 537. Clinical Methods in Speech-Language Pathology. 3 Units.**
Addresses principles and procedures of speech and language therapy within and across disciplines. Addresses methods of determining treatment effectiveness. Discusses regulations governing public school services. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 538. Diagnostic Methods in Speech-Language Pathology. 3 Units.**
Discusses purpose of assessment, including procedures employed in describing and diagnosing speech and language impairments. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 539. Introduction to Audiology. 3 Units.**
Provides anatomy and physiology of the auditory mechanism. Addresses the nature of acoustic stimulus, disorders of the ear, and problems of the hard-of-hearing. Covers pure-tone audiometry. Applicable for California audiometric certification. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 545. Issues in School Speech-Language Pathology. 3 Units.**
Addresses issues confronted by school speech-language pathologists, including PL 94-142, IDEA, NCLB, planning for and conducting IEPs, scheduling and caseload management, evaluating and assessing students from diverse backgrounds, due process, and advocating for students.

**CMSD 546. Laryngopharyngeal Endoscopy Techniques. 1 Unit.**
Provides hands-on learning of rigid and flexible endoscopy techniques within the scope of practice for speech pathologists in the assessment and management of communication and swallowing disorders.

**CMSD 547. Autism Spectrum Disorders. 2 Units.**
Examines characteristics, classifications, theories of etiologies, and principles of management of the autism spectrum disorders. Emphasizes assessment methods and intervention. Prerequisite: CMSD 324, CMSD 426, CMSD 485, CMSD 486.

**CMSD 548. Disorders of Fluency. 2 Units.**
Overview of fluency disorders in children and adults. Primarily addresses the nature of developmental stuttering and introduces basic therapy techniques used to promote fluency.

**CMSD 549. Voice Disorders. 2 Units.**
Introduction to the healthy and the disordered voice. Overview of definition, classification, etiology, diagnosis, and treatment of voice disorders. Discusses vocal characteristics of pitch, intensity, quality, and resonance.

**CMSD 554. Swallowing Disorders. 3 Units.**
Lecture and discussion of the speech-language pathologist's role in the diagnosis and treatment of swallowing disorders in children and adults. Addresses ethical and cultural issues. Emphasizes analysis of current literature and clinical applications. Selected laboratory experiences.

**CMSD 564. Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids. 3 Units.**
Studies the mechanisms for achieving hearing rehabilitation—including amplification, speech reading, auditory training, hearing-aid orientation, and speech conservation. Considers hearing-aid function and philosophies of rehabilitation for the hearing impaired (e.g., auditory, aural, manual, and total communication).

**CMSD 567. Clinical Practice in Speech-Language Pathology and Audiology, Advanced. 1-6 Units.**
Supervised practice in diagnosis and therapy.

**CMSD 575. Instrumentation in Speech and Hearing I. 1 Unit.**
Lecture, discussion, and laboratory experience in the areas of speech acoustics, speech production and perception, psychoacoustics, and speech and hearing physiology.

**CMSD 576. Instrumentation in Speech and Hearing II. 1 Unit.**
A continuation of CMSD 575 content and methodology. Discusses and connects principles behind speech production, perception, physiology, aerodynamics, and acoustics with their practical applications. Prerequisite: CMSD 575.

**CMSD 577. Bilingualism and Biculturalism. 2 Units.**
Focuses on clinical competencies and cultural sensitivity necessary and appropriate for addressing the needs of bicultural and bilingual persons. The impact of such knowledge is addressed as it pertains to speech-language pathology assessment and intervention.

**CMSD 586. Educational Fieldwork I. 1 Unit.**
Initial supervised therapy on the elementary and/or secondary level and/or in a classroom for the severely language-handicapped child.

**CMSD 587. Counseling in Communication Disorders. 3 Units.**
Explores the counseling role of the speech-language pathologist and identifies clinician responsibilities in working with individuals of different cultures, ethnicity, gender, age, and belief systems.

**CMSD 588. Educational Fieldwork II. 8 Units.**
Supervised therapy on the elementary and/or secondary level and/or in a classroom for the severely language-handicapped child.

**CMSD 589. Remediation/Advanced Directed Teaching. 1 Unit.**
For students who have not successfully completed CMSD 588. Requires remediation or completion of clinical skills necessary for work in the public schools. Prerequisite: CMSD 588.

**CMSD 596. Medical Fieldwork I. 1 Unit.**
Initial supervised clinical practice in a medical center, rehabilitation facility, or skilled nursing facility.

**CMSD 597. Fieldwork II. 8 Units.**
Supervised clinical practice in a medical center, rehabilitation facility, skilled nursing facility, outpatient, private practice, or adult education placement. Prerequisite: CMSD 596.

**CMSD 598. Research Methods and Professional Literature in Communication Sciences and Disorders. 3 Units.**
Lecture and discussion that facilitates the student's ability to read and interpret professional literature, develop research ideas, and develop professional writing skills.

**CMSD 599. Remediation/Externship. 1 Unit.**
For students who have not successfully completed CMSD 597. Requires remediation or completion of clinical skills necessary for work in medical settings. Prerequisite: CMSD 597.

**CMSD 679. Seminar: Motor Speech Disorders/Augmentative Communication. 3 Units.**
Problem-based learning seminar that focuses on etiology, characteristics, evaluation, and treatment of motor speech disorders, including the dysarthrias and apraxia.

**CMSD 682. Seminar: Traumatic Brain Injury. 3 Units.**
Explores pathophysiology, diagnosis, and rehabilitation of cognitive communication disorders in children and adults with traumatic closed-head injuries. Lecture and discussion format emphasizes reading current professional literature and developing skills in formal and informal assessment and functional treatment.

**CMSD 684. Seminar: Adult Language Disorders. 3 Units.**
Problem-based learning seminar that focuses on etiology, characteristics, evaluation, and treatment of acquired adult language disorders.

**CMSD 685. Seminar: Stuttering. 3 Units.**
Provides practical instruction in assessment and remediation with individuals who stutter and/or clutter.

**CMSD 687A. Seminar: Open Seminar. 1 Unit.**
Facilitates students' advanced study of current issues in the diagnosis and treatment of communication disorders.

**CMSD 687B. Seminar: Open Seminar. 1 Unit.**
Facilitates students' advanced study of current issues in the diagnosis and treatment of communication disorders.

**CMSD 688. Seminar: Speech Sound Disorders - Advanced. 3 Units.**
Typical development of phoneme acquisition and use. Explores etiology, characteristics, assessment and treatment of articulation and phonological disorders and differences in children.

**CMSD 697. Research. 1-4 Units.**

**CMSD 699. Directed Study. 1-3 Units.**
Independent study on a research project selected in consultation with the advisor. For advanced students. May be repeated once. Student's transcript will show specific area of study, for example: SPPA 699 Directed Study: Adult Language Disorders.

# Counseling and Family Sciences Doctoral (CFSD)

## Courses

**CFSD 501. Fundamentals of Supervision in Marital and Family Therapy. 3 Units.**
Research and theory regarding the supervision of marriage and family therapy trainees and interns. Can be used toward the requirements for certification as an AAMFT-approved supervisor.

**CFSD 502. Advanced Supervision in Marital and Family Therapy. 1 Unit.**
Mentoring of supervision of MFT trainees and interns in a clinical setting. Hours earned apply toward certification as an AAMFT-approved supervisor. Must complete 30 hours of supervision and 5 hours of supervision mentoring. Prerequisite or concurrent: CFSD 501.

**CFSD 504. Advanced Theory in Marital and Family Therapy. 4 Units.**
Provides a metaperspective for analysis and development of systemic-relational theories guiding marital and family therapy practice. Conceptualization and deconstruction of philosophical, religious, political, sociological, and ecosystemic notions. Preparation to critique and develop MFT theory with an emphasis on ethical and social-contextual aspects of case conceptualization and implications for recovery-based practice.

**CFSD 505. Advanced Family Studies: Theory Construction. 3 Units.**
Focus on developing theories that explain/guide/predict an individual, couple, family, or society phenomenon. Explores how to critically evaluate theory, as well as link theory development to research methodology and practice.

**CFSD 506. Foundations of Systems Thinking: Theory and Application. 3 Units.**
Explores theoretical underpinnings of general systems theory and its theoretical and practical applications to family relationships, family communication, intrapersonal dynamics and sociocultural contexts. Studies concepts of self-regulatory feedback loops, circularity and non-linearity as they affect families, inter- and intra-personal interactions and sociocultural contexts.

**CFSD 519. Teaching in Higher Education. 3 Units.**
Studies techniques and processes in the teaching of marriage and family therapy, including didactic and experiential techniques. Examines teaching philosophies for campus-based and online teaching modalities. Explores similarities and differences in pedagogy for campus-based and online teaching methodologies. Identifies strategies for effective teaching in both modalities.

**CFSD 524. Marital and Family Therapy Administration: Organizational Structure, Process and Behavior. 3 Units.**
Prepares MFT doctoral students to manage human service programs and agencies. Mission-based management framework guides students in examining strategic planning as a method for creating organizational change and accountability to stakeholders.

**CFSD 526. Advanced Marital and Family Therapy Assessment. 3 Units.**
Prepares marriage and family therapy doctoral degree students with skills and knowledge to become competent with methods of relational assessment in clinical and research settings. Emphasizes understanding, evaluation, and utilization of both individual and family-based assessments in organizational settings. Students assess the strengths and weakness of instruments in order to determine the best fit for a program, clinical topic, or research project.

**CFSD 528. Marriage and the Family. 4 Units.**
Studies the family from perspectives of psychology, anthropology, biology, history, politics, and religion. Investigates the major movements or moving forces in society that have influenced families living in the United States and elsewhere. Evaluates the important contemporary issues in families and presents theories of family functioning that inform therapeutic and educational interventions by professionals.

**CFSD 534. Family Life Education I. 3 Units.**
Explores issues related to laws and ethics in the practice of family life education, family law, and public policy matters in the United States of America and around the world. Critically analyzes marriage and family literature. Prepares family life educators for certification as family life educators and related family life professionals.

**CFSD 535. Family Life Education II. 4 Units.**
Applies a family-life-education focus on human growth and development. Expanded emphasis on family resource management and parent education within individual and family life cycle.

**CFSD 536. Family Life Education III. 3 Units.**
Explores issues in family life education, human sexuality, and interpersonal relationships relevant to family life educators and related family life professionals.

**CFSD 540. Introduction to Medical Family Therapy. 3 Units.**
Provides an overview of medical family therapy and the theoretical models that can be applied to clinical work within medical settings. Addresses contextual issues that impact health of patients and family members. Includes personal and professional aspects of providing ethical, holistic, and collaborative clinical care in medical settings.

**CFSD 544. Health and Illness in Families. 3 Units.**
Examines biopsychosocial-spiritual aspects of illness and their impact on patient and family members across individual and family life span development. Reviews contextual, cultural, and systemic issues pertaining to health, illness, loss, and trauma of patients and family members. Highlights major issues and trends in health care and implications for patient care.

**CFSD 545. Research and Practice with Couples and Families. 3 Units.**
A scholarly and critical review of the literature in family social science, with application of this literature to the practice of family life education and/or marital and family therapy. Students interact with the material to critically challenge historical approaches and develop new insights and understandings that would shape present and future practice of interventionists that work with families.

**CFSD 546. Multicultural and Global Mental Health. 3 Units.**
Focuses on current issues, trends, and approaches in the field of family social science; and interacts with newer advances in the field resulting from changes in practice, sociocultural, political, and technological arenas. Presents professional practice as an evolving process for practitioners in the twenty-first century.

**CFSD 548. Family Therapy and Medicine. 3 Units.**
Examines the interface of medical practice and family therapy in common medical family therapy settings. Explores the culture of medicine, including usual medical practices and procedures. Outlines adaptations of the medical model used by family therapists. Offers models for collaboration of medical family therapists with medical practitioners. Addresses behavioral health intervention strategies for families with health and wellness issues. Prerequisite: CFSD 540, CFSD 544.

**CFSD 555. Organizational Development and Change. 3 Units.**
Focus on system consultation and professional relations. Integrates organizational change theories and practice assessments in organizational settings. Assists students in integrating organizational behavior, assessment and change knowledge in practical setting.

**CFSD 565. Neurobiology of Relationships, Stress and Trauma: Family Science Applications. 3 Units.**
Connects philosophical underpinnings of systemic and relational theories to current social neuroscience research. Discusses implications and applications for clinical practice. Examines neuroscience of psychotherapy and interplay between biological systems, social processes, relational dynamics and behavior. Emphasis on recursive epistemology, construction of relational experiences, emotions, and attachment and trauma.

**CFSD 601. Statistics I. 4 Units.**
First in a series of three statistics courses. Focuses on basic, foundational behavioral statistics. Includes causality, levels of statistical measurement, frequencies distribution, measures of central tendency, dispersion, probability theory, normal distribution, and ANOVA.

**CFSD 602. Statistics II. 4 Units.**
Second in a series of three statistics courses. Focus on multivariate techniques. Includes ANOVA, ANCOVA, MANOVA, MANCOVA, formulation and computation of multiple regression models using scalar and matrix algebra, multivariate analysis of variance, regression diagnostics and solutions, regression with categorical dependent variables. Prerequisite: CFSD 601.

**CFSD 603. Statistics III. 4 Units.**
Third in a series of three statistics courses. Includes nonlinear regression models, logistic regression, discriminant analysis, path analysis, factor analysis, and structural modeling; and, social network analysis and multilevel modeling. Prerequisite: CFSD 602.

**CFSD 605. Advanced Quantitative Methods. 3 Units.**
Focuses on survey research design and data analysis. Includes research idea development, relational hypotheses formation, survey planning and management, questionnaire and item design, sampling, systemic clinical data measurement, logic of analysis, and problems of statistical interpretation and threats to internal and external validity.

**CFSD 606. Issues in Family Research. 3 Units.**
Addresses current issues in marriage and family therapy (MFT) and family studies research as basis for on-going inquiry and program development. Emphasizes research history, field trends, and evidence-based approaches to recovery. Focuses on designing, implementing, and disseminating research to support MFT and family studies.

**CFSD 611. Qualitative Research Methods I. 4 Units.**
Prepares doctoral students to conduct qualitative research study or program evaluation relevant to family processes and/or clinical practice. Introduces qualitative research foundations and practical experience with qualitative research methods. Addresses philosophical foundations of research design, analysis, and interpretation, and evaluation and presentation of qualitative data and findings.

**CFSD 612. Qualitative Research Methods II. 3 Units.**
Development of qualitative research project and completion of qualitative research proposal. Focuses on qualitative study design, data collection methods, data analysis strategies, writing/presenting qualitative data, and evaluation of qualitative studies. Prerequisite: CFSD 611.

**CFSD 624. Program Development for Families and Communities. 3 Units.**
Examines core components of systemic/relational programs designed to address mental health problems within the context of families and larger systems. Explains the elements of systemic programming that address clinical treatment problems/populations and areas of diversity impacting family and community systems. Using the systemic/relational paradigm of the field, students produce program design foundations, such as literature-based needs assessments, reflecting their areas of interest.

**CFSD 625. Grant Writing. 3 Units.**
Study and practice in locating, developing, and responding to grant opportunities of interest to marriage and family therapists and the mental health populations they serve. Students develop their own systemic/relational program, training, research, or dissertation grant ideas; locate potential funding sources; tailor applications and proposals to each funding source; and critique and refine proposals to meet professional and grantor standards.

**CFSD 626. Program Design, Evaluation and Monitoring. 3 Units.**
Addresses formative and summative evaluations using quantitative, qualitative, and mixed method designs. Emphasizes program evaluation and collaboration with stakeholders to ensure evaluation reports meet intended purposes. Includes program methods for the development of a consistent program design and evaluation plan. Utilizes assessment of program needs to address theory and adherence, process and performance, outcomes, impact, and efficiency in program design, evaluation, and monitoring. Prerequisite: CFSD 624.

**CFSD 627. Statistical Analysis for Program Evaluation. 3 Units.**
Reviews and utilizes basic statistical tools program administrators employ to analyze evaluation results. Provides a framework for evaluation methodologies and statistical analysis used in evaluation report development. Explores decision making strategies based on evaluation results and statistical analyses. Prerequisite or concurrent*: CFSD 624, CFSD 626*.

**CFSD 634A. Practicum in Couple and Family Therapy. 3 Units.**
First in a three-course practicum sequence. Applies systems and relational therapy to relational distress and mental health symptoms. Emphasizes a positive, strengths-based approach to resilience. Addresses gender, culture, socioeconomic, and political aspects of practice. Prerequisite: 200 clinical hours.

**CFSD 634B. Practicum in Couple and Family Therapy. 3 Units.**
Second in a three-course practicum sequence. Applies systems and relational therapy to relational distress and mental health symptoms. Emphasizes a positive, strengths-based approach to resilience. Focuses on mode of systemic conceptualization and in-session processes. Prerequisite: 200 clinical hours.

**CFSD 634C. Practicum in Couple and Family Therapy. 3 Units.**
Third in a three-course practicum sequence. Applies systems and relational therapy to relational distress and mental health symptoms. Emphasizes a positive, strengths-based approach to resilience. Emphasizes religious beliefs and spirituality, and moral and ethical imperatives in relationally-based practice. Prerequisite: 200 clinical hours.

**CFSD 694. Directed Study: Family Studies. 1,2 Unit.**
Individual study in areas of special interest concerning family life education. May be repeated for credit at the discretion of the faculty.

**CFSD 695. Project Research. 1-12 Units.**
Required research associated with the capstone project for the D.M.F.T. degree.

**CFSD 698. Dissertation Research. 1-10 Units.**
Completes independent research contributing to the field of marital and family therapy.

**CFSD 785. Professional Clinical Training in MFT. 1.5,3 Unit.**
Supervised experience in the practice of marital and family therapy. Hours represent face-to-face direct client contact. May be repeated.

**CFSD 785A. Begin Clinical Training in Couple, Marital, and Family Therapy. 0 Units.**
Enables students to consult with clinical director to set up and begin supervised clinical practice in the field of couple, marital, and family therapy. Acceptance into a CFS doctoral program.

**CFSD 785B. Clinical Training in Couple, Marital, and Family Therapy. 4 Units.**
Provides direct client contact in the practice of couple, marital, and family therapy and documents completion of a minimum of 200 hours of direct client contact. Meets AAMFT-approved standards and applies toward 40 hours of clinical experience. May cover up to five quarters and be repeated five times.

**CFSD 786. Professional Development Proposal. 0 Units.**
Must be registered for at least one quarter prior to eligibility for 786A. The student's professional development plan must be formulated and approved by the faculty during this course.

**CFSD 786A. Professional Development Doctoral Portfolio. 1.5-12 Units.**
Doctoral-level experience in marital and family therapy under the supervision of a senior-level family therapist/mentor. Must be arranged in advance in the department. A total of 36 units required for graduation. Prerequisite: CFSD 786.

**CFSD 786B. Professional Internship in Couple and Family Therapy. 2-6 Units.**
Supervised client contact (face-to-face hours only) in the practice of couple and family therapy.

# Counseling and Family Science Global (CFSG)

## Courses

**CFSG 584. Global Health. 3 Units.**
Overview of the current status of global health care. Examines the ethical and practice issues associated with delivery of pediatric health care in underdeveloped health-care systems--giving critical attention to issues of pediatric and adolescent growth and development, policies, trends, advocacy, population growth, and disease. Addresses current trends of child-life professionals in global settings.

# Counseling (COUN)

## Courses

**COUN 501. Research Tools and Methodology: Quantitative. 3 Units.**
Current social research methods, practice in the use of techniques, consideration of the philosophy of the scientific method, and familiarization with behavioral health test instruments. Cross-listing: MFAM 501.

**COUN 502. Research Tools and Methodology: Qualitative. 3 Units.**
Qualitative methodology. Prepares students to undertake research projects using the intensive interview method of qualitative research. Explores practical and epistemological issues and problems in qualitative research in a workshop format. Cross-listing: MFAM 502.

**COUN 515. Crisis Intervention and Client Advocacy. 3 Units.**
Presents basic counseling theory, techniques, crisis intervention, and client-centered advocacy in recovery-oriented practice environments. Includes confidentiality, interprofessional cooperation, working with consumers, professional socialization, and collaboration. Discusses suicide, substance abuse, domestic violence, incest, spousal abuse, rape, treating the severely mentally ill, and disaster and trauma response. Cross-listing: MFAM 515.

**COUN 524. Psychopharmacology and Medical Issues. 3 Units.**
Introduces common physical and medical issues related to the practice of counseling. Students learn a biopsychosocial-spiritual model to assess and intervene—emphasizing psychopharmacology, neuroanatomy, the mind-body relationship, and research relative to the field of counseling.

**COUN 528. Culture, Socioeconomic Status in Therapy. 3 Units.**
Addresses current information and historical narratives related to cultural diversity that impact belief systems, communication patterns, roles, and expectations within human relationships and systems. Examines SES and a wide range of social, racial, and ethnic factors that create meanings for individuals, couples, families, and mental health counselors. Emphasizes populations that become professional partners or clients served within this geographic region. Cross-listing: MFAM 528.

**COUN 540. Professional Counseling Orientation. 3 Units.**
Examines history and scope of counseling specialties, principles of collaboration among diverse mental health professionals, factors influencing counseling process, and basic counseling skills. Addresses social ecology impacting consumers and providers within health care. Opens ongoing process of nurturing personal qualities related to counseling practice.

**COUN 541. Clinical Practicum Seminar – Early Counselor Development. 2 Units.**
Addresses professional development and the practice of clinical counseling through readings, case presentations, mentoring, and group supervision. Focuses on early counselor skill development including rapport-building and active listening. Prerequisite or concurrent*: COUN 540*; and admission into counseling M.S. program.

**COUN 542. Clinical Internship Seminar – Spirituality. 2 Units.**
Addresses professional development and practice of clinical counseling through readings, case presentations, mentoring, and group supervision. Focuses on practical skill development in the area of spirituality and the incorporation of spirituality in counselor-recipient interactions. Assumes concurrent participation in clinical placement. Prerequisite: COUN 540*, COUN 541; admission into counseling M.S. program.

**COUN 543. Clinical Internship Seminar – Multicultural and Cross-Cultural Interactions. 2 Units.**
Addresses professional development and practice of clinical counseling through readings, case presentations, mentoring, and group supervision. Focuses on practical skill development in the area of multicultural and cross-cultural interactions. Assumes concurrent participation in clinical placement. Prerequisite or concurrent*: COUN 540*; and admission into counseling M.S. program.

**COUN 544. Clinical Internship Seminar – Recovery-Oriented Care. 2 Units.**
Addresses professional development and practice of clinical counseling through readings, case presentations, mentoring, and group supervision. Focuses on practical skill development in the area of recovery-oriented care. Assumes concurrent participation in clinical placement. Prerequisite or concurrent*: COUN 540*, COUN 541; and admission to counseling M.S. program.

**COUN 546. Clinical Internship Seminar – Substance Use Disorder Treatment. 2 Units.**
Addresses professional development and practice of clinical counseling through readings, case presentations, mentoring, and group supervision. Focuses on practical skill development in the area of comorbid diagnoses and substance abuse treatment. Assumes concurrent participation in clinical placement. Prerequisite: COUN 541; admission into counseling M.S. program.

**COUN 547. Social Ecology of Individual and Family Development. 3 Units.**
Studies human individual development and its relationship to the family life cycle from birth through aging and death of family members. Discusses biological, psychological, social, and spiritual development in the context of family dynamics involving traditional two-parent families, alternative partnerships, single parents, blended families, and intergenerational communities. Cross-listing: MFAM 547.

**COUN 550. Clinical Interventions with Service Members, Veterans, and Families. 2 Units.**
Provides multi-disciplinary understanding of military culture and skills and application of evidence-based clinical treatments that foster resilience and provide relief to service members, veterans and their families. Attention to issues of diversity, ethics, and use of self are included throughout clinical case discussion. Clinical issues specific to this population are discussed along with individual, family, and community interventions. Prerequisite: PSYC 721 or SOWK 757C. Cross-listing: PSYC 550, SOWK 550.

**COUN 556. Psychopathology and Diagnostic Procedures. 3 Units.**
Explores the history and development of psychopathology and how it relates to current clinical practice in general and marriage and family therapy in particular. Utilizes the multiaxial classifications of the current edition of the Diagnostic and Statistical Manual as a practical basis for diagnostics. Cross-listing: MFAM 556.

**COUN 568. Groups: Process and Practice. 3 Units.**
Surveys major theoretical approaches, including individual theories, marital groups, network, and family therapy groups. Group laboratory experience provided wherein students apply theory to practice and develop group leadership skills. Cross-listing: MFAM 568.

**COUN 574. Educational Psychology. 3 Units.**
Explores educational psychology through application of development and learning theories to instruction, achievement motivation, self-esteem, classroom management, supportive and disruptive processes on school sites, campus standards, disciplinary practices, legal/ethical issues. Requires research of effective educational practices and related foundations. Prerequisite: General psychology.

**COUN 575. Counseling Theory and Applications. 3 Units.**
Counseling theories and applications necessary for work as counselors, therapists, and other mental health professionals. Historical overview of all theories from psychoanalytic, Adlerian, existential, person-centered, Gestalt, behavior, cognitive behavior, reality, feminist, postmodern (solution-focused and narrative), family systems, and integrative perspectives. Meaningful integration of ethics, theory, and experience on personal and case-study levels.

**COUN 576. Exceptional and Medically Challenged Children. 3 Units.**
Studies the determinants, characteristics, problems, and adjustments of individuals who deviate markedly from the norm in their mental, physical, emotional, or social aptitudes, traits, and tendencies. Emphasizes education and career planning.

**COUN 577. Assessment in Counseling. 3 Units.**
Develops competencies and understandings for selecting, administering, and interpreting the major types of standardized tests and inventories used in psychology and education. Theoretical principles and issues presented with hands-on applications.

**COUN 579. Career Theories and Applications. 4 Units.**
Study of career theories such as Holland, Ginzberg, Super; as well as multiple approaches, including family and systemic influences on career choice. Application made to values, ethics, meaning, decision making, and individual differences in twenty-first century work places.

**COUN 580. Advanced Counseling Theory and Techniques. 4 Units.**
Focuses on the advanced application of counseling constructs, assessment and treatment planning, clinical interventions, and therapeutic techniques that foster effective therapeutic relationships. Prerequisite: COUN 540, COUN 575.

**COUN 584. Advanced Child and Adolescent Development. 2,3 Units.**
Psychodynamics involved in child and adolescent problems with respect to the family relationship. Demonstrates a variety of counseling approaches to the treatment of children and adolescents, with emphasis on diverse settings (e.g., education, hospital, and agency). Cross-listing: MFAM 584.

**COUN 604. Social Context in Clinical Practice: Gender, Class, and Race. 3 Units.**
Introduces social inequalities that result in unfairness, health disparities, assaults to personal dignity, and family stress. Focuses on how one's position within social hierarchies—such as gender, socioeconomic status, race, and sexual orientation—affects psychological and relational health. Examination of how family therapists and counselors address these social contextual factors as part of a recovery-based approach that empowers people within their relationships and social systems.Cross-listing: MFAM 604.

**COUN 614. Law and Ethics. 3 Units.**
Examines child welfare, separation, and divorce law, and financial aspects of family maintenance. Includes case management, referrals, professional and client interactions, ethical and interprofessional relations, legal responsibilities, and confidentially. Explores interactions among the practitioner's sense of self and human values, professional behavior, scope of practice, and ethics. Examination of impacts of culture, SES, poverty, social stress, and biology on the recovery process.

**COUN 624. Individual and Systems Assessment. 3 Units.**
Applies psychological testing methods in the diagnostic assessment of individual, family, and group behavioral dynamics as encountered in behavioral health counseling. Cross-listing: MFAM 624.

**COUN 638. Substance Use Disorders, Relationships, and Recovery. 3 Units.**
Examines current theories of etiology of substance use disorders and the effects of psychoactive drug use. Emphasizes assessment and evaluation strategies; impact on mental, biological, relational, and community systems; evidence-based prevention and treatment approaches within a recovery process orientation. Explores issues of regional multicultural competence, human diversity, and access to care. Cross-listing: MFAM 638.

**COUN 644. Child Abuse and Family Violence. 3 Units.**
Presents characteristics of physical and emotional abuse, neglect, sexual molestation, and family violence including offender and nonoffender traits. Focus on treatment including individual, group, and family therapy. Ethical and legal issues, community resources, and multidisciplinary approaches to child abuse. Examines cultural, SES, poverty and/or social stress impacts on mental health and recovery. Cross-listing: MFAM 644.

**COUN 674. Human Sexual Behavior. 3 Units.**
Sexuality in contemporary society from the sociopsychological viewpoint. Anatomy and physiology of human sexuality: reproduction, normal and abnormal sexual response, psychosexual development, human fertility, human sexual dysfunction. Integration of systems theory. Cross-listing: MFAM 674.

**COUN 675. Dynamics of Aging. 1 Unit.**
Studies aging and related processes of personal and systemic change, such as developmental and self-actualization challenges, retirement, chronic illness, long term care, losses, and other end-of-life issues.

**COUN 678. Consultation and Program Evaluation. 3 Units.**
Examines principles and practices of consultation and program evaluation within educational and clinical counseling environments. Emphasizes systemic concepts, leadership development, counselor advocacy, relational competence, team building, and professional accountability of personnel and programs.

**COUN 679. Professional School Counseling. 3 Units.**
Integrates knowledge and skills essential for development, implementation, coordination, and supervision of counseling programs within educational institutions—with emphasis on the role and function of school counselors in preschool, elementary, middle, and secondary grades. Applications made to state graduation requirements, case management, school law, community, consultation, and professional ethics.

**COUN 680. Field Experience in Counseling. 3-9 Units.**
Addresses educational assessment, personal and social counseling, academic and career counseling, program development, program coordination and supervision, consultation, legal aspects, and professional ethics in schools and other agencies. Meets State Pupil Personnel Services requirement of a minimum of 600 clock hours in two educational levels, public school activity, and involvement with students from diverse cultural, ethnic, and language backgrounds.

**COUN 681. School Counseling Practicum and Seminar. 1 Unit.**
Focuses on California standards for the Pupil Personnel Services Credential in School Counseling. Addresses professional development and practice of school counseling. Enrollment restricted to students in the M.S. degree in Counseling Program and in the School Counseling Certificate Program. Requires minimum of two quarters of COUN 681 School Counseling and practicum. Prerequisite: Limited to students in the M.S. degree in Couneling Program and the School Counseling Certificate Program.

**COUN 682. Clinical Counseling Practicum and Seminar. 1 Unit.**
Focuses on California standards for licensure as a licensed professional clinical counselor (LPCC). Addresses professional development and practice of clinical counseling through readings, case presentations, University mentoring, and group process. Enrollment restricted to students in M.S. degree in Counseling Program. Registration in COUN 682 required during every quarter of field experience in clinical counseling.

**COUN 691. Process Approaches to Counseling and Psychotherapy. 2 Units.**
Explores advanced process approaches to theory and experiential work fundamental to self-awareness, relationship skills, behavioral observations, self-regulatory processes, emotion-focused therapy, and counselor-client contact with individuals and groups.

**COUN 692. Cognitive Approaches to Counseling and Psychotherapy. 2 Units.**
Integrates advanced cognitive approaches with experiential work, including current practice of cognitive behavioral therapies such as DBT and TF-CBT. Includes live demonstrations of professional counseling, in-class role play, and laboratory experiences that utilize recording and evaluation of student practice sessions. Enrollment restricted to candidates in clinical degree programs.

**COUN 693. Systemic Approaches to Counseling and Psychotherapy. 2 Units.**
Integrates theory and advanced approaches to counseling individuals and groups within various systems. Demonstrates evidenced-based psychoeducation programs, therapy structures, and mental health delivery methods, with emphasis on recovery care and trauma response models. Enrollment restricted to candidates in clinical degree programs.

**COUN 694. Directed Study: Counseling. 1-4 Units.**
Directed study in counseling.

**COUN 781. School Counseling Field Experience (PPS). 4 Units.**
Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 782. School Counseling Field Experience (PPS). 4 Units.**
Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 783. School Counseling Field Experience (PPS). 4 Units.**
Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 784. School Counseling Field Experience. 3 Units.**
Fourth course in a series of 3-unit registrations (COUN 781-786) for University-arranged field experience in school counseling. Requires that student document 100 hours of counseling practicum; obtain a certificate of clearance from the California Commission on Teacher Credentialing; and subsequently complete 100 hours of supervised counseling in a public school, with on-site supervision by a PPS-credentialed school counselor. Enrollment restricted to students in the M.S. degree in Counseling Program and/or the School Counseling Certificate Program who are working toward the pupil personnel services credential (PPS) in school counseling.

**COUN 791. Clinical Counseling Field Experience (LPCC). 3 Units.**
Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, and other counseling-related activities. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress notation (IP) until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 792. Clinical Counseling Field Experience (LPCC). 3 Units.**
Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, and other counseling-related activities. Students may continue an ongoing field experience registration over a period of five quarters, with an In Progress notation (IP) until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 793. Clinical Counseling Field Experience (LPCC). 3 Units.**
Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, or other counseling-related activities. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

# Criminal Justice (CRMJ)

## Courses

**CRMJ 515. Crime and Society. 3 Units.**
Discusses crime as a social problem and surveys its criminal justice responses. Provides an overview of criminological theory by placing crime in its cultural, social, political, and historical context. Describes the criminal justice system from an institutional perspective; and examines the intersecting roles of the police, forensic science agencies, the courts, and corrections as they aim to promote justice in the context of the social good.

**CRMJ 517. Criminal Procedure and Rules of Evidence. 3 Units.**
Presents criminal procedures as guided by the U.S. Constitution. Focuses on 4th-, 5th-, 6th-, and 14th-Amendment rights. Includes the introduction of scientific evidence in criminal trials as the point of intersection between science and law, pretrial discovery rules, access to expert witnesses and testing, and federal and state rules of admissibility as they shape the content and process of evidence presentation by expert witnesses.

**CRMJ 519. Expert Testimony: Procedure and Practice. 2 Units.**
Familiarizes students with judicial procedure, and provides opportunity in a simulated trial setting for them to practice testifying as expert witnesses.

**CRMJ 520. Restorative Justice. 3 Units.**
Provides a new perspective on the purpose and role of the criminal justice system by examining how restorative justice attempts to forge new relationships between offenders and the people and communities they have victimized.

**CRMJ 574. Theories of Crime and Restitution. 3 Units.**
Surveys theory and research with respect to the core criminology and restitution theories. Emphasis is on the practical application of the theoretical concepts introduced in the readings.

**CRMJ 588. Topics in Forensic Science. 2 Units.**
Addresses current interests in specific areas of forensic science, offered at the discretion of the Department of Social Work and Social Ecology. Topics may include quality assurance, forensic chemistry and controlled substances, forensic biology, forensic toxicology, questioned documents, and others. Sections consist of lectures but may also include laboratory experience under the guidance of criminalists.

**CRMJ 599. Directed Study/Special Project. 1-4 Units.**
Limited to matriculating master's degree in criminal justice students who wish to pursue independent investigations in criminal justice practice or policy under the direction of a department faculty member.

**CRMJ 620. Forensic Mental Health. 3 Units.**
Overviews the specialized mental health and substance-abuse disorders treatment for persons incarcerated in jails, prisons, or special forensic psychiatric hospitals. Reviews effective treatment methods in forensic institutions and examines the current criminal justice system's handling of persons with mental illness and substance-abuse disorders.

**CRMJ 630. Criminal Justice Planning and Administration. 3 Units.**
Examines the structure, function, and effective operation of criminal justice agencies and organizations—including law enforcement, the courts, and corrections—within the overall context of the criminal justice system.

**CRMJ 697. Research. 2 Units.**
Supports students who choose to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units.

**CRMJ 698. Thesis. 2 Units.**
The culminating work of the student's independent research, under the direction of the research advisor. Registration during the quarter in which student defends research and submits final document to the department and School of Behavioral Health.

**CRMJ 757A. Professional Practicum and Seminar. 3 Units.**
Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 757B. Professional Practicum and Seminar. 3 Units.**
Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 757C. Professional Practicum and Seminar. 3 Units.**
Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 787. Advanced Professional Practicum and Seminar. 4 Units.**
Experiential learning in advanced criminal justice practice. Students must satisfactorily complete 200 practicum hours and 20 hours of concurrent seminar.

# Dental Anesthesiology (ANDN)

## Courses

**ANDN 314. Dental Anesthesia: Local Anesthesia and Inhalation Sedation. 4 Units.**
A philosophy of patient management, including use of local anesthetics and nitrous oxide/oxygen sedation, as well as the physiological and psychological aspects of pain and anxiety. Covers the history of anesthesia, patient evaluation, pharmacology armamentarium and complications regarding use of these agents, and management of office emergencies. Students practice local anesthetic injections and administer nitrous oxide/oxygen to each other.

**ANDN 521. Principles of Medicine, Physical Diagnosis, and Hospital Protocol. 1 Unit.**
Studies methods recognizing normal and abnormal physical conditions. Reviews organ systems to expand the dentist's general medical knowledge. Specific topics reviewed include blood diseases, systemic diseases, cardiac disease, patient admission, physical examination, and hospital charting. Repeated registrations required to fulfill total units.

**ANDN 547. Anesthesia Grand Rounds. 1 Unit.**
Weekly meeting of the Department of Dental Anesthesiology featuring guest lecturers who present a variety of current topics in anesthesiology. One session per month designated as the Mortality and Morbidity Conference.

**ANDN 549. Contemporary Anesthesia. 1 Unit.**
Presents current concepts, practice, and controversies in general anesthesia. Reviews textbook chapters on a weekly basis during the Fall and Winter quarters.

**ANDN 604. Anesthesia Literature Review. 1 Unit.**
Weekly session reviews current anesthesia literature.

**ANDN 652. Introduction to General Anesthesia. 1 Unit.**
Focuses on rapid acquisition of basic knowledge of the important elements of general anesthesia by new anesthesia residents in their first month of training.

**ANDN 654. Practice Teaching in Anesthesia 1. 1 Unit.**
Provides opportunity for second-year residents to participate in teaching anesthesia-related topics to first-year residents.

**ANDN 674. Crisis Management in Anesthesia. 0.5 Units.**
Provides opportunity for residents to respond to simulated anesthesia challenges and complications as their anesthesia knowledge and skills are developed. Offered at the LLU simulation center each quarter over the 24-month program.

**ANDN 697A. Research. 1 Unit.**
Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**ANDN 697B. Research. 1 Unit.**
Student participates in ongoing research or original projects, collects and analyzes data, and writes a report of findings. Multiple registrations may be needed to complete research activities.

**ANDN 697C. Research. 1 Unit.**
Resident completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**ANDN 746. General Anesthesia. 10 Units.**
Administration of general anesthesia and regional block anesthesia to a variety of medical and dental patients in the operating room, under the supervision of attending anesthesiologists. A minimum of 300 clock hours per quarter (8 quarters) required to fulfill total units.

**ANDN 801. Dental Anesthesia: Advanced Topics. 2 Units.**
Theory of general anesthesia. Hospital dentistry, patient evaluation, medical consultations. Reviews local anesthesia and introduces additional techniques of pain and anxiety control.

# Dental Educational Services (DNES)

## Courses

**DNES 200. Curricular Practical Training. 0 Units.**
Presents opportunities for service learning in different environments. Increases students' awareness of the importance of oral health education and professional practice and, in the process, gives them insight into different cultural and socioeconomic conditions. Students develop an understanding of LLUSD service learning heritage and the role they play in promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 305. Etiology and Management of Dental Caries. 2 Units.**
Etiology, prevention, and management of dental caries. The specific plaque hypothesis; the role of diet, host resistance, and time in caries. Remineralization, principles of medical management, caries risk assessment, patient education.

**DNES 400. Interprofessional Laboratory Experience. 0 Units.**
An interprofessional laboratory experience that allows dental and dental hygiene students to interact, communicate, and problem solve in a simulated clinical setting with students from other disciplines.

**DNES 500. Curricular Practical Training. 0 Units.**
Presents opportunities for service learning in different environments. Develops in students an increased awareness of the importance of oral health education and professional practice and, in the process, provides insights into different cultural and socioeconomic conditions. Develops students' understanding of LLUSD service learning heritage and the role they play promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 504. Curricular Practical Training for IDP. 0 Units.**
Presents opportunities for service learning in different environments. Develops an increased awareness of the importance of oral health education and professional practice and, in the process, provides insights into different cultural and socioeconomic conditions. Develops students' understanding of LLUSD service learning heritage and the role they play promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 700. Orientation to Tooth Morphology. 2 Units.**
Tooth morphology, terminology, morphologic characteristics, and the interrelationship of permanent teeth. Laboratory experience waxing various teeth.

**DNES 794. Public Health Dentistry. 2 Units.**
Introduces community dentistry, oral epidemiology, public health programs, preventive dentistry, health education, and volunteer programs.

**DNES 800. Interprofessional Laboratory Experience. 0 Units.**
An interprofessional laboratory experience that allows dental and dental hygiene students to interact, communicate, and problem solve in a simulated clinical setting with students from other disciplines.

**DNES 804. Applied Statistics. 2 Units.**
Introduces research methodology. Develops critical statistical thinking, enabling students to critique research results reported in dental journals and to understand and correctly interpret the research so that new findings can be properly implemented in dental practice. Provides students with statistical tools necessary to pursue lifetime learning in the dental sciences.

**DNES 806. Research Design. 2 Units.**
Developing a research protocol. Authoring skills, role of the mentor and investigator, topic selection, assurances and approvals (animals/IRB), fiscal responsibility, and research misconduct.

**DNES 806L. Research Design Laboratory. 1 Unit.**
Student reviews literature and designs a research proposal in preparation for professional presentation of a table clinic. Student conducts research experiment or project culminating in presentation of the results at a professional meeting.

**DNES 807. Practice Management I. 2 Units.**
Management of a dental practice and dental career: development a personal strategic career plan and development of a resume. Interpretation of basic accounting reports and statements such as balance sheets, income statements, and cash flow. Development of a personal budget. Management of student and other debt.

**DNES 809. Practice Management II. 2 Units.**
Office management, including leadership, communication, and teamwork. Personnel policy. Patient care, including scheduling. Selecting the dental team. Working as an associate or employee. Transitioning to dental practice. Locating the dental practice. Successful dental practice business plan.

**DNES 851. The Dentist and the Law. 2 Units.**
Addresses statutes, regulations, and case law that govern the practice of dentistry.

**DNES 889. National Board Part II Review. 2 Units.**
Reviews basic and clinical sciences and their application in case-based testing format to prepare students for National Dental Board Examination Part II.

# Dental Hygiene (DNHY)

## Courses

**DNHY 303. Dental Materials and Techniques. 2 Units.**
Materials and equipment used in dentistry. Practice in the manipulation and use of common materials. Includes a laboratory component.

**DNHY 305. Oral Anatomy Lecture. 2 Units.**
Anatomy of the teeth and surrounding tissues.

**DNHY 305L. Oral Anatomy Laboratory. 1 Unit.**
Laboratory for DNHY 305, Oral Anatomy Lecture.

**DNHY 309. Radiology I. 3 Units.**
Principles governing radiation production and safety relative to radiographic anatomy/dental materials. Fundamentals of intraoral and extraoral techniques, darkroom procedures, and mounting of radiographs. Practical application of techniques. Basic fundamentals of quality assurance.

**DNHY 310. Radiology II. 3 Units.**
Continues laboratory techniques. Intraoral and extraoral radiographic interpretation—including anatomy, pathology, and interpretation of the disease process of the oral hard tissues. Basic fundamentals of radiographic selection criteria. Includes laboratory component.

**DNHY 321. Preclinical Dental Hygiene I Lecture. 2 Units.**
Preclinical phases of dental hygiene, including instrumentation techniques, patient management, intra- and extraoral soft-tissue assessment, charting procedures, disease processes, patient-health assessment, basic operatory preparation, clinical asepsis, and oral health-care techniques.

**DNHY 321L. Preclinical Dental Hygiene I Laboratory. 2 Units.**
Laboratory course for DNHY 321, Preclinical Dental Hygiene I.

**DNHY 322. Preclinical Dental Hygiene II Lecture. 2 Units.**
Continues DNHY 321. Prerequisite: DNHY 321.

**DNHY 322L. Preclinical Dental Hygiene II Laboratory. 2 Units.**
Laboratory course for DNHY 322, Preclinical Dental Hygiene II Laboratory. Prerequisite: DNHY 321, DNHY 321L.

**DNHY 323. Preclinical Dental Hygiene III. 2 Units.**
Continues DNHY 322. Prerequisite or concurrent*: DNHY 321, DNHY 322*, DNHY 321L, DNHY 322L*.

**DNHY 323L. Preclinical Laboratory. 1 Unit.**
Laboratory course for DNHY 323, Preclinical Laboratory. Prerequisite or concurrent*: DNHY 321L, DNHY 322L*, DNHY 321, DNHY 322*.

**DNHY 328. Dental Hygiene Portfolio Practicum. 1 Unit.**
Student develops a capstone project to show evidence of personal growth and success in the dental hygiene core competencies.

**DNHY 375. Dental Hygiene Clinic. 1 Unit.**
Clinical application of skills and techniques of dental hygiene. Prophylaxes on pediatric and adult patients.

**DNHY 376. Dental Hygiene Clinic. 4 Units.**
Continues DNHY 375. Prerequisite or concurrent: DNHY 375.

**DNHY 380. Medically Compromised Patients. 2 Units.**
Lectures dealing with the medically compromised patient relative to the use of local anesthetics, drug interactions, need for antibiotic premedication, and necessary modification in treatment planning. Repeated registrations required to fulfill total units.

**DNHY 381. Pharmacology for the Dental Hygienist I. 2 Units.**
Introduces the basic principles of pharmacology. Emphasizes the use, actions, and clinical implications/contraindications to medications used by dental patients.

**DNHY 382. Pharmacology for the Dental Hygienist II. 2 Units.**
Continues DNHY 381. Emphasizes application through the use of case studies.

**DNHY 390. Introductory Statistics. 2 Units.**
Fundamentals of statistical analysis and critique of research data in scientific literature and in student research projects. Inferential and descriptive statistics, frequency distribution, histograms, bar graphs, and statistical tests. Computer applications in preparing and analyzing research data. Domain II.

**DNHY 405. Introduction to Periodontics. 2 Units.**
Reviews gross and microscopic anatomy of the periodontium in health and disease. Primary etiology of periodontal disease. Examines patient's clinical periodontal status. Introduces the diagnostic and treatment-planning process.

**DNHY 406. Orthodontics Concepts for Dental Hygiene. 1 Unit.**
Applies basic skeletal and dental growth, and development to orthodontics. Includes treatment modalities and procedures required for successful practice of orthodontics.

**DNHY 408. Professional Ethics. 2 Units.**
Develops understanding of hygienist's obligations to the public and to their professional association. Defines the ethical and mature conduct expected of professional health-care providers. Compares and contrasts professional ethics and personal morality as they relate to dental hygiene practice.

**DNHY 409. Jurisprudence and Practice Management. 2 Units.**
Laws and regulations that govern the practice of dental hygiene, with special emphasis on California regulations. Standards of government regulations. Obligations of the hygienist to the public and to their profession.

**DNHY 411. Dental Hygiene Topics I. 2 Units.**
Student develops advanced hygiene-care planning skills, with emphasis on knowledge synthesis. Topics cover aspects of patient care, including whole-patient care and patients with special needs.

**DNHY 413. Dental Hygiene Topics III. 2 Units.**
Topics related to employment for dental hygienists. Additional topics include various opportunities in the dental hygiene profession and educational advancement strategies.

**DNHY 414. Personal Finance. 2 Units.**
Personal finance topics, including credit, taxes, insurance, real estate, budgeting, housing, and inflation.

**DNHY 415. Applied Nutrition. 2 Units.**
Basic concepts of nutrition. Balance, adequacy, nutrient density, dietary choice, weight management, nutrition, and oral health. Addresses nutritional needs of children and the aged, and medically and dentally compromised patients. Dietary assessment and counseling.

**DNHY 416. Dental Health Education I. 2 Units.**
Current theories and principles of psychology as they relate to learning and teaching, personality development and change, and interpersonal processes and dynamics.

**DNHY 417. Dental Health Education II. 2 Units.**
Principles and practices involved in teaching dental public health. Fieldwork in local schools and community. Methods and practice of professional presentation.

**DNHY 421. Research I. 2 Units.**
Introduces research methodology. Evaluates literature, emphasizing statistics adequate for interpretation of the literature. Student reviews literature and designs a research proposal in preparation for professional presentation of a table clinic or informational project. Inprogress (IP) given until completion of all units for this course.

**DNHY 422. Research II. 2 Units.**
Review and emphasis of research methodology. Develops literature review, emphasizing statistics adequate for interpretation of the literature. Student continues to develop a research proposal in preparation for professional presentation of a table clinic or informational project. Student conducts research experiment or project culminating in presentation of the results at a professional meeting. In progress (IP) given until completion of all units for this course.

**DNHY 431. Public Health Dentistry. 3 Units.**
Philosophy, principles, language, and objectives of public health and public health dentistry. Critical review of the literature.

**DNHY 435. Special Topics in Periodontal Therapy. 2 Units.**
Studies advanced periodontal topics and special problems related to periodontal therapy.

**DNHY 450. Junior Clinical Seminar. 1 Unit.**
A two-quarter course that introduces topics and issues directly and indirectly related to the comprehensive practice of dental hygiene.

**DNHY 451. Clinical Seminar I. 1 Unit.**
Topics and issues related to clinical competency and development of critical-thinking skills through the use of patient-care examples and class discussion.

**DNHY 452. Clinical Seminar II. 1 Unit.**
Topics and issues related to clinical competency and preparation for the clinical board examination. Student development of advanced patient-care plans.

**DNHY 453. Clinical Seminar III. 1 Unit.**
Topics and issues related to clinical competency. Presentation of advanced patient-care plans. Prerequisite or concurrent: DNHY 452.

**DNHY 475. Dental Hygiene Clinic I. 4 Units.**
Integrates all components of oral health care into the clinical treatment of patients.

**DNHY 476. Dental Hygiene Clinic II. 4 Units.**
Integrates all components of oral health care into the clinical treatment of patients. Prerequisite or concurrent: DNHY 475.

**DNHY 477. Dental Hygiene Clinic III. 4 Units.**
Integrates all components of oral health care into the clinical treatment of patients. Prerequisite for concurrent*: DNHY 475, DNHY 476*.

**DNHY 495. Dental Hygiene National Board Preparation. 1,2 Unit.**
Lecture and case-based reviews of the entire dental hygiene curriculum, including, but not limited to: prerequisite basic sciences; preclinical, laboratory, and clinical sciences; and behavioral sciences. Reviews in preparation for the dental hygiene national board examination directly related to concurrent test-taking skill workshops based on standardized testing evidence for success.

**DNHY 497. Advanced Shadowing Experience. 12 Units.**
An elective course open to students seeking shadowing experience in dental hygiene. Credits do not count toward an academic degree.

# Dentistry (DENT)

## Courses

**DENT 700A. Dental Fundamentals I. 5 Units.**
Introduces terminology, morphologic characteristics, and interrelationships of permanent teeth. Presents source, use, and manipulation of dental materials, and physical properties relative to dentistry.

**DENT 700B. Dental Fundamentals I. 6 Units.**
Continues DENT 700A. Reinforces and continues development of understanding of terminology, morphologic characteristics, and interrelationships of permanent teeth. Introduces periodontal diseases and their classifications. Reinforces source, use, and manipulation of dental materials, and their physical properties relative to dentistry. Prerequisite: DENT 700A.

**DENT 701L. Dental Fundamentals I Laboratory. 3 Units.**
Introduces appropriate technical skills to understand and reproduce proper tooth contours. Focuses on the development of technical skills in the preparation and restoration of teeth.

**DENT 702L. Dental Fundamentals I Laboratory. 4 Units.**
Continues DENT 701L. Reinforces and continues development of appropriate technical skills to understand and reproduce proper tooth contours. Develops technical skills in the preparation and restoration of teeth. Prerequisite: DENT 701L.

**DENT 710A. Professionalism, Mission, and Personal Development I. 2.5 Units.**
Introduction to health care communication skills. Addresses individual, professional, and practical issues confronted by the dentist as a health-care professional. Discusses ethical issues in contemporary dentistry. Provides Christian resources for ethical decision making.

**DENT 710B. Professionalism, Mission, and Personal Development I. 1.5 Unit.**
Continues DENT 710A. Prerequisite: DENT 710A.

**DENT 720A. Patient-Centered Care I. 2 Units.**
Introduces patient care, fundamentals of dental assisting, and the EHR leading to becoming an integral part of the dental team.

**DENT 720B. Patient-Centered Care I. 4.5 Units.**
Continues DENT 720A. Prerequisite: DENT 720A.

**DENT 730A. Biomedical Sciences and Oral Ecosystems I. 14.5 Units.**
In-depth study of human anatomical sciences related to the dental profession. Presents molecular processes as foundation for adequate understanding of physiology. Reviews biomolecules, enzymology, and metabolism. Introduces regulatory motifs, genetic principles, and expression of genetic information. Examines physiological principles and systems in man and bases of normal function.

**DENT 730B. Biomedical Sciences and Oral Ecosystems I. 18.5 Units.**
Continues DENT 730A. Prerequisite: DENT 730A.

**DENT 750A. Dental Fundamentals II. 20 Units.**
Develops skills to practice general dentistry. Prerequisite: DENT 700B.

**DENT 750B. Dental Fundamentals II. 21 Units.**
Continues DENT 750A. Prerequisite: DENT 750A.

**DENT 760A. Professionalism, Mission, and Personal Development II. 1.5 Unit.**
Continues DENT 710B. Focuses on balanced life and mission skills to thrive in a professional environment Prerequisite: DENT 710B.

**DENT 760B. Professionalism, Mission, and Personal Development II. 1.5 Unit.**
Continues DENT 760A. Prerequisite: DENT 760A.

**DENT 770A. Patient-Centered Care II. 9 Units.**
Introduces skills to move students from working as an assistant to becoming a disease control-level dental provider. Prerequisite: DENT 720B.

**DENT 770B. Patient-Centered Care II. 9 Units.**
Continues DENT 770A. Prerequisite: DENT 770A.

**DENT 780A. Biomedical Sciences and Oral Ecosystem II. 8 Units.**
Continues DENT 730B. Focuses on relating body systems and environment with the practice of dentistry. Prerequisite: DENT 730B.

**DENT 780B. Biomedical Sciences and Oral Ecosystem II. 10 Units.**
Continues DENT 780A. Prerequisite: DENT 780A.

**DENT 800A. Dental Fundamentals III. 16 Units.**
Furthers knowledge and development of skills in general dentistry. Prerequisite: DENT 750B.

**DENT 800B. Dental Fundamentals III. 7.5 Units.**
Continues DENT 800A. Prerequisite: DENT 800A.

**DENT 810A. Professionalism, Mission, and Personal Development III. 4.5 Units.**
Focuses on thriving in a professional environment. Teaches balanced life skills in mission and personal development. Prerequisite: DENT 760B.

**DENT 810B. Professionalism, Mission, and Personal Development III. 3.5 Units.**
Continues DENT 810A. Prerequisite: DENT 810A.

**DENT 820A. Patient-Centered Care III. 12 Units.**
Clinical application of dentistry principles. Opportunity to gain experience with cases treated by general dentist including attendant diagnostic procedures, planning and treatment sequencing, disease-control procedures, and appropriate post-treatment care procedures. Prerequisite: DENT 770B.

**DENT 820B. Patient-Centered Care III. 12 Units.**
Continues DENT 820A. Prerequisite: DENT 820A.

**DENT 830A. Biomedical Sciences and Oral Ecosystems III. 3 Units.**
Continues DENT 780A. Focuses on relating body systems and environment with dentistry practice. Prerequisite: DENT 780A.

**DENT 830B. Biomedical Sciences and Oral Ecosystems III. 5 Units.**
Continues DENT 830A. Prerequisite: DENT 830A.

**DENT 850A. Dental Fundamentals IV. 3 Units.**
Provides foundational knowledge and skills necessary to perform endodontic treatment on uncomplicated permanent teeth. Treatment planning and problem solving in removable prosthodontics and combination cases. Prerequisite: DENT 800B.

**DENT 850B. Dental Fundamentals IV. 2 Units.**
Continues DENT 850A. Prerequisite: DENT 850A.

**DENT 860A. Professionalism, Mission, and Personal Development IV. 3.5 Units.**
Continues DENT 810B, focuses on thriving in a professional environment. Teaches balanced life skills in mission and personal development. Prerequisite: DENT 810B.

**DENT 860B. Professionalism, Mission, and Personal Development IV. 3.5 Units.**
Continues DENT 860A. Prerequisite: DENT 860A.

**DENT 870A. Patient-Centered Care IV. 15 Units.**
Clinical application of dentistry principles. Opportunities to gain experience in cases treated by the general dentist, including attendant diagnostic procedures, planning and treatment sequencing, disease-control procedures, and appropriate post-procedure care. Prerequisite: DENT 820B.

**DENT 870B. Patient-Centered Care IV. 15 Units.**
Continues DENT 870A. Prerequisite: DENT 870A.

**DENT 880. Biomedical Sciences and Oral Ecosystems IV. 2 Units.**
Continues DENT 830B. Focuses on relating body systems and environment with dentistry practice. Differential diagnosis and initial management of oral disease, utilizing clinical case studies. Epidemiology, detection, diagnosis, and maxillofacial cancer management. Principles of cancer therapy by surgical modalities. Includes discussion of cancer prevention and post-therapy reconstruction. Reviews tobacco cessation protocols. Prerequisite: DENT 830B.

# Dermatology (DERM)

## Courses

**DERM 891. Dermatology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of dermatology, including research.

# Dietetics (DTCS)

## Courses

**DTCS 301. Human Nutrition. 3 Units.**
Fundamentals of normal nutrition. Carbohydrates, proteins, fats, vitamins, minerals; their roles in human metabolism. Introduction to nutrition in the life cycle. Per week: lecture three hours.

**DTCS 302. Food Selection and Presentation. 5 Units.**
Develops food preparation techniques. Addresses changes associated with maturation, preservation, preparation, transportation, and storage in relation to food quality; nutritional concepts and cultural food patterns in planning and producing meals; meal service in professional settings; and appreciation of food as a nutrient delivery pathway for gustatory perspective. Per week: Lecture (3 hours), practicum (6 hours). Laboratory fee. Prerequisite: Basic Nutrition.

**DTCS 304. Community Nutrition. 4 Units.**
Community-based nutrition education which requires knowledge of normal nutrition and life-cycle issues. Includes nutrition assessment; medical nutrition-therapy topics; legislative processes and politics; program planning, implementation, management, and evaluation; counseling, teaching, and facilitating group processes; interpreting data and research findings; identifying and accessing community nutrition resources.

**DTCS 305. Professional Issues in Nutrition and Dietetics. 1 Unit.**
Examines the growth of nutrition and dietetics as a profession, and the role of the professional in the restoration and maintenance of health. Nontraditional roles of the registered dietitian and dietetic technician, registered. Emphasizes development of professionalism, accountability, and responsibility for life-long learning. Requires preparation of a professional portfolio and a project completed throughout the program and submitted prior to graduation. May be repeated once for credit.

**DTCS 311. Human and Clinical Nutrition for Nursing. 4 Units.**
Fundamentals of normal nutrition. Carbohydrates, proteins, fats, vitamins, minerals; their roles in human metabolism. Investigates the role of nutrition at various stages in the life cycle of the individual in health and disease. Nutrition intervention in the prevention and treatment of disease in the clinical setting.

**DTCS 312. Clinical Nutrition for Nursing. 2 Units.**
Nutrition intervention in the prevention and treatment of disease in the clinical setting.

**DTCS 321. Nutrition and Human Metabolism. 4 Units.**
Nutritional requirements and metabolism of essential nutrients for the human organism at the cellular level. Focuses on macro- and micronutrients metabolism. Per week: lecture four hours. Prerequisite: Anatomy and physiology, biochemistry.

**DTCS 329. Organic Chemistry with Applications for Nutrition. 4 Units.**
Covers the nomenclature, chemical/physical properties, and common reactions of carbon-based compounds relevant to human nutrition.

**DTCS 334. Biochemistry with Applications for Nutrition. 4 Units.**
The chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Preliminarily investigates the chemical basis of life processes, emphasizing aspects of human nutrition. Includes laboratory experiments to support student competency. Prerequisite: DTCS 329; or equivalent.

**DTCS 338. Introduction to Clinical Nutrition. 2 Units.**
Basic knowledge of the responsibilities of the clinical dietitian: familiarizing students with the electronic medical record and the nutrition care process. Emphasizes nutrition assessment knowledge and skills.

**DTCS 340. Nutrition through Life Stages. 3 Units.**
Includes a review of basic nutrition, as well as normal nutrition needs of individuals across the life span, with a focus on pregnancy and lactation; normal infant growth and development; and childhood and adolescence. Adult men's and women's health issues, geriatrics, food allergies, vegetarian diets, obesity, and eating disorders.

**DTCS 342. Medical Nutrition Therapy I. 5 Units.**
Basic biochemical and physiological conditions necessitating dietary modifications in the clinical management of the patient. Includes cardiovascular disease and hypertension, diabetes. Involves patient interviewing and counseling, nutrition assessment and documentation, and use of computer-assisted nutritional analysis. Ongoing study of medical terminology. Advanced topics include lipids and antioxidants.

**DTCS 343. Medical Nutrition Therapy II. 5 Units.**
Basic biochemical and pathophysiologic processes necessitating dietary modifications in clinical patients with pulmonary disease; disorders of the digestive, liver, and biliary systems, and pancreas; alcoholism; renal disease; solid-organ transplantation; and sepsis/trauma. Nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated. Introduces preparation of an in-depth case study.

**DTCS 371. Quantity Food Purchasing, Production, and Service. 5 Units.**
Emphasizes methods to achieve quantitative and qualitative standards in quantity food production. Menu planning for institutions. Practicum in food purchasing, production, and service. Open to dietetics students only. Per week: lecture two hours, practicum nine hours.

**DTCS 372. Food Systems Organization and Management. 4 Units.**
Studies food-service systems. Effective utilization of resources within the food system. Computer application in food-systems management. Per week: lecture two hours, practicum six hours.

**DTCS 395. Nutrition and Dietetics Practicum. 12 Units.**
Supervised experience in medical nutrition therapy, community, and administrative dietetics in hospitals, outpatient clinics, public health departments, and food systems. Performance review and evaluation. Ten weeks (400 clock hours) during the summer at the end of the junior year.

**DTCS 405. Senior Seminar. 1 Unit.**
Develops professional skills, team efforts to market nutrition in the community, volunteer efforts in the community, professional networking, and special topics as determined by nutrition and dietetics faculty. Emphasizes professional portfolio and transition to entry-level nutrition educator/dietitian/food service director. Introduces preparation of an in-depth case study.

**DTCS 445. Nutrition Care Management. 4 Units.**
Applies operations analysis, financial management, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Staff justification, continuous quality improvement, reimbursement for nutrition services, case management, and entrepreneurship.

**DTCS 446. Nutrition Counseling and Education. 3 Units.**
Applies techniques of nutrition counseling, with emphasis on improving skills in verbal and nonverbal communication, assertiveness, and dealing with cultural differences as well as death and dying. Builds skills in administration for the nutrition counselor. Discusses ethical implications in health care. Per week: Lecture (2 hours), practicum (3 hours). Prerequisite: DTCS 343.

**DTCS 452. Advanced Nutrition. 4 Units.**
Covers three interrelated topics in modern nutrition research: functional foods that provide physiological benefit beyond meeting basic nutritional needs; food toxicology—that is, the physiological consequences of natural and synthetic toxins found in the foods we consume; and nutritional genomics applied to evaluation of the links between nutrition, health, and the human genome. Prerequisite: DTCS 321.

**DTCS 453. Advanced Medical Nutrition Therapy. 3 Units.**
Theory and application of critical-care nutrition to complex medical conditions. Interpretation and synthesis of fluid and electrolyte balance, acid/base balance, vital signs, ICU monitoring forms, interpretation of laboratory data and diagnostic tests, medical and surgical history, and drug/nutrient interactions. Focus on a problem-list approach to nutrition assessment, documentation, intervention, and outcome evaluation. Per week: lecture two hours, practicum three hours.

**DTCS 461. Food Science. 4 Units.**
Chemical, physical, and biological effects of maturation, processing, storage, and preservation on the structure, composition, palatability, product quality, and microbiological safety of food and its additives. Per week: lecture four hours, laboratory three hours. Laboratory fee. Prerequisite: Basic foods, human nutrition, organic chemistry.

**DTCS 473. Medical Nutrition Therapy Affiliation. 6,12 Units.**
Student applies knowledge and skills in clinical facilities as they work with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May take more than once for credit.

**DTCS 476. Exercise Physiology in Medical Nutrition Therapy. 3 Units.**
Basic preparation for development and leadership of exercise programs. Includes: exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included. Prerequisite: Anatomy and physiology.

**DTCS 499. Nutrition and Dietetics Independent Study. 1-5 Units.**
Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 504. Metabolism of Nutrients. 5 Units.**
The study of normal metabolism of carbohydrates, lipids, and proteins. Includes vitamin and mineral involvement, as well as metabolic changes due to the presence of various hormonal states.

**DTCS 506. Professional Seminar in Nutrition and Dietetics. 1 Unit.**
Review and application of topics in nutrition and dietetics in preparation for professional practice and the registration examination for dietitians. Student presentations covering professional competencies and material essential for high-level practice.

**DTCS 510. Public Health Nutrition Issues and Policies. 3 Units.**
Nutrition policies and interventions that lead to prevention of and care for diseases prevalent in the community. Genetic and environmental influences related to nutrition health studies.

**DTCS 517. Carbohydrates and Lipids. 4 Units.**
A comprehensive study of the sources, metabolism, and function of carbohydrates and lipid—including their influence on human health and disease states.

**DTCS 518. Proteins, Vitamins and Minerals. 4 Units.**
A comprehensive study of the sources, metabolism, and function of proteins, vitamins, and minerals—including their influence on human health and disease states.

**DTCS 519. Functional Foods and Phytochemicals. 2 Units.**
Study of phytochemicals and their impact on treatment and prevention of diseases and their role in health maintenance.

**DTCS 524. Food Ethics. 2 Units.**
Explores ethical issues related to food, nutrition, and dietetics. Topics include food science, policy, food security, religious and cultural beliefs, malnutrition, professional practices, media, and marketing.

**DTCS 526. Pharmacology in Medical Nutrition Therapy. 2 Units.**
Pharmacology at the graduate level, including kinetics, dynamics, and therapeutics of drugs. Basic definitions, sources of information, classification of drugs, and principles and mechanisms of drug actions. Emphasizes drug-nutrient interactions.

**DTCS 534. Pediatric Medical Nutrition Therapy. 3 Units.**
Management of the nutrition needs of the pediatric population. Focuses on growth and development in the normal and abnormal child. Addresses the biochemical and physiological conditions that necessitate dietary modifications in the clinical management of the patient. Per week: lecture 2 hours, practicum 3 hours.

**DTCS 536. Health Care Financial Management. 3 Units.**
Management of the nutrition care-management system involving prospective reimbursement and dietitian billing, business plan development, budget development and analysis of budget variances, operation statements, and productivity related to a department budget.

**DTCS 542. Nutrient Delivery, Education, and Counseling. 2 Units.**
Techniques and models used in the nutrition intervention step of the nutrition care process. Investigates food/nutrient provision, education (assessment to evaluation), counseling (theoretical basis/approach and strategies); as well as coordination of nutrition care.

**DTCS 544. Medical Nutrition Therapy II. 5 Units.**
Basic biochemical and pathophysiologic processes that necessitate dietary modifications in the clinical management of the patient with pulmonary disease—including cystic fibrosis; digestive disorders; disorders of the liver, biliary system, and pancreas; alcoholism; renal disease; solid-organ transplantation; sepsis/trauma; metabolic disorders; and neurologic disorders—including spinal cord injury and stroke. Continues nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated in the clinical management of patients with these conditions. Introduces preparation of an in-depth case study. Graduate level project will be required. Per week: lecture 3 hours, practicum 6 hours.

**DTCS 545. Nutrition Care Management. 4 Units.**
Applies classical management theories and current application in the delivery of nutrition care; applies continuous quality management, staffing decision making, operations analysis, business planning, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Includes reimbursement for nutrition services, servant leadership, case management, and entrepreneurship. Major paper due at end of quarter.

**DTCS 554. Advanced Medical Nutrition Therapy. 3 Units.**
Uses case-study approach to apply critical care nutrition to complex medical conditions. Interprets and synthesizes decision information regarding fluid and electrolyte balance, acid-base balance, vital signs, ICU and surgical history, and drug-nutrient interactions. Focuses on problem-based evaluation. Develops and analyzes a clinical case study. Emphasizes geriatric care and the special needs of this population.

**DTCS 566. Food Chemistry and Experimental Foods. 4 Units.**
Chemical, physical, and biological changes of food in processing and preservation. Experimentation in recipe development and improving the nutritional quality of food.

**DTCS 574. Advanced Food Systems Management. 3 Units.**
Develops competencies in total quality management; quality control; production planning, including forecasting production demand; linear programming; program evaluation and review technique (PERT); productivity management, including line balancing; financial management, including economics; food and labor cost control; budgeting project; and financial analysis of operations. Per week: lecture 3 hours, practicum three hours.

**DTCS 575. Food Systems Management. 5 Units.**
Develops administrative skills in effective management of food systems. Qualitative and quantitative standards, budget development and analysis, labor-management relations, computer-assisted information system.

**DTCS 576. Exercise Physiology in Medical Nutrition Therapy. 3 Units.**
Develops leadership in the development and presentation of exercise programs. Includes exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included.

**DTCS 584. Contemporary Issues in the Dietetic Profession. 4 Units.**
Investigates nutrition trends in the public arena. Reviews current nutrition topics in popular literature, with evaluation of health implications using peer-reviewed evidence.

**DTCS 585. Operations Management in Food and Nutrition Services. 4 Units.**
Develops conceptual skills in operation of a food or nutrition service using quantitative decision making, forecasting, planning tools, development of quality standards and control mechanisms, job design, layout, work measurement, inventory control, and information systems.

**DTCS 589. Capstone Course in Nutrition and Dietetics. 3 Units.**
Develops a systems viewpoint of advanced medical nutrition therapy, management skills, and application of technology. Advanced application of operations management in nutrition care; development and application of high ethical standards in all aspects of the profession—including patient care; and human-resource management. Identifies trends that affect the operation of the department.

**DTCS 599. Nutrition and Dietetics Independent Study. 1-5 Units.**
Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 605. Nutrition Seminar. 1 Unit.**
Study and discussion of current topics in nutrition. Requires a major paper, including meta-analysis of literature and presentation of a nutrition topic.

**DTCS 694. Research. 1-8 Units.**
Independent research for doctoral degree candidates and qualified master's degree students on problems currently being studied in the department, or in other department(s) with which they collaborate. Research program arranged with faculty member(s) involved. Minimum of 100 hours required for each unit of credit. Written report required.

**DTCS 777. Food Systems Management Affiliation. 6 Units.**
Five weeks (200 hours) of supervised experience in food systems management in health care or school food service. May be repeated for additional credit. Prerequisite: DTCS 575.

**DTCS 778. Clinical Nutrition Affiliation. 6,12 Units.**
Student applies knowledge and skills in clinical facilities as they work with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May be repeated for additional credit.

**DTCS 795. Nutrition and Dietetics Graduate Practicum. 12 Units.**
Supervised professional practice in medical nutrition therapy, community nutrition, and food systems management. Professional experiences in health care, public health centers, and food production facilities. Performance review and assessment, written weekly reports of learning achieved, and review. May be repeated for additional units. Ten weeks (400 clock hours) during the summer term.

# Emergency Medicine (EMDN)

## Courses

**EMDN 821. Emergency Medicine Clerkship. 1.5-3 Units.**
Focuses on management of the undifferentiated or emergent patient presentation. Exposes students to areas unique to emergency medicine, such as the emergency medical system. Utilizes bedside teaching, lectures, online/independent learning, and simulation to instruct the student in distinguishing emergent vs nonemergent presentations in the following patient categories: altered mental status, abdominal pain, chest pain, respiratory distress/shortness of breath, shock, syncope, trauma, and fever.

**EMDN 891. Emergency Medicine Elective. 1.5-27 Units.**
Provides emergency department experience in several locations. Includes, contact with adult and pediatric patients; introduction to administrative interaction, residency conferences, and grand rounds; and, interaction with the radio room, triage desk, and transport nurse.

# Emergency Preparedness and Response (EMPR)

## Courses

**EMPR 524. Local and State Emergency Preparedness and Response. 3 Units.**
Utilizes a case-study approach to examine the actions and interventions of public health practitioners and emergency managers applied to multiple phases of a disaster. Emphasizes development of an operational understanding of the emergency support functions that have local and regional application, as well as of public health emergencies faced by local communities.

**EMPR 525. National and International Emergency Preparedness and Response. 3 Units.**
Utilizes a case-study approach to examine the actions and interventions of public health practitioners and emergency managers in multiple phases of a disaster. Emphasizes development of an operational understanding of the emergency support functions that have national and global application, as well as the public health emergencies faced by global communities.

**EMPR 526. Public Health Issues in Emergency Preparedness and Response. 3 Units.**
Examines the critical public health considerations and environmental health issues of concern in an emergency, disaster, or complex humanitarian emergency. Covers public health responsibilities of assessment, water and food, shelter, sanitation, and prevention of communicable diseases. Utilizes case studies and a table-top exercise to provide practical application of the principles presented in the class.

**EMPR 540. Seminars in Emergency Preparedness and Response. 3 Units.**
Utilizes current events and case studies to illustrate current issues in emergency preparedness and response. Guided discussions on infectious disease, isolation, and quarantine; WMDs; biosurveillance and medical countermeasures; surge capacity and medical evacuation; psychosocial impacts; role of technology. Emphasizes situational analysis, public relations, and risk communication.

# Endodontics (ENDN)

## Courses

**ENDN 534. Endodontic Treatment Conference. 1-2 Units.**
Evaluates and discusses diagnosis, treatment planning, prognosis, and outcome of endodontic treatment cases. Repeated registrations required to fulfill the total units.

**ENDN 601. Principles of Endodontics. 2 Units.**
Comprehensive study of various aspects of endodontics. Repeated registrations required to fulfill the total units.

**ENDN 604. Literature Seminar in Endodontics. 2 Units.**
Reviews literature pertaining to the principles and practice of endodontics. Repeated registrations required to fulfill total units.

**ENDN 654. Practice Teaching in Endodontics. 1 Unit.**
Supervised teaching in the endodontic preclinical laboratory and predoctoral clinic. Repeated registrations required to fulfill total units.

**ENDN 657. Written/Oral Board Review Course for the American Board of Endodontics. 2 Units.**
Weekly lecture series that exposes advanced specialty students to the crucial content and format of the American Board of Endodontics (ABE) examination. Assists students with preparing for and taking the required written portion of the examination prior to completion of the endodontics program, and exposes them to the oral examination that is part of the board certification process for the endodontics profession.

**ENDN 697A. Research. 1 Unit.**
Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**ENDN 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**ENDN 697C. Research. 1 Unit.**
Student completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**ENDN 698. Thesis. 1 Unit.**

**ENDN 725. Clinical Practice in Endodontics. 1-8 Units.**
Provides practice and experience in all aspects of endodontics. Emphasizes obtaining experience in treating complex endodontic cases. Repeated registrations required to fulfill total units.

**ENDN 726. Clinical Practice of Implant Dentistry in Endodontics. 1,2 Unit.**
Clinical experience in the diagnosis and treatment of patients who may benefit from implant dentistry therapy. Repeated registrations required to complete total units.

**ENDN 831. Endodontics I. 1 Unit.**
Didactic course provides foundational knowledge to prepare the student to manage patients with diseases of pulpal origin.

**ENDN 832. Endodontics II. 2 Units.**
Preliminary laboratory course that introduces basic skills necessary to perform endodontic treatment on permanent teeth with uncomplicated root canal systems. IDP students complete 2 units over the D3 Spring and Summer quarters before a final grade is given.

**ENDN 834. Endodontics III. 1 Unit.**
Didactic course that contains essential information on various topics in endodontics and elevates the students' diagnostic and treatment-planning skills.

**ENDN 835. Endodontics IV. 1 Unit.**
Secondary laboratory course that reinforces prior basic skills taught in ENDN 832, and introduces additional skills necessary to perform endodontic treatment on uncomplicated permanent teeth using advances in technology.

# Environmental Health (ENVH)

## Courses

**ENVH 414. Introduction to Environmental Health. 3 Units.**
Introduces an overview of the major areas of environmental health, such as ecology, environmental law, and population concerns; environmental diseases and toxins; food, water, and air quality; radiation; noise; and solid and hazardous waste.

**ENVH 509. Principles of Environmental Health. 3 Units.**
Rural and urban environmental factors that affect human-health status, enjoyment of the quality of life, and human survival. Focuses within a framework of air, water, food quality, residential environments, industrial sites, recreational patterns, and environmental risk avoidance. Stresses prevention of disease and promotion of healthful environments. Not applicable toward a major in environmental health.

**ENVH 515. Food Quality Assurance. 3 Units.**
Principles and techniques of quality assurance for food preparation and prevention of food-borne diseases. Sanitary and safe preparation, storage, transportation, and handling of foodstuffs and products. Criteria and methods of inspection and surveillance, facilities design, and plan checking. Food degradation, contamination, additives, and toxicants. Performance criteria for food handlers, with application to environmental techniques in education, enforcement, and consultation. Prerequisite: Program prerequisite courses or written consent of program advisor.

**ENVH 525. Special Topics in Environmental and Occupational Health. 1-4 Units.**
Lecture and discussion on a current topic in environmental and occupational health. May be repeated for a maximum of 4 units applicable to degree program.

**ENVH 566. Outdoor Air Quality and Human Health. 3 Units.**
Sources and characteristics of air pollutants and their effects on humans and human environment. Methods used in sampling of pollutants, controls, and abatement of air-quality standards violations. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 569. Environmental Sampling and Analysis. 4 Units.**
Practical laboratory experience that serves as an introduction to techniques used in measurement and evaluation of environmental health problems. Techniques pertinent to air, water, and food sanitation. Occupational stressors and radiological health. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 587. Environmental Toxicology. 3 Units.**
Principles and mechanisms of toxicology as applied to environmentally encountered toxic agents. Toxicants of current public health importance and their pathologic effect on representative tissues and organs. Dose-response relationships; hazard and risk assessment; and determination of toxicity of environmental carcinogens, teratogens, mutagens, pesticides, metals, plastics, and organic solvents. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 589. Environmental Risk Assessment. 3 Units.**
Principles and methods of risk assessment associated with human exposure to toxic chemicals and other environmental hazards. Quantitative risk-assessment methodologies and approaches. Ecological risk assessment; risk management issues involved in taking appropriate public health action; risk communication, acceptability, and perception; and informational resources.

**ENVH 694. Research. 1-14 Units.**
Independent research on problems currently receiving study in the department. Research program arranged with faculty member(s) involved. Minimum of thirty hours required for each unit of credit. Limited to qualified master's degree students. Prerequisite: Consent of instructor responsible for supervision and of program advisor.

**ENVH 696. Directed Study/Special Project. 1-4 Units.**
Individual arrangements for advanced students to study under the guidance of a program faculty member. May include readings, literature reviews, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program. Prerequisite: Consent of instructor responsible for supervision and of program advisor.

# Environmental Sciences (ENVS)

## Courses

**ENVS 310. Energy and the Environment. 3 Units.**
Reviews the environmental impact of traditional energy sources. Explores novel and emerging sources of renewable energy, including solar, wind, and hydroelectric systems, as well as energy storage and distribution. Focuses on individual, industrial, and community energy requirements and solutions.

**ENVS 314. Air Water and Land Pollution. 3 Units.**
Covers air quality, accumulated atmospheric pollutants, as well as major types and sources of air pollutants. Deals with water quality and how pollutants impact organisms in aquatic environments, surveying sources of water pollutants that include heavy metals, chemicals, biologicals, and nutrients. Discusses chemical contaminants and visible wastes in relation to agriculture, mineral and energy extraction, and industrial waste.

**ENVS 410. Marine Pollution. 3 Units.**
Explores contemporary issues of marine pollution such as non-persistent organic and inorganic pollution, microbial pollution, liquid wastes and the impact of coastal wastewater treatment, plastics, and solid wastes including heavy metals. Ecotoxicology topics discuss distribution of marine pollutants, bioaccumulation, biotransformation, and toxicity testing. Addresses monitoring and abatement of marine pollution utilizing biomarkers and pollution control.

**ENVS 434. The Environmental Context of Community Health. 3 Units.**
Presents biological, ecological, and human environmental factors found in environmental and community health studies. Includes: asset assessments; identification of key needs; and, dialogue with community partners. Consideration of possible implementation strategies and experience in a developing country. Includes three weeks of on-site environmental and community health study in a developing country.

**ENVS 455. Environmental Law and Regulation. 4 Units.**
Introduces local, state, federal, and global laws and policies regarding the use, ownership, protection, and regulation of natural resources. Emphasizes understanding of the decision-making process behind the rights and limits of private, public, and governmental parties when utilizing or protecting natural resources.

**ENVS 464. Science Communication Outreach. 1 Unit.**
Guided immersion into science communication outreach. Presentation of principles of communication outreach and small group work. Student teams participate in project that interacts with a specific, identified community. Undergraduate students will work with graduate students in small teams and engage collaborative planning to address a community need, then present, evaluate, and reflect on the experience. Cross-listing: GEOL 464.

**ENVS 485. Seminar in Environmental Sciences. 0.5 Units.**
Selected topics dealing with recent developments. May be repeated for additional credit.

**ENVS 487. Internship in Environmental Sciences. 4,8 Units.**
Working under the joint supervision of a faculty member and an off-campus sponsor, student develops an environmental sciences academic component within the internship. Student also participates directly in the maintenance or conservation of the environment. May be repeated for additional credit for up to 8 units. Prerequisite: Internship and registration approval by a faculty member in the Department of Earth and Biological Sciences.

**ENVS 488. Topics in Environmental Sciences. 1-4 Units.**
Reviews current knowledge in specified areas of environmental sciences. Registration indicates specific topic to be studied. May be repeated for additional credit. Offered on demand.

**ENVS 495. Special Projects in Environmental Sciences. 1-4 Units.**
Special project in the field, laboratory, or library under the direction of a faculty member. May be repeated for additional credit.

**ENVS 497. Undergraduate Research. 1-4 Units.**
Original investigation and/or literature study pursued under the direction of a faculty member. May be repeated for additional credit.

# Epidemiology (EPDM)

## Courses

**EPDM 509. Principles of Epidemiology. 3 Units.**
Outlines principles and methods used to investigate distribution, determinants, and disease prevention strategies. Includes: measures of disease frequency, effect, and potential impact; comparison and contrast of study designs; methods to identify and control confounding; methods to improve validity, information, and selection bias; and, methods to assess causation, evaluate statistical significance, evaluate screening for latent disease, and interpret results. Prerequisite or concurrent*: STAT 509 or STAT 521*; AHCJ 472 or AHCJ 572; or consent of instructor.

**EPDM 510. Epidemiologic Methods I. 3 Units.**
An intermediate-level course on epidemiologic concepts and methods. Topics include causation, measures of disease occurrence, measures of effect, study design, types of bias, assessment and correction for bias, confounding, and interaction. Prerequisite: EPDM 509; STAT 521; or consent of instructor.

**EPDM 511. Epidemiologic Methods II. 3 Units.**
Second course in the epidemiologic methods sequence. Advanced study designs and multivariable modeling of exposure-disease relationships. Includes: hybrid and incomplete designs; the model-building approach; generalized linear and multi-variate models; and, maximum likelihood theory. Prerequisite: EPDM 510;STAT 522; or consent of instructor.

**EPDM 512. Epidemiologic Methods III. 3 Units.**
Expands coverage of generalized linear models and time-to-event models. Covers contemporary advancements in epidemiologic methods in the analysis of observational data. Exercises focus on data analysis and written reports. Prerequisite: EPDM 511; STAT 522; or consent of instructor.

**EPDM 515. Clinical Trials. 3 Units.**
Theory and practice of intervention studies, including community and clinical trials. Course includes components of a trial protocol, different types of trial design, analysis methods, and ethical considerations. Prerequisite: EPDM 509; STAT 509 or STAT 521.

**EPDM 520. Data Collection Methods. 3 Units.**
An overview of the principles and procedures of data collection as applied to the health sciences. Topics covered include: research designs; different research techniques (quantitative, qualitative, and mixed methods); modes of data collection; sampling methods; questionnaire development; sources of error in data collection; and ethical research. Students develop a data-collection instrument and perform data collection from initial conceptualization of the research topic.

**EPDM 525. Special Topics in Epidemiology. 1-4 Units.**
Lecture and discussion on a current topic in epidemiology. May be repeated for a maximum of 4 units applicable to degree program. Prerequisite or concurrent: EPDM 509.

**EPDM 530. Disease Distributions and Determinants I. 3 Units.**
First of a two-course sequence on the distributions of common diseases and their determinants. Covers the epidemiology of cardiovascular disease, diabetes, obesity, and related risk factors that include nutritional and social epidemiology. Prerequisite: EPDM 509; or consent of instructor.

**EPDM 531. Disease Distributions and Determinants II. 3 Units.**
Second of a two-course sequence on the distributions of common diseases and their determinants. Covers the epidemiology of cancer, genetic and molecular epidemiology, environmental epidemiology, and related risk factors. Includes special topics. Prerequisite: EPDM 509; or consent of instructor.

**EPDM 544. Epidemiology of Infectious Disease. 3 Units.**
Applies epidemiologic concepts, methods, and principles to infectious diseases of public health significance. Addresses “old,” changing, and emerging diseases. Discusses the role of surveillance systems in infection control and the potential of developing appropriate public health interventions within the context of prevention, control, and eradication programs. Prerequisite or concurrent: EPDM 509.

**EPDM 555. Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement. 3 Units.**
Epidemiologic methods of outcomes research and continuous quality improvement techniques in medical care processes. Includes: medical care as a process; use of control charts in process improvement; measurement of quality of care; and, patient satisfaction. Addresses cost benefit, cost effectiveness, cost utility, and decision-tree analysis applied to medical care and public health. Prerequisite: EPDM 509 or EPDM 510.

**EPDM 567. Epidemiology of Aging. 3 Units.**
Presents global demographic trends, determinants, and measures of population-age structure. Includes: health, morbidity, disability, and mortality; mechanisms, biomarkers, and genetics of aging; chronic disease risk factors and prevention; research and clinical trials; ethics; economics; and, drug use. Prerequisite or concurrent: EPDM 509 or EPDM 510; STAT 509 or STAT 521.

**EPDM 588. Environmental and Occupational Epidemiology. 3 Units.**
Evaluates principles and approaches used in the assessment of environmental exposure; selection of applicable study designs; and, determination of analytic methods used in the investigation of environmental health problems. Epidemiologic analysis of selected and controversial environmental exposures that impact public health practice, disease morbidity, and mortality outcomes. Prerequisite: EPDM 509 or EPDM 510; STAT 509 or STAT 521.

**EPDM 610. Advanced Epidemiologic Methods. 4 Units.**
Provides in depth training in study designs and multivariable modeling of exposure-disease relationships. Uses model-building approaches, including causal diagrams, methods of variable selection and specification, confounding, interaction, and trend testing. Focuses on survival analysis concepts. Prerequisite: EPDM 509; EPDM 510; STAT 521; STAT 522; STAT 548.

**EPDM 625. Special Topics in Epidemiology. 1-3 Units.**
Lecture and discussion on a current topic in epidemiology. May be repeated for a maximum of 6 units applicable to degree program. Recommended for doctoral students. Prerequisite: EPDM 509.

**EPDM 635. Epidemiological Studies of Adventists. 1 Unit.**
Reviews and critically evaluates the epidemiological research conducted in Seventh-day Adventist populations. Examines the history, rationale, methods, findings, and scientific contributions of this research. Prerequisite: EPDM 509.

**EPDM 645. Epidemiology of Tobacco Use and Control. 2 Units.**
An epidemiological overview of the tobacco pandemic--global/national tobacco trends, socioeconomic impact, prevention/control issues, and multisectoral strategies. Describes tobacco’s "hidden" burden relative to infectious diseases and adverse maternal-infant outcomes. Introduces basic tools to measure tobacco use, monitor tobacco policy implementation, conduct surveillance/evaluation of global/local tobacco control programs. Facilitates participation in ongoing field-based projects.

**EPDM 664. Epidemiology of Cardiovasular Disease. 2 Units.**
Examines both the descriptive and etiologic epidemiology of the major cardiovascular diseases, including hypertension, ischemic heart disease, congestive heart failure, and stroke. Covers the experimental designs and analytic techniques commonly used in cardiovascular epidemiology. Critically reviews the experimental and epidemiological evidence relating risk factors for cardiovascular diseases. Reviews the design and results of major cardiovascular disease intervention studies. Prerequisite: EPDM 509.

**EPDM 665. Epidemiology of Cancer. 2 Units.**
Examines both the descriptive and etiologic epidemiology of cancer. Examines recent statistics and historic trends for disease burden, incidence, survival, and mortality in the US and globally. Critically reviews the literature on the etiology, risk factors, and prevention of particular high-incidence/mortality cancers, with an emphasis on the role of lifestyle factors (tobacco, alcohol, diet, physical activity, and obesity). Prerequisite: EPDM 509.

**EPDM 668. Molecular Epidemiology. 2 Units.**
Provides an overview of basic concepts of molecular epidemiology, with a focus on applications of biomarkers in epidemiology. Covers technologies, tools, and design considerations for epidemiologic studies involving biomedical data. Includes a survey of standard techniques for statistical analysis in molecular epidemiology. Prerequisite: EPDM 509.

**EPDM 685. Preliminary Research Experience. 1,2 Unit.**
Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation research project. Limited to doctoral degree students.

**EPDM 694. Research. 1-14 Units.**
Independent epidemiologic research program arranged with faculty member(s) involved. Written report and oral presentation required. Prerequisite: Consent of instructor responsible for supervision and of academic advisor.

**EPDM 697. Dissertation Proposal. 1-10 Units.**
Student develops the written dissertation proposal. Doctoral dissertation committee chairman works with the student on mutually agreed-upon objectives. Evaluation based on the accomplishment of these objectives. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Doctoral students only. Successful completion of comprehensive exams.

**EPDM 698. Dissertation. 1-14 Units.**
Based on the doctoral research study, student writes a dissertation in submitted-paper format, submits the individual manuscripts to scientific journals, and responds to reviewers' comments. Prerequisite: EPDM 697 and advancement to candidacy.

**EPDM 699A. Applied Research. 1 Unit.**
Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699B. Applied Research. 1 Unit.**
Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699C. Applied Research. 1 Unit.**
Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699D. Applied Research. 1 Unit.**
Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

# Excellence in STEM Experiential Education (EXSD)

## Courses

**EXSD 504. EXSEED STEM Education. 3 Units.**
Individually and collaboratively investigate STEM/STREAMS initiatives and programs at all K-12 levels. Includes examination of state and Seventh-day-Adventist education standards, exploring an interdisciplinary approach to STEM/STREAMS education using a project-based learning approach through a mission-focused learning lens. Incorporates a blend of hands-on workshops, readings, and reflective discourse opportunities. Grant proposal writing will be considered a voluntary and enhancing component.

# Family Medicine (FMDN)

## Courses

**FMDN 599. Directed Elective Study. 1.5-18 Units.**

**FMDN 701. Family Medicine Clerkship. 1.5-9 Units.**
Presents concepts and practice of family-centered primary health care in family medicine. Includes: patient assessment; basic diagnosis and treatment; recognition of psychosocial problems; and, the practice of integrative and whole person care by assessing patient strengths and stresses within the context of family, community, support systems, and spiritual life.

**FMDN 821. Family Medicine Subinternship. 1.5-6 Units.**
A four-week rotation during which the senior subintern participates as a member of the family medicine inpatient service team. Provides experience in managing hospitalized patients and hospital follow-up, with emphasis on increasing decision-making skills. Increases students' knowledge about acute illnesses and treatment, and familiarizes students with management of patients over the period of transition from the inpatient to the outpatient setting.

**FMDN 891. Family Medicine Elective (General Family Medicine). 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of family medicine, such as outpatient clinics, palliative medicine, sports medicine, research, etc.

# Geology (GEOL)

## Courses

**GEOL 204. Physical Geology. 4 Units.**
Introductory geology course that provides the student with a broad picture of geological processes operating on and within the earth. Introduction to minerals, sedimentary and igneous rocks, and fossils. Weathering, earthquakes, volcanism, erosion and sedimentation, and plate tectonics. Three class hours, one three-hour laboratory or field trip per week.

**GEOL 316. Mineralogy. 4 Units.**
Study minerals and their occurrences including crystallography and crystal chemistry, phase diagrams, and systematic classification. Mineral identification based on hand sample, optical, and other analytical techniques. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 317. Igneous and Metamorphic Petrology. 4 Units.**
Introduction to classification and origin of igneous and metamorphic rocks.Study phase diagrams and processes controlling magma crystallization. Examine relationship of plate tectonics to the genesis and distribution of igneous and metamorphic rocks. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 416. Sedimentology and Stratigraphy. 6 Units.**
Focus on the sedimentary rock record through a study of rock types, depositional processes, and models. Stratigraphic nomenclature and approaches to correlation on local, regional, and global scales. Laboratory analysis of primary and diagenetic mineralogy, textures, and sedimentary structures in clastic and carbonate rocks. Field descriptions of sedimentary rocks, structures, and sequences; and field experience in interpreting depositional processes and stratigraphic relationships.

**GEOL 424. Structural Geology. 4 Units.**
Theory of stress and strain and examination of rock deformation in a framework of plate tectonics. Examples presented in field settings.

**GEOL 426. Invertebrate Paleontology. 4 Units.**
Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Principles and methods involved in the study and analysis of invertebrate fossils. Three class hours and one three-hour laboratory per week.

**GEOL 427. Vertebrate Paleontology. 4 Units.**
Systematics, biology, and biogeography of ancient fossil vertebrates, with emphasis on the origins of major groups.

**GEOL 434. Introduction to GIS for the Natural Sciences (2). 2 Units.**
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

**GEOL 435. GIS Spatial Analysis for the Natural Sciences (3). 3 Units.**
Advanced analysis of GIS data; statistical analysis, geographic analysis of spatial data, and methods of displaying, editing, and modeling spatial data using ArcGIS and related GIS tools. Recommended for students who have research data in hand to analyze.

**GEOL 436. Low Temperature Geochemistry. 4 Units.**
Principles of the chemistry of systems that pertain to surface geological and environmental settings. Major topics include: water quality, mineral solubility, natural systems represented by chemical equations, carbonate equilibrium systems, mineral stability plots, and oxidation-reduction systems. Prerequisite: College chemistry; consent of instructor.

**GEOL 443. Historical Geology. 4 Units.**
Overview of salient geological and paleontological features in the geological record, explaining the way they are interpreted in the formulation of models of Earth's history.

**GEOL 444. Paleobotany. 4 Units.**
Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 455. Modern Carbonate Depositional Systems. 3 Units.**
Examines modern and Pleistocene carbonate systems in the field, using these environments as models for understanding sediment production, facies development, and early diagenesis for many ancient carbonates. Presentations and readings on specific environments combined with field descriptions, mapping, analysis, and reports. Requires rigorous hiking and snorkeling in shallow water.

**GEOL 456. Field Methods of Geologic Mapping. 4 Units.**
Advanced geologic mapping of complex areas, with interpretation of their history; includes mapping of igneous, metamorphic, and sedimentary rocks. Experience in preparation of geologic reports of each mapped locality.

**GEOL 464. Science Communication Outreach. 1 Unit.**
Guided immersion into science communication outreach. Presentation of principles of communication outreach and small group work. Student teams participate in project that interacts with a specific, identified community. Undergraduate students will work with graduate students in small teams and engage collaborative planning to address a community need, then present, evaluate, and reflect on the experience. Cross-listing: ENVS 464.

**GEOL 465. Hydrogeology. 4 Units.**
Theory and geology of groundwater occurrence and flow, the relation of ground water to surface water, and the potential distribution of ground water by graphical and analytical methods. Three class hours and one three-hour laboratory per week.

**GEOL 475. Philosophy of Science and Origins. 4 Units.**
Concepts in the history and philosophy of science, and application of these principles in analyzing current scientific trends.

**GEOL 485. Seminar in Geology. 0.5 Units.**
Presentations and discussion of selected topics featuring recent developments. Members of all geology meet together.

**GEOL 486. Research and Experimental Design. 2 Units.**
Concepts, methods, and tools of research—including experimental design and data analysis.

**GEOL 487. Field Geology Studies. 1-6 Units.**
Special field study trips lasting one or more weeks. Student involvement required, including field presentations and fieldwork assignments, such as the measurement and analysis of sedimentary sections, facies profiling, paleontologic excavation, mapping, or other geological or paleontology field activity. One unit of credit per week. May be repeated for additional credit.

**GEOL 488. Topics in Geology. 1-4 Units.**
A didactic course in a specified area of earth science to cover time-sensitive subjects or topics on demand. Requires an independent study title request form that describes the specific area covered in the class and course requirements.

**GEOL 489. Readings in Geology and Paleontology. 1-4 Units.**
Focused readings and discussion of literature with course instructor in a seminar setting. Requires an independent study title request form that describes the specific area covered in the class and course requirements.

**GEOL 495. Special Projects in Geology. 1-4 Units.**
Special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.

**GEOL 497. Undergraduate Research. 1-4 Units.**
Credit for supervised research activities, including activities related to completion of the senior thesis. Requires an independent study title request form that explains the research and evaluation criteria.

**GEOL 510. Orientation to Graduate Geology. 1 Unit.**
Provides a platform for introducing students to skills and strategies for successfully navigating through their graduate degree and for pllanning their future professional career development.

**GEOL 512. Invertebrate Paleontology. 4 Units.**
Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Considers principles and methods involved in the study and analysis of invertebrate fossils. Per week: Class three hours, plus one three-hour laboratory. Additional work required beyond GEOL 426.

**GEOL 513. Vertebrate Paleontology. 4 Units.**
Fossil vertebrates, with emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Additional work required beyond GEOL 427.

**GEOL 514. Paleobotany. 4 Units.**
Fossil plants, their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Per week: three class hours and one three-hour laboratory or field trip. Additional work required beyond GEOL 444.

**GEOL 516. Sedimentology and Stratigraphy. 6 Units.**
Rock types, depositional processes, and models. Stratigraphic nomenclature and approaches to correlation on local, regional, and global scales. Laboratory analysis of primary and diagenetic mineralogy, textures, and sedimentary structures in clastic and carbonate rocks. Field descriptions of sedimentary rocks, structures, and sequences; and field experience in interpreting depositional processes and stratigraphic relationships. Requires additional laboratory and field activities over GEOL 416.

**GEOL 517. Modern Carbonate Depositional Systems. 3 Units.**
Examines modern and Pleistocene carbonate systems in the field, using these environments as models for understanding sediment production, facies development, and early diagenesis for many ancient carbonates. Presentations and readings on specific environments combines with field descriptions, mapping, analysis, and reports. Requires rigorous hiking and snorkeling in shallow water. Additional work required beyond GEOL 455.

**GEOL 518. Earth Structure, Process, and History. 4 Units.**
Study of geological processes and the resulting geological record. Introduces minerals and rocks, sedimentary and igneous processes, fossils, plate tectonics, geological history, and models of earth history. Student prepares a teaching module on the topic. Open only to students in the M.S. degree program in natural sciences. Per week: class three class hours, one three-hour laboratory or field trip.

**GEOL 526. Introduction to GIS for the Natural Sciences. 2 Units.**
Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

**GEOL 535. GIS Spatial Analysis for the Natural Sciences. 3 Units.**
Advanced analysis of GIS data; statistical analysis, geographic analysis of spatial data, and methods of displaying, editing, and modeling spatial data using ArcGIS and related GIS tools. Recommended for students who have research data in hand to analyze.

**GEOL 545. Taphonomy. 4 Units.**
Processes that affect an organism from death until its final burial and fossilization, and utilization of this information in reconstructing ancient assemblages of organisms. Three class hours per week. One laboratory per week to study, describe, and interpret fossil assemblages of vertebrates, invertebrates, and microfossils.

**GEOL 554. Limnogeology. 4 Units.**
Ancient lake deposits, including their sedimentologic, paleontologic, mineralogic, geochemical, and stratigraphic characteristics. Investigates as analogs the depositional processes occurring in modern lakes. Laboratory and several extended field trips.

**GEOL 555. Carbonate and Evaporite Geology. 4 Units.**
Advanced course on the geology of carbonate and evaporite rocks, including: petrography, depositional systems, diagenesis, and overview of current topics of research. Includes weekly laboratory experience in the analysis of carbonate and evaporite samples and a field trip to ancient carbonate sequences.

**GEOL 556. Paleoenvironments. 3 Units.**
Venue to learn skills to distinguish and reconstruct ancient depositional environments. Applies paleontologic, sedimentologic, and geochemical data and methods to interpretation of paleoenvironments, with emphasis on organism-sediment relationships. Investigates as analogs processes, sediments, and organisms in modern depositional environments.

**GEOL 557. Paleoenvironments Field Trip. 1 Unit.**
Field-based geology that integrates with GEOL 556, Paleoenvironments. Ten days spent visiting a variety of ancient and modern depositional environments. Published observations reviewed and relived to develop a regional context and collect primary field data.

**GEOL 558. Philosophy of Science. 4 Units.**
Selected topics in the history and philosophy of science, and application of these principles in analyzing contemporary scientific trends.

**GEOL 559. Philosophy of Science and Origins. 1 Unit.**
Studies selected topics in the history and philosophy of science, and applies these principles in analyzing current scientific trends. Provides an advanced update in the topic for students who have had a similar course at the undergraduate level.

**GEOL 565. Analysis of Sedimentary Rocks. 4 Units.**
Provides exposure to range of analytical tools used for assessment in sedimentary geology. Tools covered include: saws and grinders, photography through microscope, point counting with optical microscope, x-ray diffraction of bulk and clays, scanning electron microscopy with EDS, magnetic susceptibility, grain size analysis, acid insoluble residues, making thin sections, MP-AES, GPS, image analysis, and error analysis. Participants will use case studies to develop skill in project design.

**GEOL 566. Clastic Sedimentary Geology. 4 Units.**
Advanced course on the geology of clastic sedimentary rocks–including: petrography, depositional systems, diagenesis, and overview of current topics of research. Includes weekly laboratory experience in the analysis and description of clastic rock samples and a field trip to ancient clastic sequences.

**GEOL 567. Stratigraphy and Basin Analysis. 4 Units.**
Addresses vertical and lateral relationships of sedimentary units and facies in the context of the development and filling of sedimentary basins within a chronostratigraphic framework. Emphasis on the impact of tectonics, sea level variations, and autogenic processes and their expression as sequences with specific stratal geometries in different basin types. Both surface (field outcrop studies) and subsurface (well logs and seismic stratigraphy) approaches to basin analysis will be covered.

**GEOL 575. Hydrogeology. 4 Units.**
Theory and geology of groundwater occurrence and flow, the relation of groundwater to surface water, and the potential distribution of groundwater by graphical and analytical methods. Three class hours and one three-hour laboratory per week.

**GEOL 588. Topics in Geology. 1-4 Units.**
A didactic course in a specified area of earth science to cover time-sensitive subjects or topics on demand. Requires an independent study title request form that describes the specific area covered in the class and course requirements.

**GEOL 594. Readings in Geology and Paleontology. 1,2 Unit.**
Focused readings and discussion of the literature with the course instructor in a seminar setting. Requires an independent study title request form that describes the specific area covered in the class and course requirements.

**GEOL 595. Readings in Limnogeology. 1 Unit.**
Readings and analysis of current and classic scientific literature dealing with modern and ancient lake environments—including geochemistry, sedimentology, biology and paleontology, and related subjects. Activities include student presentations of papers, discussion, and research proposals and reports. One extended, multiday field trip required.

**GEOL 607. Seminar in Geology. 0.5 Units.**
Presentations and discussion of selected topics featuring recent developments. Members of all geology programs meet together.

**GEOL 616. Research and Experimental Design. 2 Units.**
Concepts, methods, and tools of research, including experimental design and data analysis. Cross-listing: BIOL 616.

**GEOL 617. Proposal Writing and Grantsmanship. 2 Units.**
Develops skills in writing proposals and in acquiring funding for research. Increases understanding of the culture of research. Reviews the infrastructure of science funding and identifies individualized sources of potential funding. Presents successful proposal-writing strategies for both governmental and nongovernmental sources of funding. Emphasizes development of effective writing skills during preparation of the student's thesis or dissertation proposal.

**GEOL 618. Writing for Publication. 1 Unit.**
Explores the mechanics and processes of preparing, submitting, revising, and resubmitting a manuscript for publication in a peer-reviewed journal. Designed for students who are well along in the process of writing their first manuscript for publication. Prepares students to handle the manuscript revision process when the manuscript is returned from reviewers, as well as the final stage of resubmission to the journal.

**GEOL 658. Advanced Philosophy of Science readings (2). 2 Units.**
Reading and discussion of selected references in the philosophy of science, and the application of these concepts in the practice of scientific research and interpretation, including their influence on scientific study of origins. Best taken near the end of a student's graduate program. Two-hour class session per week.

**GEOL 664. Science Communication Outreach. 1 Unit.**
Guided immersion into science communication outreach. Principles of communication outreach and small group work presented. Student teams devise project that engages a specific, identified community. Small teams collaboratively interact with community to address a need, present findings, evaluate impact, and reflect on experience. Cross-listing: BIOL 664.

**GEOL 695. Special Projects in Geology. 1-4 Units.**
Special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.

**GEOL 697. Research. 1-8 Units.**
Credit for supervised research activities. Requires an independent study title request form that explains the research and evaluation criteria.

**GEOL 698. Thesis Research. 1-8 Units.**
Credit for supervised research activities and for writing of the master's thesis. Requires an independent study title request form that explains the research and evaluation criteria. Grade received does not indicate whether thesis is completed and approved.

**GEOL 699. Dissertation Research. 1-8 Units.**
Credit for supervised research activities and for writing the doctoral dissertation. Requires an independent study title request form that explains the research and evaluation criteria. Grade received does not indicate whether dissertation is completed and approved.

# Gerontology (GERO)

## Courses

**GERO 515. Diversity and Aging. 3 Units.**
Assists students in understanding the complexity of variables related to the aging process. Examines ethnicity, gender, social class, and culture within the context of the physical, mental, social, political, and financial effects of aging.

**GERO 599. Directed Study/Special Project. 1-4 Units.**
Limited to matriculating master's degree in gerontology students who wish to pursue independent investigations in criminal justice practice or policy under the direction of a department faculty member.

**GERO 615. Economics and Management Issues of Older Adult Services. 4 Units.**
Acquaints students with economic and management issues and their impact on social policies that direct older adult services. Uses descriptions of economic and management issues to analyze system impact on social policies related to the older adult population. Students learn how to meet the challenges inherent in a dynamic and rapidly changing environment and develop skills and competencies for meeting future challenges and bridging the gap between theory and practice.

**GERO 617. Bio-psycho-social-spiritual Theories of Aging. 4 Units.**
An interdisciplinary team-taught learning experience that provides an integrative understanding of the bio-psycho-social-spiritual aspects and theories of aging, and the impact of these on older adults and their families.

**GERO 654. Therapeutic Interventions with Older Adults. 3 Units.**
Integrates theories and practice skills needed for effective interventions with older adults and their families. Considers the significance of the individual's bio-psychosocial-spiritual history within an environmental context while also recognizing the specific needs of older adults. Assessment and evidence-based clinical intervention methods that bridge health and mental health services are also examined along with service delivery and case-management systems.

**GERO 697. Research. 2-4 Units.**
Supports students choosing to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units.

**GERO 698. Thesis. 2 Units.**
The culminating portion of the student's independent research, under the direction of the research advisor. Students register for class during the quarter in which they defend their research and submit their final document to the department and to the School of Behavioral Health.

**GERO 757A. Professional Practicum and Seminar. 3 Units.**
Students complete 3 units of professional practicum during each quarter. Each 3 units require 160 hours of practicum and 20 hours of seminar.

**GERO 757B. Professional Practicum and Seminar. 3 Units.**
Students complete 3 units of professional practicum during each quarter. Each 3 units require 160 hours of practicum and 20 hours of seminar.

**GERO 757C. Professional Practicum and Seminar. 3 Units.**
Experiential learning in gerontology settings. Students placed at practicum sites that serve geriatric clients. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**GERO 787. Advanced Professional Practicum and Seminar. 4 Units.**
Experiential learning in advanced gerontology practice. Students must satisfactorily complete 200 practicum hours and 20 hours of concurrent seminar.

# Global Health (GLBH)

## Courses

**GLBH 516. HIV/AIDS: Implications for Public Health. 3 Units.**
Historical, epidemiological, and public health aspects of HIV/AIDS. Viral, immunologic, laboratory, and clinical manifestations associated with HIV/AIDS. Includes: approaches to preventing/controlling the epidemic; socioeconomic, political, and health impact of HIV/AIDS; and, related implications such as legal, ethical, and health-care management issues.

**GLBH 517. Cultural Issues in Health Care. 3 Units.**
Critical analysis of broad sociocultural and political forces that impact domestic and international health, and health-care access and delivery. Addresses how culture informs the understanding and experience of health and illness. Introduction to assessment of race relations and ethnocentric beliefs and attitudes that contribute to the gap between marginal populations and health-care providers. Presents sociocultural change strategies within the context of power and privilege.

**GLBH 524. Cultural Competence and Health Disparities. 2 Units.**
Introduces diversity and cultural responsiveness in public health and health care. Examines population diversity, health professions diversity, and cultural responsiveness in addressing and eliminating disparities in national and global health. Discusses biological inheritance, race and ethnicity identifiers, socioeconomics, socioenvironment, and health-care beliefs and behavior. Introduces cultural competency in public health and tenets for developing and applying cultural awareness.

**GLBH 545. Integrated Community Development. 4 Units.**
Analyzes issues, challenges, resources, and strategies in implementing and managing integrated community development and health projects. Focuses on basic development needs of rural and urban communities. Taught from the perspectives of anthropology, sociology, agriculture, economic development, and public health. The final course in the GLBH core curriculum. Restricted to students in the major. Prerequisite: GLBH 564, GLBH 565, GLBH 566, GLBH 567, GLBH 568, GLBH 569.

**GLBH 550. Women in Development. 3 Units.**
Global epidemiological profile of women in terms of educational patterns, economic productivity, social status, and mortality and morbidity patterns. Risks to physical and psychosocial health. National and international legal and regulatory issues and programs to promote access to health care, economic productivity, and the health of women.

**GLBH 564. Fundamentals of Global Health I. 3 Units.**
A three-course series that addresses the context and realities of global health and transformational development. Includes analysis of the burden of disease at global, national, and local levels; cultural, social, economic, and environmental determinants of health; infectious and noncommunicable diseases; reproductive, maternal, newborn, and child health; nutrition; injuries and violence; and current global health events. Students research a low-middle income country throughout the year.

**GLBH 565. Interventions in Community Health and Development I. 3 Units.**
First of three courses addressing methodological techniques and skills applicable to planning, implementation, and evaluation of primary health-care programs. Focuses on improvement of health, safety, and well-being of all people in local and global settings by promoting wellness, preventing avoidable disease, disabilities, and deaths, and eliminating social and health disparities.

**GLBH 566. Fundamentals of Global Health II. 3 Units.**
Second in a three-course series addressing global health and transformational development. Analysis of public health systems at the global, national, and subnational levels. Includes: assessment of health workforce; health financing; policies and programs; health supply logistics; and, the role of disasters, politics, conflict, and war in public health.

**GLBH 567. Interventions in Community Health and Development II. 3 Units.**
Second of three courses addressing methodological techniques and skills applicable to planning, implementation, and evaluation of primary health-care programs. Focuses on improvement of health, safety, and well-being of all people in local and global settings by promoting wellness, preventing avoidable disease, disabilities, and deaths, and eliminating social and health disparities. Prerequisite: GLBH 565.

**GLBH 568. Fundamentals of Global Health III. 3 Units.**
Third in a three-course series addressing global health and transformational development. Study of nongovernmental, UN, bilateral, and multi-lateral organizations involved in global health. Includes: financing; engagement in professional career development activities; and, preparation of a complex funding application such as The Global Fund to Fight AIDS, Tuberculosis, and Malaria. Prerequisite: GLBH 564, GLBH 566; or consent of instructor.

**GLBH 569. Interventions in Community Health and Development III. 3 Units.**
Third of three courses addressing methodological techniques and skills applicable to planning, implementation, and evaluation of primary health-care programs. Focuses on improvement of health, safety, and well-being of all people in local and global settings by promoting wellness, preventing avoidable disease, disabilities, and deaths, and eliminating social and health disparities. Prerequisite: GLBH 565, GLBH 567.

**GLBH 584. Special Topics in Global Health. 1-3 Units.**
Lectures and discussions on a current topic in global health. May be repeated for a maximum of 3 units applicable to degree program.

**GLBH 605. Seminar in Global Health. 1 Unit.**
Issues, trends, organizational structure, and practice of international public health. Issues impacting global health, the structure and functions of government and NGOs in the delivery of public health services, and preparation to practice international health. Selected guest lecturers and student participation.

# Graduate Dentistry (GRDN)

## Courses

**GRDN 514. Introduction to Biomedical Research. 4 Units.**
Provides basic information necessary to develop a research proposal. Focuses on applied statistics, as well as proposal writing—which emphasizes critical evaluation of the literature, proposal design, and proposal methodology. Culminates in an approved research proposal suitable for submission to the departmental Research Guidance Committee (RGC). Lectures, seminars.

**GRDN 535. Clinical Oral Pathology. 2 Units.**
Differential diagnosis of oral disease. Includes epidemiology, etiology, clinical, radiographic, and/or microscopic features. Management of oral diseases.

**GRDN 601. Practice Management. 2 Units.**
Prepares student for specialty practice. Concepts of employment, records, incorporating, insurance, and practice planning.

**GRDN 609. Professional Ethics. 2 Units.**
Provides students with a theological and philosophical framework for professional ethics. Topics include individual rights, autonomy, informed consent, and responsibilities of the professional person in the dental field, as well as in society as a whole.

**GRDN 622. Biomedical Science I. 2 Units.**
Advanced, course offered every other year (alternating with GRDN 623) during Autumn Quarter. Course content includes applied oral bacteriology, immunology, topics in oral medicine, applied pharmacology, and orofacial pain. Students expected to have prior basic knowledge in the various topic areas.

**GRDN 622A. Biomedical Science. 2 Units.**
Advanced, one-quarter course offered Fall Quarter annually. Includes an overview of immunology, developmental anatomy of the head and neck, TMD symptomology and treatment modalities, bacterial cytology, growth and metabolism, emerging infectious diseases with focus on HIV/AIDS and Hepatitis C, dental caries and caries risk assessment, antibiotics and their mechanisms of action and clinical application, viral diseases, and the connection between oral and systemic diseases.

**GRDN 622B. Biomedical Science. 2 Units.**
Advanced, one-quarter course offered annually Winter Quarter. Includes cell cycles, wound healing, surgical principles, oral principles, implants, and radiology. Prior basic knowledge in the various topic areas expected. Prerequisite: GRDN 622A.

**GRDN 623. Biomedical Science II. 4,5 Units.**
Advanced, two-quarter course offered every other year (alternating with GRDN 622) during Autumn and Winter Quarters. Course content includes cell biology, applied oral pathology, biology of hard tissues, physiology, and biochemistry. Students expected to have basic knowledge in the various topic areas.

**GRDN 632. Basic Microsurgery Techniques. 2 Units.**
An integrated, forty-hour laboratory course tailored to the needs of the individual student. Principles and application of microscope operator and use, microinstrumentation, microdissection, micromanipulation, and microsuturing techniques. Performance of various microvascular and microneural repair procedures.

**GRDN 700. Advanced Dental Education Remediation. 1-8 Units.**
Outlines how deficiencies will be remediated and reassessed for the course in question.

# Gynecology and Obstetrics (GYOB)

## Courses

**GYOB 599. Gynecology and Obstetrics Directed Study. 1.5-18 Units.**

**GYOB 701. Gynecology and Obstetrics Clerkship. 1.5-9 Units.**
Addresses normal and high-risk obstetrics and gynecology, women's health, reproduction, birth control, gynecological cancers, and gynecological pathology in a clinical setting. Includes examinations, diagnoses, procedures, deliveries, and surgeries.

**GYOB 891. Gynecology and Obstetrics Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of gynecology and obstetrics, such as benign gynecology, high-risk obstetrics, lactation, oncology, research, etc.

# Health Administration (HADM)

## Courses

**HADM 501. Health Policy and Leadership Seminar. 1 Unit.**
An orientation seminar designed for the first or second quarter of the M.P.H. degree in health policy and leadership. Identifies the expectations of the degree, raises awareness and understanding of academic standards, and promotes cohort and professional loyalty.

**HADM 506. Fundamentals of Health-Care Finance. 3 Units.**
Covers different forms of business organizations and their impact on taxes and cash flows. Focuses particularly on third-party payer system, time value of money, financial risk and return, debt and equity financing, securities valuation, market efficiency, debt refunding, and lease financing. Prerequisite: HADM 507 or equivalent.

**HADM 508. Accounting Fundamentals in Health-Care Management. 4 Units.**
Overview of basic health-care accounting principles including accounting cycle, balance sheets, income statements, ethics, internal controls, accounting for assets, current liabilities, and stockholder equity. In addition, fundamentals of managerial accounting topics will be explored using key financial and managerial accounting tools to assist in making informed health care decisions. Prerequisite: Introduction to accounting course.

**HADM 510. Health Policy Analysis and Synthesis. 3 Units.**
Introduces major approaches for understanding the health policy process. Explores how to identify and analyze the forces and interests involved in health policy issues, including stakeholder analysis. Examines how to write a policy brief and describes various techniques of advocating for health policy change.

**HADM 514. Health-Care Economics. 3 Units.**
Uses analytical tools of economics to describe the behavior of various agents in the health-care industry, including providers and patients, third party payers, the government, and the pharmaceutical industry. Explores the importance of health-care labor markets; analyzes the issue of equity, efficiency, and costs; and explores differences between health-care systems around the world.

**HADM 515. Managerial Epidemiology. 3 Units.**
Overview of epidemiological concepts including exploration, analysis, and interpretation of epidemiology data and statistical measures utilized in epidemiology studies. Considers how epidemiology is used to reinforce a population health-based approach in health management and service delivery.

**HADM 525. Special Topics. 1-4 Units.**
Lecture and discussion on a current topic in health policy and management or leadership. May be repeated for a maximum of 8 units applicable to degree program.

**HADM 528. Organizational Behavior in Health Care. 3 Units.**
Focuses on understanding, predicting, and influencing human behavior in an organization. Students gain experience using practical individual and group case studies and reading/researching organizational behavior books and topics that facilitate thinking through problems/issues and finding solutions as leaders, managers, and employees in organizations.

**HADM 529. Applied Leadership Concepts in Health-Care Organizations. 3 Units.**
Enhances and applies leadership principles related to managing change process, building and strengthening teams, practicing skills in persuasion and resolution of conflicts, and developing innovative and skilled leaders. Uses case studies and interactive methods to create an innovative environment in which students can apply and enhance their knowledge of the health-care industry.

**HADM 534. Health-Care Law. 3 Units.**
Examines health care as a highly regulated industry, providing students with an understanding of the vast range of legal issues facing health-care practitioners and administrators. Gives particular attention to topics in regulatory compliance, medical malpractice, health-care contracting, and employment law.

**HADM 536. Health Policy Communications. 3 Units.**
Strategies for advancing health policy messages. Identifies various forms of public communication and provides techniques for communicating effectively with the mass media and stakeholders in the health system. Focus on critical thinking in addition to oral and written communication.

**HADM 545. Government Policy and Health Disparities. 3 Units.**
Overview of health disparities in framing health policy discussions. Examines the federal government's use of funding and regulation to influence health-care delivery in the United States. Reviews the role of state and local governments in developing and implementing health policy. Explores how research is used in documenting disparities and evaluating interventions.

**HADM 555. Health-Care Delivery Systems. 3 Units.**
Reviews current trends in health-care financing; integrated delivery systems; managed care, as well as some focus on health-care operations, including: billing, coding, pricing, utilization review, case management, and systems. Reviews and discusses current events and research relating to the health-care system structure throughout the world and relative to U.S. health-care policy.

**HADM 559. Health-Care Marketing. 3 Units.**
Applies marketing concepts to health care delivery systems. Emphasizes a strategic market-management approach for developing or evaluating strategies and programs for a health care organization.

**HADM 564. Health-Care Finance. 3 Units.**
Covers capital structure decisions, capital budgeting, financial analysis and forecasting, project risk analysis, working capital management, business valuation, mergers and acquisitions, reimbursement methods, and financial risk management. Prerequisite: HADM 506.

**HADM 574. Managing Human Resources in Health-Care Organizations. 3 Units.**
Purposefully explores how the strategic management of human resources creates value and delivers results in health care. Addresses an emerging human-resource paradigm, in addition to focusing on the traditional perspectives of human resources that center around the personnel function.

**HADM 575. Management Information Systems in Health Care. 3 Units.**
Systems theory and application in the design and operation of integrated management information systems in a health-care setting. Examines hardware, software, and human interfaces.

**HADM 584. Current Topics in Health Policy and Leadership. 1 Unit.**
Lectures and discussion on current issues in leadership. Specific content varies from quarter to quarter. May be repeated for additional credit.

**HADM 585. Policy Development for a Twenty-First Century Health System. 3 Units.**
Addresses the unique application of leadership theory and best practice to the field of public health, health care, and related areas.

**HADM 586. Building Healthy Communities: Integrative Health Policy. 3 Units.**
Examines the public health system, how health policy is developed, and the diverse stakeholders involved in the process. Examines effective partnerships with government agencies, the private sector, nongovernmental organizations, communities, and social entrepreneurs. Explores and analyzes in depth how these partnerships have worked together to make positive health improvements through effective policies.

**HADM 587. Health Policy Analysis and Research. 3 Units.**
Provides students with the skills needed to translate research into policy and practice. Examines how research impacts public health and health policies. Explores the relationship between statistics, research, and public policy; and understanding policy development and the politics that inform public health policy. Focuses on collaboration with government agencies and community groups in evaluating outcomes associated with changing policies at the institution, community, and state levels.

**HADM 588. Leadership, Policy, and Environmental Change. 3 Units.**
Examines public health approaches to improve health through environmental and policy change. Explores theoretical and practical applications of legislative advocacy in the area of health policy.

**HADM 589. Advanced Practice in Leadership. 3 Units.**
Explores leadership through reflection on and analysis of past experiences, readings in textbook and articles, discussion of contemporary leadership theories, and learning activities designed to apply this knowledge to the student's personal setting. Focuses especially on discussion of issues encountered in leading teams and organizations. Assesses leadership style as well as applied leadership, change theory, entrepreneurial skills, and innovative practice.

**HADM 594. Applied Health-Care Management Project. 2 Units.**
Development of an applied project for a health-care organization. Prerequisite: HADM 607; completion of 40 units of program requirements; program director approval.

**HADM 595. Leadership—Past, Present, and Future. 3 Units.**
Studies in depth the historical and theoretical foundations of leadership, exploring a wide range of sources across time and culture. Emphasizes major theories influencing the current understanding of leadership and its relationship to management.

**HADM 601. Quantitative Methods in Health-Care Management. 3 Units.**
Use of quantitative techniques to analyze processes and apply decision-making tools to optimize performance in health-care institutions. Includes forecasting, facility location and layout, resource allocation, workload management, productivity measurement, supply chain and inventory management, quality control and improvement, project management, and queuing theory. Prerequisite: STAT 509; or consent of instructor.

**HADM 604. Health Systems Strategic Planning. 3 Units.**
Describes strategic planning process and examines tools needed to analyze external factors and internal capabilities related to an organization. Includes: development of vision, mission, and goal statements; objectives; control mechanisms; human resource management; marketing; finance; and, impact of business, demographic, cultural, political, and regulatory decisions on long-term success.

**HADM 605. Health-Care Quality Management. 3 Units.**
Focuses on quality systems that include developing clear mission or vision, setting measurable strategic quality goals, deploying goals for action by identifying specific activities to be done, and controlling results. Analysis of quality process in health care historically, with emphasis on key strategies for success.

**HADM 607. Orientation to Professionalism Seminar. 1 Unit.**
Prepares students for professional distinction in their careers through participation in a seminar series, resume preparation, self-assessments, and other activities. Serves as an orientation to either the 800-hour practicum series (HADM 724) or the applied project-based course (HADM 594).

**HADM 616. Health Systems and Population Health. 3 Units.**
Employs an economics framework to explore policy issues such as quality and cost within different sectors of health care. Uses a population health perspective to evaluate social determinants of health and considers health systems, community-based, and legal strategies for improvement.

**HADM 620. Health Policy Theories and Concepts. 3 Units.**
Introduces key theories, writers, and conceptual frameworks that influence contemporary health policy analysis and development. Reviews the evolution of health policy in the US. Examines the health policy development process, which includes problem identification, policy formulation, and implementation.

**HADM 625. Health Policy Advocacy and Civic Engagement. 3 Units.**
Matches students with public health–related agencies or coalitions to gain in-depth knowledge of agenda setting, power analysis, legislative research, and legislative advocacy in relation to specific health issues. Explains the impact of the political process and develops skills associated with community organizing and civic engagement for policy advocacy and communicating effectively using traditional and innovative strategies, including but not limited to mass and social media.

**HADM 685. Preliminary Research Experience. 3 Units.**
Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning the dissertation research project.

**HADM 689. Graduate Seminar in Leadership. 2 Units.**
While working under the direction of a department faculty member, student applies leadership theory to specific situations and evaluates the effectiveness of such interventions. Limited to doctoral students. Permission of instructor required. May be repeated for a total of 8 units.

**HADM 690. Health-Care Management Capstone. 3 Units.**
A capstone course that completes the M.B.A. degree program. Integrates the core and cross-cutting health care management competencies, resulting in a learning experience that combines health care perspectives, theories, skills, and tools in an applied format. Final products--derived through case studies, guest lectures, and literature review--include a comprehensive strategic plan that incorporates all the elements of a business plan designed specifically for a health care organization.

**HADM 697. Dissertation Proposal. 1-10 Units.**
Doctoral student develops a dissertation proposal and works in collaboration with the research adviser on mutually agreed-upon objectives that will provide the basis for evaluation. Culminates in a dissertation proposal. Prerequisite: Successful completion of comprehensive exams.

**HADM 698. Dissertation. 1-8 Units.**
Doctoral student prepares dissertation manuscript presenting results of the research study. Prerequisite: HADM 697 and advancement to candidacy.

**HADM 699. Applied Research. 1-4 Units.**
Assignment to private, government, international, or voluntary health agency or other approved organization where practical application of the materials studied on campus is made under the guidance of the department faculty and the organization involved. Research project that includes substantial analysis of data and discussion of results. Written report and oral presentation required. Prerequisite: Consent of department advisor and of instructors responsible for supervision.

**HADM 724A. Health-Care Administration Practicum. 2 Units.**
Provides experiential learning opportunities in health-care administration with an emphasis on student skill sets and interests, and organizational needs. Includes 100 clock hour practicum.

**HADM 724B. Health-Care Administration Practicum. 4 Units.**
Provides experiential learning opportunities in health-care administration with an emphasis on student skill sets and interests, and organizational needs. Includes 200 clock hour practicum.

**HADM 724C. Health-Care Administration Practicum. 6 Units.**
Provides experiential learning opportunities in health-care administration with an emphasis on student skill sets and interests, and organizational needs. Includes 300 clock hour practicum.

**HADM 724D. Health-Care Administration Practicum. 8 Units.**
Provides experiential learning opportunities in health-care administration with an emphasis on student skill sets and interests, and organizational needs. Includes 400 clock hour practicum.

# Health Care Administration (HCAD)

## Courses

**HCAD 305. Health-Care Communication. 3 Units.**
Basic communication applications of health-care organizations. Communication theory, language, oral reporting, conducting meetings and conferences, interpersonal techniques of listening and interviewing, nonverbal communication, crises management, and public relations and multicultural as well as ethical considerations.

**HCAD 328. Health-Care Organizational Behavior. 3 Units.**
Applies behavioral-science concepts to understanding individual and group behavior in health-care organizations. Topics include: attitude formation, perceptual processes, motivation, job design, reward systems, leadership, group processes, organizational structure and design.

**HCAD 359. Health-Care Marketing. 3 Units.**
Surveys major marketing topics, including consumer behavior, product, pricing, placement, and promotions.

**HCAD 374. Health-Care Human Resources. 3 Units.**
Discusses theories and principles of traditional human resource management, as well as emerging trends and concepts. Explores hiring, training, personnel appraisal, task specialization, collective bargaining, compensation and benefits, and state and federal guidelines impacting human resources as well as assorted legal issues.

**HCAD 401. Health-Care Operations Management. 3 Units.**
Explains quantitative methods used to analyze and improve organizational processes within a health care organization. Decision analysis, break-even analysis, materials management, linear programming, queuing theory, quality management, network modeling, and game theory.

**HCAD 409. Principles of Health-Care Administration. 3 Units.**
Introduction to the administration of organizations within the context of the economic, regulatory, and financial constraints of the health-care delivery system. Areas covered include: concepts of organizational management; the management functions (planning, decision making, organizing, staffing, directing, and controlling); budgeting; committees and teams; adaptation, motivation, and conflict management; authority, leadership, supervision; and human resource management.

**HCAD 414. Sustainability for Health-Care Management. 3 Units.**
Approaches health care management by focusing on health-care sustainability guidelines that reflect the intrinsic relationship between delivering quality health care and the ecological health of the community. Examines social trends and drivers of sustainable health systems and explores various approaches for health care providers and systems to become better stewards of the environment. Studies the relationship between hospital design, sustainability initiatives, and quality of care.

**HCAD 417. GIS for Health-Care Management. 3 Units.**
Use of geographic information system (GIS) methods to address key issues faced by managers responsible for health-care systems in government or private sector organizations. Focuses on geodesign; that is, the use of geotechnologies to find optimal solutions to geospatially defined issues. Introduces fundamentals of mapping, spatial query, pattern analysis, and spatial statistics. Emphasizes methods for modeling key processes in health care including suitability, movement, and interaction.

**HCAD 461. Portfolio for Health-Care Administration I. 3 Units.**
Part one of a two-course series preparing students for professional distinction in the field of health-care administration. Fosters personal and professional development through lectures, assessment, and related course activities. Beginning of student signature project and ePortfolio.

**HCAD 462. Portfolio for Health-Care Administration II. 3 Units.**
Part two of a two-course series preparing students for professional distinction in the field of health-care administration. Fosters personal and professional development through lectures, assessment, and related course activities. Conclusion of student signature project and ePortfolio. Prerequisite: HCAD 461.

**HCAD 498. Health-Care Policy and Strategy. 3 Units.**
Provides a comprehensive toolkit for health-care administrators to conduct policy and strategy development. Explores tools and techniques for internal and external environmental analysis and development of directional, adaptive, market entry, value-adding and other institutional strategies. Addresses action plans and strategy communication.

**HCAD 499. Directed Study. 1-4 Units.**
Student individually arranges to study under the guidance of a program faculty member. Project or paper to be submitted on a topic of current interest in an area related to health-care management. Regular meetings provide the student with guidance and evaluation. Activities may also include readings, literature review, or other special or research projects. A maximum of 4 units is applicable to any degree program.

# Health-Care Business and Leadership (HCBL)

## Courses

**HCBL 345. Project Management in Health Care. 3 Units.**
Evaluate, recommend, negotiate, and manage projects for health-care applications. Project management techniques that integrate resources and facilitate workflow to produce desired outcomes.

**HCBL 346. Legal and Ethical Environment in Health Care. 3 Units.**
Fundamentals of health-care law, confidentiality, and ethics. Topics include liability theories, patient consent, privacy and security, evidence and discovery, and risk management, and compliance.

**HCBL 434. Financial Management for Health Care. 3 Units.**
Budget variance analysis, analysis of cost components, operating statements, and productivity related to a department budget. Examines financial accounting systems, financial evaluation ratios, and reports. Cost benefits realization preparation.

**HCBL 471. Information Systems Management in Health Care I. 4 Units.**
Detailed analysis of information systems used to support patient care, with emphasis on system development life cycle and support of health information technologies. Focuses on information governance initiatives.

# Health Geoinformatics (HGIS)

## Courses

**HGIS 422. Principles of Geographic Information Systems. 4 Units.**
Comprehensive overview of the concepts, functions, applications, technologies, and trends pertaining to automated geographic information systems (GIS). Framework for understanding the design, development, implementation, and management of GIS. Topics include: GIS hardware and software considerations, data resources, technical issues and applications in GIS.

**HGIS 424. Desktop GIS Software Applications. 4 Units.**
Introduces state-of-the-art, PC-based GIS applications. Student acquires the conceptual knowledge as well as the hands-on experience needed to optimally utilize available functions within desktop GIS technology for display, editing, analysis, and presentation of spatial and thematic data. Focuses on ArcView GIS and its analytical extensions.

**HGIS 522. Principles of Geographic Information Systems and Science. 2 Units.**
Comprehensive overview of the concepts, functions, applications, technologies, and trends pertaining to automated geographic information systems (GIS). Topics include: GIS hardware and software considerations, data resources, technical issues and applications in GIS.

**HGIS 524. GIS Software Applications and Methods. 3 Units.**
Project-oriented course introduces state-of-the-art, PC-based GIS technology and applications. Provides the conceptual knowledge and hands-on experience needed to optimally utilize available functions within desktop GIS technology for modeling, displaying, editing, analyzing, and presenting spatial and thematic data. Focuses on ArcGIS and its analytical extensions, as well as Leica Geosystems ERDAS Imagine.

**HGIS 535. Integration of Geospatial Data in GIS. 2 Units.**
Surveys capturing, processing, integrating, and displaying GIS data. Focuses on public health applications of global positioning systems, satellite digital imagery, image processing, aerial photography, digital orthophotography, GIS applications for the World Wide Web, and GIS data sources on the Internet.

**HGIS 536. Spatial Analytic Techniques and GIS. 3 Units.**
Modeling and analyzing complex spatial relationships through GIS technology. Selective retrieval of spatial information and computation or mapping of statistical summaries. Advanced methods of analysis using spatial statistics. Prerequisite: HGIS 522 or HGIS 524; or consent of instructor.

**HGIS 547. GIS for Public Health Practice. 2 Units.**
Community health assessment and planning, chronic disease prevention, public health, health disparities analysis, and immunization. Prerequisite: HGIS 522 or HGIS 524.

# Health Informatics (HLIF)

## Courses

**HLIF 510. Health-Care Information Systems. 4 Units.**
Development and diffusion of information systems in health care. Explores how data, information, and technology support quality patient care. Covers EHRs, consumer health informatics, HIE, health informatics ethics, regulatory movements, system theory, evidenced-based medicine, clinical decisions support, patient safety, and strategic planning for information systems. Introduces system architecture, data standards, data analytics, and health information privacy and security.

**HLIF 515. The U.S. Health-Care System. 4 Units.**
Analysis of health-care delivery in the United States, including organizations that provide health care, health-care professionals, beliefs and values, access issues, medical technology, regulatory requirements, reimbursement methods, and cost containment. Examines the evolution of the health-care delivery system beginning with the preindustrial era and ending with projections for the future of health-care delivery in the United States.

**HLIF 520. Data Management: Modeling and Development. 3 Units.**
Explores the concepts of data and the criticality of appropriate data management to successfully model, develop, and implement health-care information systems. Specific topics include database management, data integrity, knowledge management, data mining, data integration, data visualization, data architecture, and data warehousing.

**HLIF 525. Management of Health-Care Data and Information. 2 Units.**
“Investigates and analyzes standardization movements and reimbursement systems in health informatics. Topics addressed include SDOs, HL7, federal standardization, ANSI, UMLS, EDI, SNOMED CT, and revenue cycle management.”.

**HLIF 526. Quality and Performance Improvement for Health Care. 2 Units.**
Explores methods, design, and process for quality improvement within health-care organizations. Topics covered include workflow analysis, error prevention, problem detection, problem solving, change management, and systems evaluation.

**HLIF 530. Data Analytics and Decision Support. 3 Units.**
“Studies various data sources available for healthcare data analytics, along with direct application of software tools and techniques to extract, transform, analyze, visualize healthcare data. Review of strategies supporting decision support and knowledge management.”.

**HLIF 532. Financial Management in Health Care. 2 Units.**
Study of economics and financial management in health-care organizations. Analyses of economic market impacts, various health-care payment mechanisms, ratio analysis, cost-benefit analysis, operational and capital budgeting, and investment strategies.

**HLIF 540. Leadership Perspectives and Practice. 3,4 Units.**
Examines organizational culture and the various structures, designs, and models as they relate to leadership. Specific topics include change management, personnel management, governance, ethics, group dynamics, and human factor in health informatics. Includes an exploration of dominant theories and methods impacting management and behavior of individuals, groups and organizations. Four units required of students under the 2020-2021 catalog.

**HLIF 545. System Design, Implementation, and Management. 3 Units.**
Study of the fundamentals of the system development life cycle (SDLC) —including system analysis assessment, techniques and tools, system design/development strategies, system implementation and operations, and system evaluation.

**HLIF 548. Human Computer Interactions. 2 Units.**
Critical analysis of the cognitive science and human factors related to EHRs, PHRs, and consumer informatics. Topics addressed include user needs, application design concepts, patient empowerment, and human-computer interaction.

**HLIF 550. Systems Security in Health Care. 2 Units.**
Regulatory, social, and ethical issues of privacy and security in health care information systems. HIPAA, breech legislation/reporting requirements, security requirements/defenses, business continuity planning, and other regulatory issues.

**HLIF 555. Health-Care Vendor and Project Management. 2,3 Units.**
Investigates contemporary health-care information systems, vendor offerings, and effective techniques for establishing effective vendor relationships. Topics include request for information, request for proposals, contract negotiations, and project management. Three units required of students under the 2020-2021 catalog.

**HLIF 565. Technical Structures in Health Informatics. 3 Units.**
Examines the principles of computer science as related to the development and diffusion of technology supporting health-care information systems. Topics covered include technical infrastructure support of the following: business continuity, daily operations, wireless communication, security, EDI/HIE, networking protocols, system integration, programming languages, and system integration issues. Introduces students to computer programming and software development.

**HLIF 570. Professional Portfolio. 2 Units.**
Development of a professional e-portfolio that includes a personal video of introduction, the development of personal and professional goals, resume and cover letter writing, major projects completed from each course and from previous work experience, career mapping, reaction papers in response to the University's core values, publications completed, service learning, and other items as developed during the program.

**HLIF 575. Capstone Project and Special Topics in Health Informatics. 2 Units.**
Summative evaluation based on completion of either a systems application business plan or a data-analytics project utilizing competencies gained in the program. Facility-based or theory-based projects. Preparation and presentation of a complete capstone project.

**HLIF 584. Professional Practicum and Seminar for Health Informatics. 2 Units.**
Experiential learning in health informatics. Students must satisfactorily complete 110 practicum hours. Second year standing in MSHI program; successful completion of all curriculum courses for the first 6 quarters of the program.

**HLIF 599. Health Informatics Independent Study. 1-4 Units.**
Student submits a project or paper on a topic of current interest in an area of health information administration. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest. May be repeated.

# Health Information Administration (HLIN)

## Courses

**HLIN 220. Health Information Science and the U.S. Health-Care System. 4 Units.**
Overview of U.S. health-care delivery, including the history of health-care institutions, external governance, regulations and standards, reimbursement methods, and the health-care organizations and professionals that provide services. Introduction to information management in health care.

**HLIN 248. Pathopharmacology for Health Information Management. 4 Units.**
Covers disease processes in human body systems, as well as drug interventions used in treatment and prevention of disease.

**HLIN 320. Health Information Science for Alternative Care Settings. 4 Units.**
Provides expanded concepts of information management in health care, including practical applications in information science, accrediting bodies, data management, documentation guidelines and requirements, and data integration standards. Includes practical applications of information governance in alternative health-care delivery systems. Prerequisite: HLIN 220.

**HLIN 334. Clinical Classification Systems. 4 Units.**
Overview of ICD-10-CM and PCS clinical classifcation systems. Internal and external auditing systems for coding compliance.

**HLIN 335. Advanced Classification Systems and Coding Compliance. 4 Units.**
Application of clinical classification systems and the guidelines for coding compliance. Managing physician query, severity of illness systems, and clinical documentation-improvement processes. Prerequisite: HLIN 334.

**HLIN 340. Seminar and Portfolio for Health Information Management. 4 Units.**
Students develop a portfolio that illustrates their acquisition of the knowledge and skills that prepare them for entry into the profession, as well as reflects on the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration. Service learning requirements included.

**HLIN 344. Health-Care Informatics and Database Management. 4 Units.**
Study of computer system architecture and infrastructure: hardware, software, network topologies and components, networking and telecommunications, terminology, and concepts. Technology support for data collection, storage, analysis, and reporting—including database development and management for meeting user information needs. Construction of data manipulation, extraction, and reporting tools.

**HLIN 347. Advanced Information Privacy and Security. 4 Units.**
Compares requirements affecting the privacy, security, control, and disclosure of health information. In-depth analysis of legislation governing privacy and introduction to the components of the HIPAA Security Rule. Prerequisite: HCBL 346; or consent of instructor.

**HLIN 354. Professional Practice Experience. 3 Units.**
Simulated professional practice experiences and assignments in health information management and technology, during the Spring Quarter of the junior year; includes use of software-as-a-service systems. Written and oral reports of experience.

**HLIN 430. Quality Management and Performance Improvement in Health Care. 3 Units.**
Continuous quality improvement methodologies and processes applied to patient safety and satisfaction, internal and external regulatory requirements, risk management, evidence-based medicine, and utilization review to achieve optimum patient care.

**HLIN 435. Seminar and Portfolio for Health Information Management II. 4 Units.**
Students continue to develop a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University. Provides students with a format for demonstrating their acquisition of the knowledge and skills that prepare them for credentialing and entry into the profession. Prerequisite: HLIN 340.

**HLIN 437. Data Analytics and Visualizations for Health Care. 4 Units.**
Introduces data analytics in health care. Concepts of transforming data into useful information to support organizational decisions and outcomes management. Utilizes software tools for the manipulation, analysis, and visualization of data. Applies statistical methods with data extraction methodologies, data exploration, and mining.

**HLIN 438. Revenue Cycle Management for Health Care. 4 Units.**
In-depth analysis of the U.S. health-care reimbursement system. Addresses principles of revenue cycle management, payment methodologies, and associated data requirements.

**HLIN 439. Management in Health Care. 4 Units.**
Principles of management and human resources, including: human resource acquisition, training, development, and evaluation; productivity; benchmarking; problem solving, and decision making.

**HLIN 440. Leadership and Strategy Management in Health Care. 4 Units.**
Leadership theory and principles, including: communication skills; negotiating and influencing; team building and management; workflow optimization; strategy and vision planning; diversity and cultural influences. Reflection and evaluation assessment of personal awareness, strengths, and weaknesses.

**HLIN 454. Professional Practice Experience II. 4 Units.**
Provides supervised professional practice experience (120 hours) in health information management (virtual and in-person), with a minimum of 40 hours at an approved health-care or health-related facility. Combines written and oral reports of experience with classroom discussion. International experience may be available. Prerequisite: HLIN 354; or consent of instructor.

**HLIN 472. Information Systems Management in Health Care II. 4 Units.**
Advanced study of information system development, diffusion, and strategic application in health care and alignment with terminologies, vocabularies, and nomenclatures. System usability, regulatory compliance, advanced security, interoperability, and valuation examined. Health information organizations and operations, consumer and public health informatics, internal and external data integrity and validity. Prerequisite: HCBL 471.

**HLIN 483. Alternative Delivery Systems in Health Care. 4 Units.**
Focuses on health information management in delivery systems such as: long-term care, hospital-based and free-standing ambulatory care, hospice, home health, dialysis centers, veterinary medicine, consulting, correctional facilities, mental health, substance abuse, dental, rehabilitation, managed care, and cancer registry. Health record content, format, and regulatory requirements; the role of the HIM professional; data collection; risk and utilization management; and quality improvement areas.

**HLIN 484. Current Topics in Health Information Administration. 4 Units.**
Focuses on career planning, management skills, and professional development. Health information management professionals working in various health-care settings share their knowledge and experience with students. Includes preparation exercises for the national credentialing examination.

**HLIN 493. Health Information Management I. 4 Units.**
Introduces basic management functions, philosophies, principles, and tools of health-care management. Emphasizes management theory, management tools, and application. Specific topics include: planning, organizing, controlling, management by objective, problem solving and decision making, and group dynamics.

**HLIN 494. Health Information Management II. 4 Units.**
Advanced study of topics relevant to management and leadership in the HIM profession, including leadership theory and strategies; ergonomics/workplace design; individual and organizational productivity; innovation and change management; labor legislation; emotional intelligence; cultural and workforce diversity; ethical and social responsibility; disaster preparedness; entrepreneurism; tactical and strategic planning; contemporary leadership issues.

**HLIN 499. Health Information Administration Independent Study. 1-4 Units.**
Student submits a project or paper on a topic of current interest in an area of health information administration. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest. May be repeated.

# Health Professions Education (HPED)

## Courses

**HPED 504. Pedagogy and Technology. 3 Units.**
Teaching and learning theories adapted to technology. Explores learning management systems. Overview of instructional design.

**HPED 517. History and Philosophy of Adventist Medical and Health Education. 3 Units.**
Explores the essence of Loma Linda University and the Seventh-day Adventist philosophy of medical and health education as found in the writings of Ellen G. White and others. Discusses the core values of LLU and the science and promotion of healthy lifestyles and health-care delivery.

**HPED 525. Education Theory for the Health Professional. 3 Units.**
Overview of education theories relevant to andragogy and education of health professionals. Also explores theories of online teaching and learning.

**HPED 535. Current Issues in Health Professions Education. 3 Units.**
Explores education foundations and trends in the different health professions. Reviews historic transitions and issues currently impacting the professions.

**HPED 551. Master's Thesis I. 3 Units.**
Selection of research topic, evaluation of current literature on the subject, and contruction of data collection instrument. Students can select this option in lieu of the HPED Capstone Project 1. Prerequisites: completion of the core courses in the MS degree program in Health Professions Education, and in consultation with the program director.

**HPED 552. Master's Thesis II. 3 Units.**
Collection of data using approved instrument, analysis of results, discussion, and documentation of findings according to thesis format. Prerequisites: Successful completion of HPED 551 Master's Thesis I and consent of program director.

**HPED 561. Leadership in the Health Professions I. 3 Units.**
Inventory and assessment of personal leadership skills and strengths in a faith-based context.

**HPED 562. Leadership in the Health Professions II. 3 Units.**
Overview of theories of leadership as applied to academic and health professions contexts. Study of leadership characteristics of significant individuals. Prerequisite: HPED 561 Leadership in the Health Professions I.

**HPED 573. Readings in Academic Leadership. 3 Units.**
Dynamics of leadership in an academic environment. Explores and discusses the historical and current natures of academic leadership.

**HPED 581. Capstone Project in Health Professions Education I. 3 Units.**
Students address and present a substantial issue related to their professional area of interest, as well as design and implement a scholarly approach towards its resolution. Emphasizes the design, literature review, and needs assessment of the project. A thesis option available for students requiring a directed research study.

**HPED 582. Capstone Project in Health Professions Education II. 3 Units.**
Continues HPED 581. Students present their findings, emphasizing data collection, implementation, and evaluation of their project. A thesis option available for students who require a directed research study. Prerequisite: HPED 581.

**HPED 595. Special Projects. 1-6 Units.**
Individual arrangements for graduate students to explore relevant areas under the guidance of a faculty mentor. May include readings, literature reviews, research projects, and specialized professional development. Minimum of thirty hours required for each unit of credit.

# Health Promotion and Education (HPRO)

## Courses

**HPRO 500. Stress Management. 2 Units.**
Covers aspects of stress as it relates to health. Addresses definitions of stress, emphasizing the potential effect of stress on physical and mental diseases. Presents coping mechanisms, e.g., cognitive behavior therapy, music therapy, spirituality, and several other techniques. Presented in a service-learning format in which students are in direct contact with the community applying stress-prevention and coping strategies.

**HPRO 501. Human Anatomy and Physiology I. 6 Units.**
Systematic investigation of the form and function of human biological systems. Laboratory included. Limited to doctoral degree students.

**HPRO 502. Human Anatomy and Physiology II. 6 Units.**
Continues HPRO 501. Systematically investigates the form and function of human biological systems. Laboratory included. Limited to doctoral degree students.

**HPRO 509. Principles of Health Behavior. 3 Units.**
Introduces key health behavior-change theories and psychosocial determinants of health behaviors. Provides an overview of motivation, stress and coping, addiction, culture, and religion as related to health behavior. Laboratory emphasizes communication, leadership, and group process activities.

**HPRO 515. Mind-Body Interactions and Health Outcomes. 3 Units.**
Studies the effect of the neurological system on physical health, with a focus on psychoneuro-immunology. Summarizes scientific disciplines that study brain, immune system, and health behavior interactions that provide the healthcare professional with an integrative understanding of lifestyle, whole person care for immune system function and wellness. Prerequisite: Anatomy and physiology, biochemistry.

**HPRO 519. Pharmacology. 3 Units.**
Basic and clinical pharmacology. Emphasizes drugs of concern to health promotion specialists. Principles of drug addiction, drug receptors and pharmacodynamics, pharmacokinetics, and practical uses for drugs. Prerequisite: Anatomy and physiology, general chemistry, organic chemistry, biochemistry.

**HPRO 524. Child and Adolescent Health. 3 Units.**
Studies developmental and health problems unique to the child and adolescent periods of life. Focuses on special needs and public health programs designed to reach children and adolescents. Gives attention to special problems, such as social adaptation, juvenile delinquency, drug abuse, suicide, adolescent pregnancy.

**HPRO 526. Lifestyle Diseases and Risk Reduction. 3 Units.**
Discusses current lifestyle diseases, including: cardiovascular, metabolic, communicable, and nutritional. Concepts regarding risk factors, screening approaches, and risk reduction, with impact on specific health parameters. Prerequisite: Anatomy and physiology; or consent of instructor.

**HPRO 527. Obesity and Disordered Eating. 3 Units.**
Explores causes and development of obesity, principles of weight management, and relapse prevention. Includes discussion of the causes and treatment of anorexia nervosa and bulimia.

**HPRO 529. Preventive and Therapeutic Interventions in Chronic Disease. 3 Units.**
Specific preventive care techniques dealing with lifestyle and chronic disease in the clinical environment. Multidisciplinary lifestyle interventions in the prevention and treatment of dyslipidemia, diabetes, hypertension, osteoporosis, sleep disorders, and other chronic conditions. Uses case studies and role playing to explore interventions in a variety of clinical scenarios.

**HPRO 530. Fundamentals of Research in Health Behavior and Health Education. 3 Units.**
Introduces research in behavioral health and health education sciences. Application of research principles and techniques to quantitative research methods and surveys in health education. Includes: reading and use of published research; development of research questions; hypotheses testing; selection of research methods; data collection; causal inference; reliability; validity; measurement; and, research ethics.

**HPRO 531. Pathology of Human Systems I. 3 Units.**
Fundamental mechanisms of disease, including degenerative changes and physical and chemical injury. Reviews diseases by organ system: endocrine, biliary, hepatic, respiratory, digestive, urogenital, skeletal, and central nervous. Limited to doctoral degree students.

**HPRO 532. Pathology of Human Systems II. 3 Units.**
Introduces micropathological organisms. Surveys tissue changes in infectious diseases. Growth disorders, including: basic genetic problems and neoplasia; cardiovascular, circulatory, and inflammatory systems. Limited to doctoral degree students. Prerequisite: HPRO 531.

**HPRO 534A. Research Methods. 2 Units.**
Philosophy of scientific research, sources of research invalidity, quantitative and qualitative literature review techniques, setting research goals and objectives, quasi-experimental and experimental design, research ethics. Requires presentation and critique of published research and literature review. Taken over the course of two quarters for a total of 4 units (HPRO 534A, 2 units Winter Quarter; and HPRO 534B, 2 units Spring Quarter). Doctoral students only. Prerequisite: STAT 509.

**HPRO 534B. Research Methods. 2 Units.**
Philosophy of scientific research, sources of research invalidity, quantitative and qualitative literature review techniques, setting research goals and objectives, quasi-experimental and experimental design, research ethics. Requires presentation and critique of published research and literature review. Taken over the course of two quarters for a total of 4 units (HPRO 534A , 2 units Winter Quarter; and HPRO 534B, 2 units Spring Quarter). Doctoral students only. Prerequisite: HPRO 534A.

**HPRO 535. Health Education Administration and Leadership. 3 Units.**
Analyzes the managerial and leadership roles of the health education specialist in both public and private health organizations. Emphasizes organizational structure and health communication; as well as managing, supervising, marketing, decision making, and other administrative roles.

**HPRO 536. Program Planning and Evaluation. 2 Units.**
Introductory course that utilizes the planning cycle to address public health problems. Analyzes trends in health-care planning. Applies planning cycle to selected topics. Provides overview of evaluation design, methodology, and instrument development for health education programs. Laboratory included.

**HPRO 537A. Community Programs Laboratory—A. 2 Units.**
First in a three-course sequence operationalizing qualitative research methods. Includes: conducting observational assessments, windshield surveys, and personal interviews; participating in focus groups; and, compiling secondary data for a community-needs assessment. Preparation for implementation and evaluation of health education programs.

**HPRO 537B. Community Programs Laboratory—B. 1 Unit.**
Student-designed marketing and evaluation plans for community-based health education program. Student implements and evaluates programs developed during HPRO 537A. Prerequisite: HPRO 537A.

**HPRO 537C. Community Programs Laboratory—C. 1 Unit.**
Students continue their marketing plan while implementing and evaluating their programs in the community. Students write a plan for program sustainability with community organizations as stakeholders.

**HPRO 538. Health Education Program Development and Evaluation. 3 Units.**
Uses program-planning theories, models, and diagnostic techniques to design, deliver, and evaluate health promotion and education programs in community, occupational, educational, and health care settings. Presents steps in the health educational planning process. Includes: assessments; goals and objectives; intervention strategies; behavioral and educational theories; instructional delivery and designs; evaluation; and, reporting.

**HPRO 539. Policy and Issues in Health Education. 3 Units.**
Examines and discusses policy issues, trends, and strategies relating to health education—including but not limited to HIV/AIDS, women's health, injury prevention and control, tobacco and other drug issues, and health issues in ethnically diverse populations. Provides opportunities to develop and improve presentation skills. Project included.

**HPRO 541. Wellness Coaching I. 3 Units.**
Covers the fundamentals of the coaching structure and process, from coach preparation to program termination—including the legal and ethical implications. Explores specific components of the coaching process, with special attention given to coach/client relationship, empathetic communication skills, importance of client reflections, and goal setting. Introduces the Wellness Mapping 360 tool to lay the foundation for the coaching plan.

**HPRO 542. Wellness Coaching II. 3 Units.**
Reviews the wellness coaching process. Introduces students to effective methodology of motivational interviewing. Explores the techniques and theories associated with this coaching method. Covers in detail the skills needed to successfully motivate patients toward healthier lifestyles. Gives attention to practical information needed to be a successful health professional. Includes overview of positive psychology methods and theory. Prerequisite: HPRO 541.

**HPRO 543. Writing for Health Professionals. 3 Units.**
Writing by health professionals for popular, lay, or professional publications. Student selects journal or magazine, writes query letter, and prepares abstract and manuscript in final form for submission. Includes preparation of camera-ready art. Preparation of two publishable papers. Limited to doctoral degree students.

**HPRO 544. Health Education Evaluation and Measurement. 3 Units.**
Student selects and develops health education and psychosocial measurement instruments, determines validity and reliability of evaluation tools, provides overview of data-collection methods and protocols, analyzes and interprets results, and communicates evaluation findings. Limited to doctoral degree students.

**HPRO 553. Addiction Theory and Program Development. 3 Units.**
Applies addiction process theory in a practical way to program development. Emphasizes alcohol, tobacco, and other drug (ATOD) problems, using case studies and extensive reading as part of a problem-solving approach. The epidemiological, pathological, physiological, psychological, and spiritual bases for prevention and treatment of addictions. Laboratory included.

**HPRO 556. High-Risk Infants and Children: Policy and Programs. 3 Units.**
Examines development of at-risk infants and children, and evaluates interventions that may modify cognitive and social outcomes. Includes, medical and social risk factors, and efficacy of early-intervention and survival strategies globally and locally. Examines legal, regulatory, and ethical issues.

**HPRO 559. Lactation Management. 3 Units.**
Analyzes the managerial and leadership roles of the health education specialist in both public and private health organizations. Emphasizes organizational structure and health communication; as well as managing, supervising, marketing, decision making, and other administrative roles.

**HPRO 565. Tobacco Use: Prevention and Interventions. 3 Units.**
Second of three courses providing an overview of the underlying pathophysiology of the health impact of tobacco use on individuals, families, and society. Includes: smoking behavior; pharmacodynamics of nicotine delivery; mechanisms of nicotine addiction; and, individual, group, systems, and public intervention strategies. Incorporates principles of epidemiology, anatomy, physiology, immunology, endocrinology, and biochemistry.

**HPRO 570. Wellness Coaching Lab. 1 Unit.**
Provides a review of the wellness coaching process and introduces students to direct client interaction. Requires fifty sessions of wellness coaching practice in the field, offering students the creative opportunity to apply and integrate skills and knowledge gained in the preceding terms of the program. Requires students to use the learned skills and knowledge to schedule, coach, and educate individuals in client-centered individual sessions.

**HPRO 573. Exercise Physiology I. 3 Units.**
Basic preparation for development and leadership of exercise programs. Includes exercise physiology, training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included.

**HPRO 578. Exercise Physiology II. 3 Units.**
Physiologic basis of the normal body function during exercise. Emphasizes the training effects of aerobic exercise. Noninvasive laboratory methods of the study of the circulatory and respiratory systems. Laboratory included. Prerequisite: HPRO 573; and basic physiology.

**HPRO 580. Preventive Care Management. 3 Units.**
Prepares students for careers in preventive care. Covers three areas of preventive care: teaching, worksite wellness, and clinical practice. Enhances skills and tools needed in preventive care practice. Limited to doctoral candidates in preventive care.

**HPRO 586. Introduction to Preventive Care. 1 Unit.**
Provides overview of preventive care's role within public health. Orientation to doctoral program, with attention to professional portfolio preparation. Limited to doctoral degree students in preventive care.

**HPRO 587. Preventive Care Practice Management. 2 Units.**
Provides overview of issues and challenges in the operation of a preventive care practice. Emphasizes billing and reimbursement issues, and legal and ethical responsibilities of the preventive care specialist. Limited to doctoral degree students in preventive care.

**HPRO 588. Health Behavior Theory and Research. 4 Units.**
Analyzes factors contributing to health behavior decisions. Theory and research relevant to individual, family, organization, and community behavior. Emphasizes critical-thinking, professional writing, and oral presentation. Application of theory to development of a basic research proposal. Limited to doctoral degree students. Consent of instructors for nondoctoral degree students. Prerequisite: HPRO 509; or equivalent.

**HPRO 589. Qualitative Research Methods. 3 Units.**
Applies qualitative methods to instrument design, sampling, and data collection. Focuses on public health issues, ethics, and theory-building. Supervised needs assessment in a selected community.

**HPRO 590. Worksite Wellness. 3 Units.**
Prepares students to enter the field of corporation wellness as leaders not only in developing, implementing, and evaluating wellness work-site programs; but also in decreasing the burden on corporation health, morale, budget, and performance caused by lifestyle-related diseases.

**HPRO 595. Community Project. 1-4 Units.**
Provides the student with an individual, hands-on experience to apply the principles learned in the didactic courses of the health education program. Students plan, implement, and evaluate a health education intervention based on the findings of the needs assessment. Programs consist of several sessions, individually planned and taught by the student. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable. Prerequisite: Consent of instructor.

**HPRO 604. Research Seminar. 2 Units.**
Student develops and critiques doctoral project proposals, with peer review of research protocols. Limited to doctoral degree students. Prerequisite: PHCJ 600; consent of program director.

**HPRO 606. Motivational Interviewing. 2 Units.**
Introduces students to the effective methodology of motivational interviewing. Explores the techniques and theories associated with this treatment method. Covers in detail the skills needed to successfully motivate patients toward healthier lifestyles. Gives attention to practical information needed to be a successful health professional. Prerequisite: Minimum of 90 units of coursework toward Dr.P.H. (preventive care) degree.

**HPRO 608. Advanced Seminar in Health Education. 2 Units.**
Studies current issues in health promotion and education from the standpoint of historical setting. Explores emerging challenges to professional preparation in health promotion and education, and the place of professional health educators in the practice of public health. Must be taken for a total of 6 units. Limited to health education doctoral degree students.

**HPRO 685. Preliminary Research Experience. 2 Units.**
Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation/research project. Limited to doctoral degree students.

**HPRO 696. Directed Study/Special Project. 1-4 Units.**
Individual arrangements for advanced students to study under the guidance of a program faculty member. May include reading, literature review, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program. Prerequisite: Consent of instructor and of program advisor.

**HPRO 697. Dissertation Proposal. 1-10 Units.**
Doctoral student develops the written dissertation proposal and collaborates with doctoral dissertation committee chair on mutually agreed-upon objectives, which will serve as the basis for evaluation. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Prerequisite: Successful completion of comprehensive exams.

**HPRO 698. Dissertation. 1-14 Units.**
Student prepares a manuscript presenting results of the doctoral research study. Limited to doctoral degree candidates. Prerequisite: Advancement to Candidacy.

**HPRO 704A. Internship. 2 Units.**
Training and supervised experience (minimum of 100 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. May be repeated for a total of up to 12 units.

**HPRO 704B. Internship. 4 Units.**
Training and supervised experience (minimum of 200 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. May be repeated for a total of up to 12 units.

**HPRO 704C. Internship. 6 Units.**
Training and supervised experience (minimum of 300 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students.

**HPRO 704D. Internship. 8 Units.**
Training and supervised experience with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. A ten-week (40 hours/week) field internship.

# Implant Dentistry (IMPD)

## Courses

**IMPD 505. Patient Presentation Seminar. 1 Unit.**
Presents implant patient treatment, discusses alternate methods of rehabilitation and related literature. Repeated registrations required to fulfill the total units.

**IMPD 547. Implant Dentistry Grand Rounds. 1 Unit.**
Weekly review of surgeries scheduled for the upcoming week in order to facilitate successful outcomes. Includes analysis of challenges, latest recommendations, techniques for minimizing postoperative side effects, and implementation of strategic surgical procedures.

**IMPD 561. Dental Bioengineering. 2 Units.**
Studies the structures and properties of dental implant materials and implant prosthodontic superstructures.

**IMPD 585. Implant Prosthodontics. 2 Units.**
Gives the graduate student in implant dentistry in-depth didactic and clinical instruction in techniques and procedures related to the rehabilitation of patients with prosthodontic devices supported by dental implants. Advanced clinical and laboratory procedures, emphasizing implant restorations for completely and partially edentulous patients. Emphasizes attachments and superstructure design. Repeated registrations required to fulfill the total units.

**IMPD 601. Literature Review in Implant Dentistry. 2 Units.**
Reviews historical and/or fundamental implant dentistry literature. Repeated registrations required to fulfill the total units.

**IMPD 604. Current Literature Review in Implant Dentistry. 2 Units.**
Gives the postdoctoral students in implant dentistry a deeper understanding of the research and literature currently available. Repeated registrations required to fulfill the total units.

**IMPD 611. Introduction to Implant Dentistry. 2 Units.**
Overview of the clinical science of implant dentistry, including etiology, therapy, clinical methods, and record keeping.

**IMPD 612. Advanced Implant Dentistry. 2 Units.**
Provides postdoctoral students with the knowledge and techniques of advanced prosthodontic and implant procedures—notably those involved in sinus graft surgery, surgical repairs of implant defects, and the principles involved in immediate loading of implants.

**IMPD 631. Oral Implant Surgery. 1 Unit.**
Instruction in basic and advanced implant surgery principles. Repeated registrations required to fulfill the total units.

**IMPD 634. Diagnosis and Treatment Planning in Implant Dentistry. 1 Unit.**
Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems. Repeated registrations required to fulfill the total units.

**IMPD 637. Peri-Implant Histopathology. 1 Unit.**
Gives the postdoctoral student in implant dentistry a better understanding of the implant interface and biological changes that take place in the tissues surrounding dental implants following their placement.

**IMPD 654. Practice Teaching in Implant Dentistry. 1-3 Units.**
Teaching experience in implant prosthodontics and implant surgery.

**IMPD 696. Scholarly Activity in Implant Dentistry. 1 Unit.**
Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in implant dentistry. Multiple registrations may be needed to complete these activities.

**IMPD 697A. Research. 1 Unit.**
Student identifies a research project, prepares a proposal, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities. This is a required course for the Master of Science (M.S.) and Master of Science in Dentistry (M.S.D.) degrees.

**IMPD 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**IMPD 697C. Research. 1 Unit.**
Student completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**IMPD 698. Thesis. 1-8 Units.**

**IMPD 725. Clinical Practice in Implant Dentistry. 4 Units.**
Experience in the clinical diagnosis and treatment of patients who may benefit from implant dentistry therapy. Repeated registrations required to fulfill total clock hours. A minimum of 120 clock hours per quarter. Repeated registrations required to fulfill total units.

**IMPD 726. Clinical Practice in Periodontics in Implant Dentistry. 2 Units.**
Clinical experience in the diagnosis and treatment of periodontal diseases. Repeated registrations required to fulfill total units. A minimum of sixty clock hours per quarter. Repeated registrations required to fulfill total units.

**IMPD 727. Clinical Practice of Prosthodontics in Implant Dentistry. 2 Units.**
Advanced clinical practice in the treatment of individuals with fixed, removable, maxillofacial, and implant prostheses. Repeated registrations required to fulfill total units. A minimum of sixty clock hours per quarter. Repeated registrations required to fulfill total units.

# Instructional Design and Media Technology (IDMT)

## Courses

**IDMT 521. Instructional Design I. 3 Units.**
Examines adult instructional theories and teaching approaches to increase student learning outcome success. Exposes students to latest instructional resources, techniques, and technology. Emphasizes communication during the design process and use of instructional theories and tools to communicate course content effectively.

**IDMT 522. Instructional Design II. 3 Units.**
Develops and applies strategies for instructional theory utilizing media, including making rational choices regarding technology and communication.

**IDMT 531. Host Systems and Authoring I. 3 Units.**
Provides a working knowledge of various online educational systems, as well as the basic approaches to and differences in creating courses within those systems. Not a programming course.

**IDMT 541. Digital Media Production I. 3 Units.**
Introduces students to the production process basics (editing, graphics, and animation) needed to create effective instructional modules. Students shoot, edit, and deliver a completed DVD and upload to the web a digital file of a completed instructional module. Along with hands-on learning of the entire process, students explore key concepts relating to visual learning and how to create and communicate effectively with visual images.

**IDMT 542. Digital Media Production II. 3 Units.**
Explores advanced production techniques (editing, graphics, and animation), emphasizing the production of an instructional video. Introduces shooting and editing techniques unique to creating interactive, instructional media. Students produce an online instructional video and an interactive educational module for a tablet. Prerequisite: IDMT 541.

**IDMT 561. Graphics I. 3 Units.**
Introduces students to Adobe Photoshop and exposes them to advanced graphic capabilities of editing software packages. Emphasizes exploration of layout techniques that maximize educational effectiveness. Prerequisite: IDMT 521, IDMT 541, IDMT 542.

**IDMT 564. Motion Graphics I. 3 Units.**
An Adobe After Effects introductory course. Students become proficient with the software, research various characteristics of visual learning, and create simple interactive motion graphics that can be included in an interactive educational module. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542.

**IDMT 571. Animation I. 3 Units.**
Introduces students to 2D and 3D animation software packages. Emphasizes proper animation techniques as specific software packages are learned. Students research existing education-focused animations.

**IDMT 581. Instructional Design and Media Technology Internship I. 3 Units.**
The first of two required internships that provides opportunity for students to work for a short time in areas that will provide practical experience. Encourages students to seek opportunities that emphasize the creative side of media production. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542.

**IDMT 582. Instructional Design and Media Technology Internship II. 3 Units.**
The second of two required internships. Encourages students to seek opportunities that specifically provide experience creating digital courses or working with community partners. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542, IDMT 518 and one IDMT elective.

# Integrated Biomedical Graduate Studies (IBGS)

## Courses

**IBGS 501. Biomedical Communication and Integrity. 2 Units.**
Improves students' scientific communication skills, as well as increases their awareness of proper ethical conduct in biomedical research. Teaches appropriate techniques for written and oral presentations; as well as ethics and standard practices for record keeping, data analysis, and authorship.

**IBGS 502. Biomedical Information and Statistics. 2 Units.**
Introduces students to the basics of statistical analysis in a relevant biomedical setting. Additionally, provides practical information on the use of database systems and software tools for data management and analysis.

**IBGS 503. Biomedical Grant Writing. 2 Units.**
Encompasses the process of writing a biomedical research grant from medical problem through final draft of an NIH-style research proposal. With guidance from the instructor, students design and write a research proposal that is ready for submission to the NIH. Familiarizes students with potential funding sources, the process of formulating a fundable research plan, and communicating that plan in an appropriate format.

**IBGS 511. Cellular Mechanisms and Integrated Systems I. 6 Units.**
The first quarter of a two-quarter sequence designed to give first-year graduate students an exposure to major core concepts of molecular and cellular biology.

**IBGS 512. Cellular Mechanisms and Integrated Systems II. 6 Units.**
The second quarter of a two-quarter sequence designed to give first-year graduate students an exposure to major core concepts of molecular and cellular biology.

**IBGS 513. Cellular Mechanisms and Integrated Systems III. 8 Units.**
The third quarter of a three-quarter sequence designed to give first-year graduate students a broad, integrated exposure to the molecular and cellular basis of modern human biology. Focuses on how cells and molecules work together to create functioning organs, ending with a treatment of genetic, lifestyle, and microbial contributions to human pathology. Prerequisite: IBGS 511, IBGS 512.

**IBGS 522. Cellular Mechanisms and Integrated Systems II Journal Club. 2 Units.**
A component of IBGS, taught in a journal-club format. Presents and discusses recent literature related to IBGS 512.

**IBGS 523. Cellular Mechanisms and Integrated Systems III Journal Club. 2 Units.**
Employs a journal-club format that explores contemporary topics of program-specific interest to class participants.

**IBGS 525. Translational Research Training. 2 Units.**
This is an interactive course that brings graduate students together with medical students, clinical residents and clinical fellows in a small group setting, where they learn to develop a translational research plan for addressing clinical problems and engage various components of the community to facilitate and foster translational research leading to improved patient care and healthier communities. This course has been approved as a service learning course.

**IBGS 537A. Special Topics in Biomedical Sciences. 1-4 Units.**
Current topics in biomedical sciences. Specific content varies from quarter to quarter. May be repeated for additional credit.

**IBGS 537B. Special Topics in Biomedical Sciences. 1-4 Units.**
Current topics in biomedical sciences. Specific content varies from quarter to quarter. May be repeated for additional credit.

**IBGS 537C. Special Topics in Biomedical Sciences. 1-4 Units.**
Current topics in biomedical sciences. Specific content varies from quarter to quarter. May be repeated for additional credit.

**IBGS 604. Introduction to Integrative Biology Presentation Seminar. 1 Unit.**
Students attend a series of research descriptions presented by graduate students.

**IBGS 605. Integrative Biology Presentation Seminar. 1 Unit.**
A seminar course that gives graduate students in the basic sciences an opportunity to practice oral presentations on current research or current literature covering the various aspects of regulatory and integrative biology as applied to molecules, cells, tissues, organs, systems, and microbes. Students and faculty participate in a discussion and critical evaluation of the presentation.

**IBGS 607. Integrated Biomedical Graduate Studies Seminar. 1 Unit.**
Weekly seminars presented by invited speakers in the biomedical sciences disciplines. Students required to register for course every quarter throughout their training.

**IBGS 696. Research Rotations. 1 Unit.**
Incorporates the research rotations to be completed before assignment to a dissertation or thesis laboratory.

**IBGS 698. Thesis. 1-5 Units.**
Addresses development of a thesis document, presentation of results, and project defense. May coincide with completion of the degree but does not equate with degree completion.

**IBGS 699. Dissertation. 1-5 Units.**
Student produces a dissertation document describing the research project and its results, and defends the project from challenges offered by the members of their faculty dissertation committee. May coincide with completion of the degree but does not equate with degree completion, which requires submission of the final dissertation to the Faculty of Graduate Studies. Prerequisite: Successful completion of the written comprehensive examination.

# International Dentist Program/Clinics (IDPC)

## Courses

**IDPC 815. Clinical Orientation I - IDP. 2 Units.**
Introduces the electronic patient record, reviews radiology safety, discusses professional liability, and introduces clinical regulatory compliance in dentistry. Introduces partner activities involving data gathering, radiology, periodontic activities, and photography.

**IDPC 816. Clinical Orientation II - IDP. 1 Unit.**
Builds on IDPC 815. Continues instruction related to the electronic patient record; discusses patient-management techniques, treatment planning, and practice-management issues; discusses clinic policies and infection control. Discusses financial planning for patients, as well as quality assurance and improvement. Continues partner activities, interpretation of data, and case presentation—including periodontal diagnoses.

**IDPC 817. Clinical Orientation III - IDP. 1 Unit.**
Builds on IDPC 815 and IDPC 816. Continues instruction related to the electronic patient record, bridging the transition from preclinical to clinical experience. Discusses long-term assessment of care outcomes and professional relationships. Continues partner activities.

**IDPC 825. General Clinics. 15 Units.**
Includes direct patient care through rotations in urgent care, pediatric, service learning, and screening blocks. Requires registrations Autumn and Winter quarters of the IDP3 year to fulfill the total units.

**IDPC 826. General Clinics. 6 Units.**
Provides direct patient care experience in urgent care, pediatric, service learning, and screening settings.

**IDPC 827. General Clinics. 13 Units.**
Provides direct patient care experience in urgent care, pediatrics, service learning, and screening settings.

**IDPC 835. General Clinics. 19 Units.**
Includes direct patient care through rotations in urgent care, pediatric, service learning, and screening blocks.

**IDPC 836. General Clinics. 16 Units.**
Provides direct patient care experience in urgent care, pediatric, service learning, and screening settings.

**IDPC 845. General Clinics - Direct Patient Care. 18 Units.**
Includes direct patient care.

**IDPC 846. General Clinics. 16 Units.**
Provides direct patient care experience in urgent care, pediatric, service learning, and screening settings.

# International Dentist Program/ General (IDPG)

## Courses

**IDPG 718. Communication Basics for the International Student. 1 Unit.**
Student develops interpersonal competencies in the various professional communication roles expected of a dentist. Topics include team building, cross-cultural communication, dental fears and phobias, mental illness, and behavior change.

**IDPG 845. Evidence-Based Dentistry. 2 Units.**
Scientific methods in dental research. Includes critical evaluation of published articles, research design, statistical analysis, evaluation of results, design of research reports, extensive reviews of various topics.

# International Dentist Program/Oral Pathology (IDPO)

## Courses

**IDPO 535. Oral Pathology and Diagnosis. 3 Units.**
Graduate-level survey of pathology. Studies developmental, infectious, immunologic, neoplastic, and metabolic disorders of the head and neck. Includes epidemiology, etiology, clinical and/or radiographic features, microscopic features, and management of disease. Emphasizes differential diagnosis and management of dental lesions.

**IDPO 720. Oral and Maxillofacial Radiology for the IDP Program. 2 Units.**
Emphasizes the integral role played by the radiographic examination in the diagnostic process in dentistry, in conjunction with the clinical examination. Reinforces the basic principles of oral and maxillofacial radiology.

**IDPO 725. Patient Assessment and Data Management II. 2 Units.**
Builds on IDPO 723 by continuing physical evaluation, data collection, and the problem-oriented dental record. Supervised clinical experience with fellow students as "patients." Student develops a treatment plan and presents it to the patient. Continued computer-based treatment plan management.

**IDPO 726. Patient Diagnosis and Treatment Planning. 2 Units.**
Discusses treatment options in treatment planning, with case-based treatment planning exercises. Introduces computer-based treatment plan management.

**IDPO 826. Oral and Maxillofacial Surgery. 2 Units.**
Reviews oral and maxillofacial surgery—including medical history pharmacology, instrumentation, procedures, dental emergencies, and complications. Includes a laboratory component.

**IDPO 827. Oral and Maxillofacial Surgery. 2 Units.**
Sequential course following IDPO 826. Reviews oral and maxillofacial surgery—including preprosthetic surgery, dental alveolar surgery, implant surgery, oral trauma, maxillofacial trauma, and preoperative infections. Reviews medications in the treatment of dentally related diseases and their potential interaction with total patient care. Emphasizes local anesthesia and nitrous oxide theory and technique. Includes clinical partner practice in local anesthesia and nitrous oxide.

# International Dentist Program/ Periodontics and Pediatric Dentistry (IDPP)

## Courses

**IDPP 754. Fundamentals of Periodontics. 2 Units.**
Overview of clinical periodontics—including etiology of periodontal disease, oral hygiene instruction, scaling, root planing, antimicrobial therapy, and a variety of surgical concepts and techniques. Anticipated results of therapy, including options of surgical versus nonsurgical approaches. Includes a laboratory component.

**IDPP 756. Pediatric Dentistry. 2 Units.**
Dental disease prevention (oral hygiene, diet, fluoride, pit and fissure sealants). Behavior management of the child dental patient. Diagnosis, treatment planning, and operative dentistry for children. Pediatric pulp therapy, dental arch-length management, local anesthesia and sedation for children. Medical aspects of pediatric dentistry.

**IDPP 756L. Pediatric Dentistry Laboratory. 1 Unit.**
Technique course that accompanies IDPP 756. Student performs operative procedures for amalgam and composite resin on simulated primary and young permanent teeth. Student performs pulpotomies on primary molar teeth and prepares primary teeth for stainless steel, open-faced stainless steel, and resin crowns. Fabricates unilateral and bilateral space maintainers.

**IDPP 759. Periodontal Therapy. 2 Units.**
Presents variations in periodontal diseases related to various host conditions. Overview of roles, limitations, and effects of surgical periodontal procedures. Includes: surgery outcomes compared with short- and long-range effects of conservative therapies; the role of dental health-care providers in periodontal therapy; and, special problems in periodontal care.

# International Dentist Program/ Restorative (IDPR)

## Courses

**IDPR 701. Operative Dentistry I. 2 Units.**
Reviews the basic principles and techniques used in cavity preparation and restoration of teeth with silver alloy. Lecture and laboratory course.

**IDPR 702. Operative Dentistry II. 2 Units.**
Extends basic principles and techniques of cavity preparation and restoration of teeth with aesthetic restorative materials. Studies the source, use, and manipulation of dental materials and their physical properties relative to dentistry. Lecture and laboratory course.

**IDPR 704. Introduction to Occlusion. 2 Units.**
Studies the temporomandibular joint, muscles of mastication, and the teeth in static and dynamic positions.

**IDPR 761. Removable Prosthodontics I. 2 Units.**
Reviews the basic clinical and laboratory removable prosthodontic procedures involved in the fabrication of removable prosthesis. Includes a laboratory component.

**IDPR 762. Removable Prosthodontics II. 2 Units.**
Reviews the laboratory phases of diagnosing, planning treatment for CD, immediate CD, and relines. Includes a laboratory component.

**IDPR 763. Removable Prosthodontics III. 2 Units.**
Biomechanics of removable partial dentures and their design and fabrication. Diagnosis and treatment planning for removable partial dentures. Clinical and laboratory procedures and sequencing of treatment for removable partial and complete dentures. Lecture and laboratory course.

**IDPR 771. Fixed Prosthodontics I. 2 Units.**
Reviews basic tooth preparation for single-casting restorations, tissue management, impression techniques, and temporary restorations. Lecture and laboratory course.

**IDPR 772. Fixed Prosthodontics II. 2 Units.**
Reviews the basic design and fabrication of multiple unit fixed partial denture, tissue management, impression techniques, and temporary restorations–including single units and fixed partial dentures. Lecture and laboratory course.

**IDPR 854. Implant Dentistry for the IDP Student. 3 Units.**
Scientific and technical foundation for implant surgery and expansion of basic implant procedures. Postplacement care, long-term maintenance, and clinical complications associated with dental implants. Emphasizes restoration of single implants, multiple quadrant posterior implants, and over-denture implants. Lecture and laboratory course.

# Marriage and Family (MFAM)

## Courses

**MFAM 501. Research Tools and Methodology: Quantitative. 3 Units.**
Current social research methods, practice in the use of techniques, consideration of the philosophy of the scientific method, and familiarization with behavioral health test instruments. Cross-listing: COUN 501.

**MFAM 502. Research Tools and Methodology: Qualitative. 3 Units.**
Qualitative methodology. Prepares students to undertake research projects using the intensive interview method of qualitative research. Explores practical and epistemological issues and problems in qualitative research in a workshop format. Cross-listing: COUN 502.

**MFAM 515. Crisis Intervention and Client Advocacy. 3 Units.**
Presents basic counseling theory, techniques, crisis intervention, and client-centered advocacy in recovery-oriented practice environments. Includes confidentiality, interprofessional cooperation, working with consumers, professional socialization, and collaboration. Discusses suicide, substance abuse, domestic violence, incest, spousal abuse, rape, treating the severely mentally ill, and disaster and trauma response. Cross-listing: COUN 515 .

**MFAM 516. Play Therapy. 2 Units.**
Experiential course that teaches practitioners and graduate students to apply play therapy techniques in dealing with childhood problems such as molestation, physical abuse, depression, trauma, and family conflict.

**MFAM 524. Psychopharmacology and Medical Issues. 3 Units.**
Introduces common physical and medical issues related to the practice of marriage and family therapy. Students learn a biopsychosocial-spiritual model to assess and intervene—with emphasis given to psychopharmacology, neuroanatomy, the mind-body relationship, and research relative to the field of medical family therapy.

**MFAM 528. Culture, Socioeconomic Status in Therapy. 3 Units.**
Addresses current information and historical narratives related to cultural diversity that impact belief systems, communication patterns, roles, and expectations within human relationships and systems. Examines SES and a wide range of social, racial, and ethnic factors that create meanings for individuals, couples, families, and mental health counselors. Emphasizes populations that become professional partners or clients served within this geographic region. Cross-listing: COUN 528.

**MFAM 535. Case Presentation and Professional Studies. 3 Units.**
Introduction to mental health recovery-oriented care. Exploration of personal biases toward various cultures/ethnicities, and how poverty and social stress impact consumers. Reviews ethics developed by the Board of Behavioral Science, the American Counseling Association, and the American Association of Marriage and Family Therapists. Examines spirituality and client-centered advocacy as important processes. Explores the interface between MFTs, counselors, and other professionals.

**MFAM 536. Case Presentation and Documentation. 3 Units.**
Through observation of live cases, trains student in applied psychotherapeutic techniques, assessment, diagnosis, prognosis, and treatment of premarital, couple, family, aging population, the severely mentally ill, and child relationships. Examines dysfunctional and functional aspects, including recovery process, health promotion, evaluation from a systems perspective, documentation, and illness prevention.

**MFAM 537. Case Presentation. 3 Units.**
The third of six quarters of training work that the student will be expected to complete during the course of their on-campus practicum experience. Focuses on the development of a theoretical orientation as a way to develop, critique, and refine the personal and theoretical perspectives of the therapist. A clinically oriented seminar in which students are asked to prepare brief and focused presentations of individual, marital, or family cases.

**MFAM 538. Theory and Practice of Conflict Resolution. 2 Units.**
Overviews the field of conflict management and resolution. Basic theories and methodologies in the field, with opportunity to develop basic clinical mediation skills.

**MFAM 539. Solution-Focused Family Therapy. 2 Units.**
Provides an in-depth understanding of solution-focused family therapy and practice. Focuses on the work of de Shazer and Berg, along with the foundational constructs of MRI.

**MFAM 547. Social Ecology of Individual and Family Development. 3 Units.**
Studies human individual development and its relationship to the family life cycle from birth through aging and death of family members. Discusses biological, psychological, social, and spiritual development in the context of family dynamics involving traditional two-parent families, alternative partnerships, single parents, blended families, and intergenerational communities. Corss-listing: COUN 547.

**MFAM 549. Christian Counseling and Family Therapy. 2 Units.**
Integrates Christian concepts and family therapy in a conceptual and clinical context.

**MFAM 551. Family Therapy: Foundational Theories and Practice. 3 Units.**
Provides an overview of the major theories in marriage and family therapy. Explores systems theory concepts in light of the major models of family therapy. Exposes students to the recovery process and consumer advocacy. Examines evidence-based models—such as cognitive behavioral, multidimensional family therapy (MDFT), and emotional-focused therapy. Through MDFT, exposes students to the treatment of addicted adolescents and their families.

**MFAM 552. Couples Therapy: Theory and Practice. 3 Units.**
Overview of the couples/marital therapy literature—including divorce, child rearing, parenting, step parenting, and blended families. Evidence-based practices studied relevant to consumer treatment and recovery. Examines how culture, SES, poverty, social, stress and addiction affect clinical practice.

**MFAM 553. Family Systems Theory. 3 Units.**
Reviews Bowen theory of family systems. Introduction to family psychotherapy as an outgrowth of the theory. Students examine their own families of origin.

**MFAM 555. Narrative Family Therapy. 2 Units.**
Narrative therapy and social construction as important developments in social theory and in clinical practice. Uses narratives and the role they play in a person's life through language and meaning systems. Examines issues of power, collaboration, culture, community, and re-authoring narratives, particularly in the works of Michael White and David Epston.

**MFAM 556. Psychopathology and Diagnostic Procedures. 3 Units.**
Explores the history and development of psychopathology and how it relates to current clinical practice in general and marriage and family therapy in particular. Utilizes the multiaxial classifications of the current edition of the Diagnostic and Statistical Manual as a practical basis for diagnostics. Cross-listing: COUN 556.

**MFAM 559. Cognitive-Behavioral Couples Therapy. 2,3 Units.**
Experiential course that surveys major cognitive-behavioral family therapy therapists, and integrates treatment techniques into practice in laboratory.

**MFAM 564. Family Therapy: Advanced Foundational Theories and Practice. 3 Units.**
Comprehensively surveys more recent therapy models, such as narrative, collaborative language systems, and solution-focused theory. Using these models, student learns to assess and consider diagnosis; as well as learn the role of language, meaning, and process in relationships. Class examines the theoretical strengths and limitations of these models in relation to culturally diverse populations.

**MFAM 567. Treating the Severely and Persistently Mentally Ill and the Recovery Process. 3 Units.**
Addresses identification, treatment, and referral procedures for severely mentally ill consumers in diverse populations. Focuses on the recovery process and on evidence-based or agreed-upon approaches during treatment. Includes etiology, diagnosis, treatment planning, and prevention of mental and emotional disorders, and dysfunctional behavior.

**MFAM 568. Groups: Process and Practice. 3 Units.**
Surveys major theoretical approaches, including individual theories, marital groups, network, and family therapy groups. Group laboratory experience provided wherein students apply theory to practice and develop group leadership skills. Cross-listing: COUN 568.

**MFAM 584. Advanced Child and Adolescent Development. 3 Units.**
Psychodynamics involved in child and adolescent problems with respect to the family relationship. Demonstrates a variety of counseling approaches to the treatment of children and adolescents, with emphasis on diverse settings (e.g., education, hospital, and agency). Cross-listing: COUN 584.

**MFAM 604. Social Context in Clinical Practice: Gender, Class, and Race. 3 Units.**
Introduces social inequalities that result in unfairness, health disparities, assaults to personal dignity, and family stress. Focuses on how one's position within social hierarchies—such as gender, socioeconomic status, race, and sexual orientation—affects psychological and relational health. Examination of how family therapists and counselors address these social contextual factors as part of a recovery-based approach that empowers people within their relationships and social systems.Cross-listing: COUN 604.

**MFAM 605. Gestalt Family Therapy. 2 Units.**
Principles of Gestalt psychology and therapy; the relationship between the individual and the physical, emotional, societal, and spiritual environment. Group experience that permits the spiritual and affective aspects of Gestalt therapy to be expressed and integrated with systems theory.

**MFAM 606. Emotionally Focused Couples Therapy. 2 Units.**
Students examine the theory of emotionally focused therapy and concentrate on the work and research of Susan Johnson.

**MFAM 614. Law and Ethics. 3 Units.**
Examines child welfare, separation, and divorce law, and financial aspects of family maintenance. Includes case management, referrals, professional and client interactions, ethical and interprofessional relations, legal responsibilities, and confidentially. Explores interactions among the practitioner's sense of self and human values, professional behavior, scope of practice, and ethics. Examination of impacts of culture, SES, poverty, social stress, and biology on the recovery process.

**MFAM 624. Individual and Systems Assessment. 3 Units.**
Applies psychological testing methods in the diagnostic assessment of individual, family, and group behavioral dynamics as encountered in behavioral health counseling. Cross-listing: COUN 624.

**MFAM 635. Case Presentation and Legal Issues. 3 Units.**
A clinically oriented course in which students prepare brief and focused oral and/or video presentations of individual, marital, or family cases with which they are currently working at their clinical placements that demonstrate an understanding of systems theory; as well as of legal, ethical, cultural, SES, spiritual, and developmental issues. Students discuss how cases support consumer advocacy.

**MFAM 636. Case Presentation and Client-Centered Advocacy. 3 Units.**
Examines the recovery process in relation to case write-ups. Ongoing individual, marital, and family cases formally presented by trainees discussing how consumer advocacy is supported; as well as collaboration with other mental health practitioners. Requires an in-depth case write-up on a couple or family that demonstrates an understanding of legal, ethical, cultural, SES, spiritual, client-centered advocacy, recovery model, disability act and services, and developmental issues.

**MFAM 637. Case Presentation and Global Practices. 3 Units.**
Students receive case supervision and prepare for a final oral comprehensive examination that requires four videotaped segments of the case over a minimum of six sessions or six hours, depending upon the clinic site; a write-up of the case; an epistemology paper; and a vignette.

**MFAM 638. Substance Use Disorders, Relationships, and Recovery. 3 Units.**
Examines current theories of etiology of substance use disorders and the effects of psychoactive drug use. Emphasizes assessment and evaluation strategies; impact on mental, biological, relational, and community systems; evidence-based prevention and treatment approaches within a recovery process orientation. Explores issues of regional multicultural competence, human diversity, and access to care. Cross-listing: COUN 638.

**MFAM 644. Child Abuse and Family Violence. 3 Units.**
Presents characteristics of physical and emotional abuse, neglect, sexual molestation, and family violence including offender and nonoffender traits. Focus on treatment including individual, group, and family therapy. Ethical and legal issues, community resources, and multidisciplinary approaches to child abuse. Examines cultural, SES, poverty and/or social stress impacts on mental health and recovery. Cross-listing: COUN 644.

**MFAM 645. Advanced Treatment Strategies – Substance Use Disorders. 3 Units.**
Explores contemporary treatment strategies in depth for substance use disorders with adults, adolescents, families, groups, and those with multiple diagnoses.

**MFAM 654. Practicum in Drug and Alcohol Counseling. 1 Unit.**
Practicum course in which students discuss with individuals and families and apply current theories and strategies for treating substance use disorders. Explores issues of multicultural competence, human diversity, and access to care. Prerequisite: Acceptance into the Drug and Alcohol Counseling certificate.

**MFAM 665. Structural and Multidimensional Family Therapy. 2 Units.**
Enhances observational, conceptual, planning, and intervention skills. Increases ability to understand verbal and nonverbal communication and evidence-based family therapies. Broadens understanding of structural and multidimensional family therapy.

**MFAM 674. Human Sexual Behavior. 3 Units.**
Sexuality in contemporary society from the sociopsychological viewpoint. Anatomy and physiology of human sexuality: reproduction, normal and abnormal sexual response, psychosexual development, human fertility, human sexual dysfunction. Integration of systems theory. Cross-listing: COUN 674.

**MFAM 694. Directed Study: Marriage and Family. 1-4 Units.**
Individual study in areas of special interest concerning the family and its problems. May be repeated for credit at the discretion of the faculty.

**MFAM 731. Clinical Training. 6 Units.**
For MFT students beginning their clinical training. An IP grade will be assigned until student completes 200 hours at an approved site.

**MFAM 732. Clinical Training. 9 Units.**
For students who have completed MFAM 731 and are at an approved clinical site. Students register for 9 units and receive an IP grade until 500 hours or five consecutive quarters have been completed.

**MFAM 734. Professional Clinical Training. 1.5,3 Unit.**
Supervised clinical counseling of individuals, couples, families, and children. At least one hour of individual supervision per week and two hours of case presentation seminar per week. Continuous registration for this portion of the clinical training until completion of at least fifty clock hours.

**MFAM 734A. Professional Clinical Training. 1.5-6 Units.**
Supervised clinical counseling of individuals, couples, families, and children. At least one hour of individual supervision per week and two hours of case-presentation seminar per week. Continuous registration for this portion of the clinical training until completion of at least 300 clock hours.

**MFAM 744. Clinical Internship. 1 Unit.**
Supervised clinical counseling of individuals, couples, families, and children. One hour of individual supervision per week. Postgraduates only. Approved by internship coordinator.

# Maternal Newborn Child Health (MNCH)

## Courses

**MNCH 520. Maternal/Child Health: Policy and Programs. 3 Units.**
Examines national and global public health programs, problems, and policies—targeting infants, children, and childbearing women. Explores issues such as poverty, access to and utilization of health care, adolescence, disabilities, family planning, HIV, and AIDS within socioeconomic, political, and ethical frameworks. Emphasizes interdisciplinary delivery of services within a public health setting to improve the well-being of mothers, infants, and children.

**MNCH 567. Reproductive Health. 3 Units.**
Using the life-cycle approach, focuses on reproductive health as a human right for both men and women. Examines public health policy; programs; and, to some degree, clinical interventions at various points of the reproductive life cycle. Explores issues that affect health and fertility, including family-planning technologies; reproductive tract infections, including HIV; and the impact of violence on reproductive health. Draws on reproductive health programs.

**MNCH 614. Seminar in Maternal and Child Health Practice. 3 Units.**
Examines a variety of maternal, newborn, and child health topic areas addressing a wide range of health behaviors, environmental factors/conditions, health systems, and determinants of health that affect the health, wellness, and overall quality of life for these populations and their families. Analysis of issues—through input from experts, discussion, and student participation—of trends and current practices affecting maternal, newborn, and child health.

# Medical Education Services (MNES)

## Courses

**MNES 791. Third-year Elective. 3 Units.**
Gives students an opportunity to spend time (two weeks) in a specialty that holds particular interest to them, allowing them to develop their skills to a level that will be beneficial in their fourth-year electives.

# Medicine (MEDN)

## Courses

**MEDN 599. Medicine Directed Study. 1.5-18 Units.**

**MEDN 701. Medicine Clerkship. 1.5-12 Units.**
Provides knowledge in internal medicine and develops skills and attitudes necessary to care for the adult patient. One outpatient and two inpatient rotations allow students to experience different patient conditions and populations while exposing them to both acute and chronic medical illnesses.

**MEDN 821. Medicine Subinternship. 1.5-6 Units.**
Builds upon and expands the core knowledge established during the third-year clerkship. Student assumes more responsibility in patient care and, functioning essentially as the intern on the case, works closely with the senior resident and attending physician to provide optimal care that is evidence-based, cost efficient, and effective.

**MEDN 822. Medicine Intensive Care. 1.5-6 Units.**
A four-week service on a medical intensive care unit where students are expected to learn the foundations of care in the ICU. Students participate actively in the care of patients admitted to the ICU—integrating and applying their knowledge as they follow patients on a daily basis. Prerequisite: MEDN 701.

**MEDN 891. Medicine Elective. 1.5-27 Units.**
Provides an opportunity for students to explore various areas of internal medicine, such as cardiology, nephrology, gastroenterology, etc.

# Medicine/Application and Integration (MAPN)

## Courses

**MAIN 610. Application & Integration Block. 9.5 Units.**
Knowledge and skills from prior blocks will be collectively integrated to discriminate between variation, pathology, dysfunction, and disease. Basic and clinical science integration tools developed throughout the curriculum will be applied to better understand homeostasis states, and the transformation in function and structure that occurs in pathologic states. Forms the basis for practicing clinical reasoning, selecting diagnostic tests, and developing basic management plans.

# Medicine/Cardiovascular (MCVS)

## Courses

**MCVS 510. Cardiovascular Block. 9 Units.**
Develops multidisciplinary understanding of cardiovascular system, including normal and abnormal cardiac and vascular structure and function. Emphasizes self-directed learning and application of clinical reasoning to solve problems related to cardiovascular system.

# Medicine/Christian Physician Formation (MCPF)

## Courses

**MCPF 510. Christian Physician Formation. 4 Units.**
First in a three-year course sequence. Applies principles presented in RELR 701 to assist students in developing identities as physicians continuing the healing ministry of Jesus through co-led presentations by School of Religion and Medicine faculty and discussion in LIFE Communities. Professional identity building themes include spiritual formation, community engagement, resilience, professionalism, healthy habits and life-long learning. Prerequisite or concurrent: RELR 701.

**MCPF 610. Christian Physician Formation. 2 Units.**
Second in a three-year course sequence. Continues MCPF 510 with a focus on personal wellness. Assists students in developing identities as physicians continuing the healing ministry of Jesus through co-led presentations by School of Religion and Medicine faculty and discussion in LIFE Communities. Professional identity building themes include spiritual formation, community engagement, resilience, professionalism, healthy habits and life-long learning.

**MCPF 710. Christian Physician Formation. 3 Units.**
Third in a three-year course sequence. Continues MCPF 510 and MCPF 610 with a focus on integration. Assists students in developing identities as physicians continuing the healing ministry of Jesus through co-led presentations by School of Religion and Medicine faculty and discussion in LIFE Communities. Professional identity building themes include spiritual formation, community engagement, resilience, professionalism, healthy habits and life-long learning.

# Medicine/Conjoint (MDCJ)

## Courses

**MDCJ 508. Cell Structure and Function. 8.5 Units.**
A fully integrated, comprehensive course that develops knowledge and skills relating normal microscopic and submicroscopic anatomy to cellular biology, cellular physiology, and immunology. General pathology, the common thread for the course, familiarizes students with morphologic and functional changes affecting cells exposed to a variety of normal and, to a lesser extent, abnormal environments.

**MDCJ 509. Introduction to Medical Practice Management. 4 Units.**
Introduction to management of a medical practice. Includes: business operations; financial, human resources, information, quality, and risk management; organizational governance; and, patient care systems.

**MDCJ 510. Capstone Project. 3 Units.**
Surveys literature focusing on a clinical problem addressed in the basic science courses of the first-year medical curriculum. Culminates with a term paper on the researched topic.

**MDCJ 519. Foundations of Clinical Medicine. 17 Units.**
An integrative course consisting of interactive, patient-centered contextual learning; along with an organ system-based curriculum throughout the first year of medical school--emphasizing development of communication and physical examination skills, professionalism, mind-body interaction, pain management, end-of-life care, child and elder abuse, domestic violence, and sexuality. Introduces human development across the life cycle.

**MDCJ 520. Basis of Medical Genetics. 2 Units.**
First of two courses providing foundations in genetics and molecular biology, including mechanisms for genetic information and its flow in eukaryotic cells. Introduction to causes of genetic disorders and familial disease, and genetic components of common disorders. Preparation for transition to sophomore-year clinical applications and clinical case presentations.

**MDCJ 521. Applications of Clinical Genetics. 2 Units.**
Second of two courses expanding upon the genetic/molecular basis of human diseases. Preparation for clinical practice and offers tools for lifelong learning.

**MDCJ 527. Cell Structure and Function. 8.5 Units.**
Describes basic and organ system histology relative to cell biology, immunology, and general pathology, and applies this material to general pathology. Develops skills in use of the microscope, and in diagnostic and clinical problem solving.

**MDCJ 528. Evidence-Based Medicine and Information Sciences. 3.5 Units.**
Promotes acquisition of the five fundamental skills of evidence-based medicine. Includes: how to ask clinically relevant questions; how to acquire answers to questions commonly asked by physicians; how to critically appraise the medical literature; how to apply results of the medical literature to patients; and how to self-assess progress in the acquisition of the foregoing skills. Begins the process of self-directed, lifelong learning.

**MDCJ 530. Pathophysiology and Applied Physical Diagnosis. 11 Units.**
Introduction to pathophysiologic principles underlying mechanisms of disease. Applies pathophysiologic principles to a variety of new situations that require problem solving and synthesis in a clinical context. Promotes development of clinical skills and professionalism.

**MDCJ 538. Medical Neuroscience. 3.5 Units.**
Provides a broad-based foundation in neuroscience. Addresses basic normal neuroanatomy and neurophysiology of the human central and peripheral nervous systems. Employs neurologic examination to evaluate central and peripheral nervous systems. Presents how to accurately localize lesions of the central and peripheral nervous systems and use technologies that can diagnose neurologic conditions.

**MDCJ 539. Diseases of Neuroscience. 4 Units.**
Applies tools derived from the basic building blocks of neuroanatomy and neurophysiology to the clinical neurologic examination of patients with a broad array of neurologic diseases or conditions.

**MDCJ 560. Basis of Medical Genetics. 2 Units.**
Lays basic foundations in genetics and molecular biology, including mechanisms for genetic information and its flow in eukaryotic cells. Introduction to causes of genetic disorders and familial disease, and genetic components of common disorders.

**MDCJ 599. Medicine Conjoint Directed Study. 1-18 Units.**
Individual arrangements for students to study under the guidance of a program faculty member. May include reading, literature review, lectures or other special projects. Minimum of thirty hours required for each unit of credit. Does not fulfill requirements towards the M.D. degree.

**MDCJ 821. Preventive Medicine and Population Health. 1.5-6 Units.**
Introduces clinical preventive medicine, quality improvement and patient safety, motivational interviewing, and care of the underserved in clinic and public health settings. Orientation to allied health professions, and complementary and alternative medicine.

**MDCJ 891. Whole Person Care. 1.5-30 Units.**
Offers fourth-year medical students the opportunity to explore various aspects of whole person care, film and medicine, law and medicine, tropical medicine, and patient safety.

# Medicine/Endocrine and Reproductive (MENR)

## Courses

**MENR 510. Endocrine & Reproductive Block. 9 Units.**
Develops understanding of endocrine and reproductive structure, function and dysfunction. Applies concepts in endocrine and reproductive cases to develop differential diagnoses, determine appropriate diagnostic testing, and formulate basic management plans.

# Medicine/Foundation (MFDN)

## Courses

**MFDN 510. Foundations Block. 17.5 Units.**
Introduces knowledge, skills, values and attitudes necessary to successfully become self-directed, life-long learners and Christian physicians. Presents foundational concepts in anatomy and embryology, biochemistry, molecular biology and genetics, cell structure and general pathology, evidence-based medicine, lifestyle and preventive medicine, microbiology, pharmacology, and physiology.

# Medicine/Gastrointestinal and Liver (MGLV)

## Courses

**MGIL 610. Gastrointestinal and Liver Block. 5.5 Units.**
Introduces normal structure and function of the gastrointestinal system with application to understanding mechanisms, etiology, and predisposing factors for pathologic conditions. Integrates mastery of mechanisms into developing a clinical reasoning framework for assessing gastrointestinal and extra-gastrointestinal signs and symptoms, constructing a differential diagnosis, selecting diagnostic tests, and developing pharmacologic and lifestyle management plans.

# Medicine/Hemotology and Immunology (MHMI)

## Courses

**MHMI 510. Hematology & Immunology Block. 6.5 Units.**
Focuses on hematologic and immunologic processes. Compares normal structure and function with dysfunction and disease. Develops knowledge and skills necessary for evaluation of laboratory findings in normal, non-neoplastic and neoplastic hematologic and lymphoid conditions.

# Medicine/Musculoskeletal and Skin (MMSK)

## Courses

**MMSK 510. Musculoskeletal and Skin Block. 5 Units.**
Focuses on knowledge and skills specific to orthopedic, dermatologic and rheumatologic conditions. Integrates basic science disciplines in comparing normal structure, function, and dysfunction. Continues development of clinical reasoning and clinical application of disease mechanisms.

# Medicine/Neuroscience and Human Behavior (MNHB)

## Courses

**MNHB 610. Neuroscience & Human Behavior Block. 16 Units.**
Using foundational principles and focusing on knowledge and skills specific to neurologic and psychiatric conditions, the normal function of the central and peripheral nervous system is contrasted with dysfunction and disease. Neuroanatomy, neuropathology, neuroradiology and pharmacology are integrated with clinical presentation and basic management. Emphasis is placed on clinical reasoning skills as knowledge of disease mechanisms is applied to clinical problems.

# Medicine/Pulmonary (MPLM)

## Courses

**MPLM 510. Pulmonary Block. 6 Units.**
Integrates understanding of lung structure, function, and dysfunction. Applies concepts in treating pulmonary pathologies. Emphasizes self-directed learning and clinical reasoning skills.

# Medicine/Renal and Urinary (MRNU)

## Courses

**MREN 610. Renal and Urinary Block. 7 Units.**
Introduces relevant anatomy and histopathology, as well as physiology, biochemistry, genetics, imaging, microbiology, pharmacology, and pathology of the genitourinary tract. Integrates with physiologic concepts from previous blocks. Develops clinical reasoning and problem solving by emphasizing abnormalities related to blood pressure regulation, fluid and electrolyte balance, acid-base balance, and common diseases and conditions.

# Medicine/Selectives (MSEL)

## Courses

**MSEL 510. First-Year Selective. 2 Units.**
A two-week selective in an area of personal interest involving; reading, study, reflection and practice in a variety of settings. Students choose a topic from multiple facets of medical practice including, but not limited to, the art of health, transformative health care, the business of medicine, leadership, simulation, and ultrasound.

**MSEL 610. Second-Year Selective. 2 Units.**
A two-week selective in an area of personal interest involving reading, study, reflection and practice in a variety of settings. Students choose a topic from multiple facets of medical practice including, but not limited to, the art of health, transformative health care, the business of medicine, leadership, simulation, and ultrasound.

# Microbiology (MICR)

## Courses

**MICR 515. Introduction to Bioinformatics and Genomics. 2 Units.**
Introduces computer-aided analysis of macromolecules and the study of genes and their products on the level of whole genomes.

**MICR 521. Medical Microbiology. 6 Units.**
Systematically studies bacteria, fungi, viruses, and animal parasites of medical importance; pathogenic mechanisms; methods of identification and prevention; and clinical correlation.

**MICR 530. Immunology. 4 Units.**
Introduces selected topics of modern immunology to graduate students, emphasizing understanding key paradigms.

**MICR 537. Selected Topics in Molecular Biology. 1-3 Units.**
Critically evaluates current progress in a specific research area of molecular biology, including recently published papers and unpublished manuscripts. May be repeated for additional credit.

**MICR 540. Physiology and Molecular Genetics of Microbes. 3 Units.**
Advanced graduate course covering various hot topics in both microbial physiology and molecular genetics—such as diversity of microbes on earth, engineering new metabolic pathways, mechanisms of gene regulation and gene transfer, and comparative genomics.

**MICR 547. Medical Microbiology. 4.5 Units.**
Covers basic biology of medically important microbial pathogens and mechanisms of their disease pathologies in the context of organ systems. Addresses pathologic mechanisms, signs and symptoms of major infectious diseases, developing differential diagnoses, and treatment and prevention of these diseases.

**MICR 570. Mechanisms of Microbial Pathogenesis. 3 Units.**
In-depth exploration of molecular mechanisms of pathogenesis and host response for selected bacteria, viruses, and parasites. Topics include endotoxins, exotoxins, tools to identify genes crucial to virulence, and a discussion of selected paradigms of microbe-host interaction. Vaccine development serves as a unifying theme linking the host-pathogen interactions. Focuses on evidence for current concepts, using primary journal articles.

**MICR 624. Special Problems in Microbiology. 2-4 Units.**
Designed primarily for students enrolled in a coursework M.S. degree program who elect to work on a research problem.

**MICR 625. Independent Study in Microbiology Literature. 1-4 Units.**
Explores in depth a specific topic, selected in consultation with the mentor, such as the antecedents for theses or dissertation research. (Formal proposal for the scope and evaluation of the independent study must be approved by the faculty prior to enrollment in this course. Does not satisfy an elective requirement in the microbiology and molecular genetics program.).

**MICR 626. Special Topics in Microbiology. 2-4 Units.**
Critically evaluates current progress in a specific research area, including recently published papers and unpublished manuscripts. (Each course taught by a resident or a visiting scientist who is a recognized authority in the research area under discussion. Students may register for multiple courses under this designation.).

**MICR 697. Research. 1-7 Units.**

**MICR 698. Thesis. 1-3 Units.**

**MICR 699. Dissertation. 2-5 Units.**

**MICR 891. Microbiology Elective. 1.5-12 Units.**
Offers fourth-year medical students the opportunity to explore various areas of microbiology, including research.

# Natural Sciences (NSCI)

## Courses

**NSCI 286. Topics in Biology. 1-4 Units.**
Reviews current knowledge in specified areas of the biological sciences. Registration should indicate the specific topic to be studied. May be repeated for additional credit. Offered on demand.

**NSCI 288. Topics in Geology. 1-4 Units.**
Reviews current knowledge in specified areas of the earth sciences. Registration should indicate the specific topic to be studied. May be repeated for additional credit. Offered on demand.

# Neurology (NEUR)

## Courses

**NEUR 599. Directed Elective Study. 1.5-12 Units.**

**NEUR 701. Neurology Clerkship. 1.5-6 Units.**
Preparation to competently evaluate, document, localize, diagnose, and discuss treatment of adult patients exhibiting neurological symptoms. Addresses neurologic emergencies and chronic outpatient neurologic conditions.

**NEUR 891. Neurology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of neurology, including research.

# Neurology and Psychiatry (NEPS)

## Courses

**NEPS 710. Neurology/Psychiatry Clerkship. 1.5-12 Units.**
Presents concepts and practice of neurologic and psychiatric conditions including in-patient and out-patient assessment, mental status and neurologic examination, indications for diagnostic studies of the central and peripheral nervous system, pharmacologic treatment, recognition of psychosocial problems, identification of suicide and homicide risk factors, and psychodynamic treatment options.

# Neurosciences, Systems Biology, and BioEngineering (NSBB)

## Courses

**NSBB 500. Foundations in Neuroscience. 4 Units.**
Overview of neuroscience with attention to current research and problems in the field. Includes basic neuroanatomy and neurophysiology of the human central and peripheral nervous systems. Prerequisite: Undergraduate-level biology, inorganic chemistry, organic chemistry, and general physics; previous experience with computer programming preferred but not required; a course in statistics preferred but not required.

**NSBB 504. Neuroscience Methods. 4 Units.**
Provides an in-depth overview of historical and current methods used to perform experiments focused on learning about neural circuits in the body, spinal cord, and brain. Emphasizes understanding of neuron labeling using dyes that can be seen in bright-field and fluorescent microscopy, recording methods for quantifying neuron activity, psychophysical experiments to assess neural function, behavioral assays, optogenetics, and the use of molecular markers. Prerequisite: NSBB 500.

**NSBB 506. Fundamentals of Electrophysiology. 4 Units.**
Presents fundamental theory and applications of electrophysiological methods in the context of neuroscience and biomedical research. Focuses on electrophysiological concepts and electrophysiological experiments in excitable tissues. Prerequisite: Undergraduate-level biology, inorganic chemistry, and general physics.Calculus preferred, but not required.

**NSBB 507. History of Neuroscience. 3 Units.**
Provides graduate and medical students with a detailed overview of the history of neuroscience from the classical Greek period through contemporary neuroscience research and clinical neurology/neurosurgery. Emphasizes experiments designed to provide current models of how the brain works. Emphasizes historical changes in treatment and clinical practice that inform current understanding of the nervous system. Prerequisite: Undergraduate-level biology and general chemistry; NSBB 500 recommended.

**NSBB 510. Cortical Circuits. 3 Units.**
Focuses on the development, function, and dysfunction of the cortex of the brain. Emphasizes understanding of neuronal proliferation, differentiation into circuits, and the resulting interaction of cortical circuits that generate motion and integrate touch, vision, and vestibular inputs to generate conscious perception, the network basis of learning and memory, and cortical oscillations (including cortical rhythmic networks). Prerequisite: NSBB 500.

**NSBB 515. Contemporary Neuroimaging. 3 Units.**
Provides an in-depth overview of historical and current imaging methods used to perform experiments focused on learning about the structure and function of neurons and the peripheral and central circuits they develop. Emphasizes understanding of neuron labeling using microscopy imaging techniques. Prerequisite: NSBB 500.

**NSBB 520. Neuroinflammation: Neuron-Glia Interactions. 3 Units.**
Provides graduate students with a current understanding of neuronal-glial interactions in the context of neuroinflammation and its relevance to neurological disorders. Develops competency in the fundamental concepts of cross-communication between disciplinary fields, and how they are applied to diseases of significant social, medical, and economic burden. Prerequisite: NSBB 500; Immunology (recommended).

**NSBB 526. Journal Club. 1 Unit.**
Provides students with the opportunity to survey current research literature in a specialized topic.

**NSBB 551. Systems Biology – A Practical Approach. 2 Units.**
Provides a general overview of systems biology approaches that enhance understanding of molecular mechanisms underlying the different phenotypes of living cells. Emphasize the most recent developments and future directions in this new and rapidly developing field, particularly focusing on genomics, epigenomics, and transcriptomics.

**NSBB 552. Data Analytics. 3 Units.**
Presents contemporary data analysis and visualization methods necessary for biomedical research and presentation. Uses Python and applies scientific libraries that extend the basic Python language to incorporate image, time series, spectral, and machine- learning analyses. Addresses data cleaning, visualization, management, and security. Prerequisite: NSBB 551; previous experience with computer programming and data analysis software (recommended).

**NSBB 553. Advanced Bioinformatics — Sequence and Genome Analysis. 4 Units.**
Explores ways in which computational techniques can be applied to help solve problems related to biology and biochemistry. Focuses on sequence and genome analysis with genomics and bioinformatics tools. Prerequisite: NSBB 551.

**NSBB 555. Genomics and Bioinformatics: Tools. 4 Units.**
Teaches students to create extremely useful programs using PERL to solve biological problems. Basics of Linux and scripting with PERL. Prerequisite: NSBB 551.

**NSBB 557. Integration of Computational and Experimental Biology. 4 Units.**
A multidisciplinary introduction to computational methods used to analyze experimental biological data. Introduces mathematical concepts needed to understand protein structure and dynamics, protein-protein interactions (structures and networks), gene regulatory networks, signal transduction networks, metabolic networks, and kinetic modeling of cellular processes. Also covers techniques used to derive experimental data. Prerequisite: MICR 515; NSBB 552; and programming experience.

**NSBB 571. Engineering Analysis of Physiological Systems. 3 Units.**
Provides basic engineering analytical tools for quantifying physiological systems behavior. Addresses several key systems, using engineering methodology to evaluate the system of interest for solving particular problems. Prerequisite: A first course in ordinary differential equations is essential; working knowledge of computer manipulation and programming (recommended).

**NSBB 572. Cellular and Molecular Engineering. 3 Units.**
Emphasizes engineering and biochemical/biophysical concepts intrinsic to specific topics at the cellular and molecular level. Includes receptor-ligand dynamics in cell signaling and function; DNA replication and RNA processing; cellular energetics and control of gene expression; membrane structure; transport and traffic; biological process; and mechanics of cell division and protein and cellular engineering approaches. Prerequisite: NSBB 570.

**NSBB 575. Orthopaedic Regenerative Engineering and Mechanobiology. 4 Units.**
Introduces advanced biomechanics and mechanobiology of skeletal tissues–including bone and cartilage– through an understanding of structure-function relationship in biological tissues. Focuses on bone and cartilage regenerative engineering approaches based on scaffolds, stem cells, and mechanotransduction. Prerequisite: PTGR 591, PTGR 592 (recommended); NSBB 579 (recommended); general biology.

**NSBB 579. Bioengineering Fabrication. 3 Units.**
Provides a foundational skill set for using 3D software; for computer numerical control (CNC) machining, 2D laser cutting, additive 3D printing, and data collection with Raspberry Pi and Arduino devices; and for understanding intellectual property. Students use campus resources and local maker-spaces to complete a project focused on a bioengineering application.

**NSBB 580. Medical Imaging Physics. 3 Units.**
Includes medical imaging science and the radiological modalities, basic radiation physics and the interaction of radiation with matter, the physics of X-ray production, computed tomography, magnetic resonance imaging, ultrasound and nuclear medicine, quality control, and safety; as well as clinical applications in each modality. Prerequisite: Undergraduate level physics course and biology course.

**NSBB 584. Medical Image Analysis. 2 Units.**
Introduces theory, processing, analysis, and high-level applications of commonly used digital image techniques. Presents common computer programs and tools for image analysis. Prerequisite: Undergraduate-level class in calculus and one of the following; introduction to programming, numerical analysis, computational statistics, or related topics; previous experience with computer programming highly recommended; course in statistics helpful but not required.

**NSBB 585. Radiation Detectors for Medical Applications. 4 Units.**
Provides students with a broad overview of radiation detectors for medical applications in general, with emphasis on scintillation detectors and their applications in positron emission tomography. Prerequisite: Undergraduate B.S. degree or equivalent in one of the following areas: physics or biophysics, chemistry or biochemistry, engineering or bioengineering.

**NSBB 587. Radiation Therapy Physics. 4 Units.**
Provides graduate and medical students with a broad understanding of the processing and analysis of basic physics in regards to applications within the context of radiation therapy. Designed to provide students with a basic understanding of basic physical sciences, with the necessary specialist knowledge required to develop a career in radiation therapy. Prerequisite: Undergraduate B.S. degree in the field of physics, chemistry, computer science, or engineering.

**NSBB 697. Research. 1-8 Units.**
The final and central requirement for research-related degrees within the neurosciences, systems biology, or bioengineering programs. Successful completion of this original, independent research project demonstrated through production of a written summary of the research project and approval by the student's mentor and/or research committee. NSBB 697 research units applicable to both the master's and Ph.D. degrees. Prerequisite: Successful completion of coursework leading to research.

**NSBB 699. Dissertation. 1-8 Units.**
Serves as final and central requirement for research-related doctoral degrees within the neurosciences, systems biology, or bioengineering programs. Successful completion of this original, independent research project is demonstrated through production of a written summary of the research project, and approval by the student's mentor and/or research committee. Prerequisite: Successful completion of coursework leading to research.

# Neurosurgery (NEUS)

## Courses

**NEUS 891. Neurosurgery Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of neurosurgery, including research.

# Nursing (NRSG)

## Courses

**NRSG 217. Psychiatric Mental Health Nursing. 6 Units.**
Focuses on the care of adult patients experiencing cognitive, mental, and behavioral disorders. Integrates concepts of crisis intervention, therapeutic communication, anger management, and coping skills throughout the course. Provides the student through clinical experience an opportunity to apply theoretical concepts and implement safe patient care to patients in selected mental health settings. Prerequisite: NRSG 232, NRSG 233.

**NRSG 224. Nursing Pathophysiology. 5 Units.**
Focuses on the altered processes of human physiology. Emphasizes exploration of changes of biological processes of the body and the effects of homeostasis. Studies alteration of health problems, along with the associated clinical manifestations and treatments. Builds foundations for understanding the rationale behind assessment, findings, and nursing intervention.

**NRSG 230. Principles of Professionalism, Clinical Reasoning, and Self-Care. 3 Units.**
Teaches personal and professional accountability and principles of self-care that enhance the student's ability to cope with stressors and succeed in the academic setting, as well as in the nursing profession. Teaches students to think in a systematic and logical manner that equips them to make sound clinical nursing judgments.

**NRSG 231. Foundations of Nursing. 3 Units.**
Provides an introduction to the profession of nursing and the roles of the nurse. Formation of the role of the professional nurse, including scope of practice and supporting guidelines. Explores current issues in health care and professional accountability of the nurse, including patient-centered care, safety; confidentiality; communication; and upholding regulatory, legal, and ethical principles. Applies nursing knowledge to an adult/aging individual in the community.

**NRSG 232. Fundamentals of Nursing. 7 Units.**
Expands on the roles of the nurse, and profession-related and patient-care concepts. Emphasizes physical, psychological, developmental, spiritual, and cultural aspects of whole person care. Introduces basic nursing skills, the nursing process, and the decision-making framework to assist in developing effective clinical judgment skills. Prerequisite: NRSG 224, NRSG 230, NRSG 231.

**NRSG 233. Health Assessment. 3 Units.**
Provides knowledge and skills to conduct whole person health assessment of the adult patient. Emphasizes taking a basic health history, as well as performance of a complete physical examination--including physiological, psychological, sociocultural, and spiritual assessments. Skills laboratory experiences provide an opportunity to practice physical assessment skills. Prerequisite: NRSG 231.

**NRSG 244. Strategies for Academic Success. 1 Unit.**
Assesses student needs, learning styles, strengths, challenges/barriers in order to provide individualized approaches to learning strategies essential for success in nursing education and practice.

**NRSG 299. Directed Study. 1-8 Units.**
Opportunity for clinical learning in a selected area of nursing. Prerequisite: Consent of instructor and the associate dean.

**NRSG 301. Adult Health Nursing I. 6 Units.**
Focuses on the care of adult and older adult patients with health alterations that require medical and/or surgical intervention. Introduces the care of older adults while focusing on their unique physiological and psychological needs. Emphasizes the care of patients with alterations in selected body functions. Integrates concepts of patient-centered care, cultural sensitivity, informatics, safe practice, and professionalism throughout the course. Prerequisite: NRSG 224, NRSG 232, NRSG 233, NRSG 305.

**NRSG 302. Adult Health Nursing II. 8 Units.**
Focuses on the care of adult patients with complex medical/surgical health problems. Emphasizes helping patients and their families cope with alterations in body functions. Integrates concepts of pharmacology, health promotion and education, evidence-based practice, and interdisciplinary collaboration throughout the course. Clinical experiences that provide the student an opportunity to apply theoretical concepts and skills to implement safe care to patients. Prerequisite: NRSG 301.

**NRSG 303. Adult Health Nursing III. 7 Units.**
Focuses on advanced concepts of nursing care as they relate to patients with complex, multisystem alterations in health. Emphasizes implementing time management and organizational skills while managing the care of patients with multiple needs and collaborating with interdisciplinary team. Integrates complex clinical skills; as well as priority setting, clinical judgment, and tenets of legal and theoretical practice throughout the course. Prerequisite: NRSG 302.

**NRSG 305. Nursing Pharmacology. 3 Units.**
Introduction to principles of pharmacology, including pharmacokinetics, pharmacodynamics, medication interactions, and potential adverse medication reactions. Emphasizes drug classifications and nursing care related to the safe administration of medication to patients across the life span. Prerequisite: NRSG 224.

**NRSG 314. Obstetrical and Neonatal Nursing. 5 Units.**
Provides an integrative, family-centered approach to the care of mothers and neonates. Emphasizes normal and high-risk pregnancies, normal growth and development, family dynamics, and the promotion of healthy behaviors in patients. Includes clinical experiences that provide the student an opportunity to apply theoretical concepts and implement safe patient care to mothers and neonates in selected settings. Prerequisite: NRSG 301.

**NRSG 315. Child Health Nursing. 6 Units.**
Provides an integrative, family-centered approach to the care of children from infancy through adolescence. Emphasizes normal growth and development, family dynamics, common pediatric disorders, and the promotion of healthy behaviors in patients. Includes clinical experiences that provide the student an opportunity to apply theoretical concepts and implement safe patient care to children in selected settings. Prerequisite: NRSG 302.

**NRSG 316. Wellness and Health Promotion. 3 Units.**
Introduces concepts of health, wellness, healthy lifestyle behaviors, and health promotion. Examines factors that influence health and health behaviors and the dynamics of behavior change, with an emphasis on motivational theory; exemplary behaviors in nutrition, physical activity, stress management, and tobacco cessation related to health and wellness; and, wellness for the student and practicing nurse. Prerequisite: NRSG 224, NRSG 231.

**NRSG 324. Nursing Informatics and Evidence-Based Practice. 3 Units.**
Provides an overview of nursing informatics as it relates to the provision of safe, quality, patient-centered care. Emphasizes the establishment and provision of evidence-based practice. Stresses the use of information management systems in the collection, management, and communication of patient data; as well as the maintenance of patient privacy and confidentiality.

**NRSG 337. Strategies for Professional Transition. 4 Units.**
Student assesses and strengthens the application of skills in communication, research, professional responsibility, teaching-and-learning process, management, nursing process, and individual empowerment. Additional skills include nursing informatics, orientation to LLU campus/University setting, assessment and development of learning objectives, critical thinking, and portfolio development. Prerequisite: Admission to RNBS program.

**NRSG 338. Essential Leadership Concepts for Nursing Licensure. 1 Unit.**
Management issues related to entry into nursing practice. For students who have a previous B.S./B.A. degree or LVN taking the 45 unit option and who wish to sit for boards at the end of the junior year. Course does not apply towards the bachelor's degree.

**NRSG 375. Introduction to Applied Biostatistics for Nursing. 3 Units.**
Introduces statistical methods of summarizing, analyzing, presenting, and interpreting health-related data. Includes normal and binomial distributions, probability, central limit theorem, and confidence intervals; hypothesis testing using t-tests, ANOVA, correlation, linear regression, and chi-square; and, introduction to multivariable analysis. Prerequisite: Competency in introductory-level mathematics.

**NRSG 375L. Computer Applications in Biostatistics. 1 Unit.**
Uses SPSS to apply appropriate statistical methods in the summary and analysis of health-related data, including descriptive; as well as hypothesis testing using t-tests, correlation, linear regression, chi-square, and ANOVA. Prerequisite or concurrent: NRSG 375.

**NRSG 399. Nursing Externship. 1 Unit.**
An elective work-study course that provides opportunity for experiential understanding of the nature of nursing in the work place. Focuses on application of the Neuman framework. The student, under the supervision of an RN preceptor, applies previously learned skill in providing direct patient care. Prerequisite: NRSG 408.

**NRSG 404. Introduction to Epidemiology for Nursing. 2 Units.**
Explores disease occurrence in human populations. Includes: observation and interpretation in clinical decision-making; promotion of optimal patient outcomes; assessment and measurement of disease occurrence; prevention of illness; infection control; and evaluation of research that impacts delivery of care on local, national, and global levels. Prerequisite or concurrent*: NRSG 375.

**NRSG 405. Home Care Nursing. 3 Units.**
Provides a wholistic approach to care of clients transitioning across the health-illness continuum and health-care settings. Focuses clinical experiences on chronic disease management in post-acute settings. Addresses physiological and psychological needs and common health alterations of older adults, including end of life. Introduces community resources that facilitate continuity of care, and promote safety and optimal wellness. Prerequisite or concurrent*: NRSG 303, NRSG 314, NRSG 315*, NRSG 316.

**NRSG 407. Complex Nursing Concepts of Health and Disease. 6 Units.**
Explores complex pathophysiological concepts across the life span, using a systems approach. Applies multifaceted alterations at the cell/system levels and functional changes to nursing practice. Uses etiology, pathogenesis, and clinical manifestations to investigate and understand common disease processes. Prerequisite: NRSG 337.

**NRSG 408. Critical Care Nursing. 8 Units.**
Focuses on advanced concepts of nursing care as they relate to critically ill patients. Emphasizes implementation of time management and organizational skills while managing the care of patients' multiple needs, and collaborating with the interdisciplinary team. Integrates complex clinical skills; as well as priority setting, clinical judgment, and tenets of legal and ethical practice throughout the course. Prerequisite: NRSG 303, NRSG 314, NRSG 315, NRSG 316.

**NRSG 414. Management and Leadership for the Registered Nurse. 5 Units.**
View of the health-care agency or nursing unit as the core system, with lines of defense and lines of resistance. The management process as the set of interventions aimed at maintaining or restoring a state of equilibrium and order within the organization. The role of the first-line manager observed and some aspects experienced. Prerequisite: NRSG 337; NRSG 407.

**NRSG 416. Public Health Nursing. 4 Units.**
Focuses on the optimal wellness of the community as client. Includes, intervention strategies emphasizing primary, secondary, and tertiary prevention with micro- and macro-client systems; assessing factors influencing population health and the use of evidence-based practices in the delivery of spiritually and culturally appropriate interventions; and, the role of the nurse as advocate for social justice. Prerequisite: NRSG 404, NRSG 405, NRSG 408.

**NRSG 416L. Public Health Nursing Clinical Laboratory. 4 Units.**
Clinical application focusing on the optimal wellness of the community as client. Intervention strategies emphasizing primary, secondary, and tertiary prevention with micro-/macro-client systems. Prerequisite or concurrent*: NRSG 404, NRSG 416*.

**NRSG 418. Capstone Nursing Practicum. 6 Units.**
Provides student the opportunity to function as a contributing member of the interprofessional team, and to collectively apply the knowledge and practice the skills acquired in previous courses. Gives students the opportunity to provide care to a caseload of patients that is safe, evidence-based, patient-centered, and focused on promoting positive patient outcomes. Emphasizes demonstration of professional behaviors. Prerequisite: NRSG 408.

**NRSG 419. Capstone Nursing Leadership. 6 Units.**
Facilitates transition to the role of a professional nurse in the health-care system. Emphasizes contemporary issues and management concepts; development of the skills of delegation, conflict management, and leadership; legal and ethical issues with a focus on personal accountability and responsibility; and, analysis of health-care policy, fiscal responsibility, and standards of practice according to regulatory requirements and institution policies. Prerequisite or concurrent: NRSG 408.

**NRSG 424. Professional RN Capstone. 7 Units.**
Focuses on professional nursing development to promote wellness of individuals, families, and groups under diverse circumstances in clinical practice. Enhances interprofessional decision-making while exploring ethical, professional, and clinical issues. Prerequisite: NRSG 337, NRSG 407.

**NRSG 425. Introduction to Epidemiology for RNs. 3 Units.**
Explores epidemiological investigation methods, evaluates study designs, and analyzes utilization of EBP nursing impacting delivery of care. In-depth exploration of interdisciplinary communication, collaboration, and development of nursing interventions impacting disease identification, control, and management. Focuses on assessment and measurement of disease occurrence, frequency and prevention of illness, IC practices, and evaluation of evidence-based research impacting nursing care. Prerequisite: Completion of statistics course.

**NRSG 428. Health Promotion for the RN. 4 Units.**
Examines health promotion in relation to health models. Utilizes evidence-based practice to promote wellness and optimum health across life span. Examines role of lifestyle behaviors in health promotion and illness prevention. Applies strategies for health behavioral change to promote wellness. Prerequisite: NRSG 337.

**NRSG 429. Nursing Research. 3 Units.**
Promotes clinical decision making, based on evidence, through the exploration and integration of current scientific evidence, use of clinical reasoning, identification of patient preferences, and assessment of available resources. Provides the knowledge and understanding of qualitative and quantitative systems of inquiry. Focuses on analysis and synthesis of evidence to answer a clinical question relevant to nursing practice and patient-centered care. Prerequisite: NRSG 324.

**NRSG 434. Public Health Nursing Laboratory for the Working RN. 3 Units.**
The clinical application of public health with a focus on vulnerable populations. Intervention/strategies involve health promotion and disease prevention in the community. Clinical experiences include independent work in a variety of community workplace settings. Designed for the RN to B.S. student who is not seeking state certification as a public health nurse. Prerequisite or concurrent*: NRSG 337, NRSG 426*.

**NRSG 497. Advanced Clinical Experience. 3-12 Units.**
An elective course open to students seeking clinical experience in nursing.

**NRSG 499. Directed Study. 1-8 Units.**
Opportunity for clinical experience in a selected area of nursing. Prerequisite: Consent of instructor and the associate dean.

# Nursing—Graduate (NGRD)

## Courses

**NGRD 606. Nursing Administration Practicum. 1-8 Units.**
Provides opportunities for the ongoing development and refinement of leadership capability in selected areas of nursing administration. Students showcase competencies in the synthesis and application of nursing, management, economic, and human resources theories to solve real-world issues of importance to the profession and the workplace. Per week: lecture 0 hours, practicum 3-30 hours. Prerequisites: NGRD 652; HADM 528.

**NGRD 610. Master's Comprehensive Project. 2 Units.**
Comprehensive project based on a PICOT question as appropriate for focus area of study. Prerequisites: NGRD 651, NGRD 658; Completion of clinical courses required for concentration area.

**NGRD 621. Pharmacology in Advanced Practice I. 2 Units.**
Principles of pharmacodynamics, pharmacotherapeutics, and pharmacokinetics. Overview of specific major drug classifications, discussion of the therapeutic use of drugs, and application to medical conditions. Addresses specific legal and ethical issues for advanced practice.

**NGRD 622. Pharmacology in Advanced Practice II. 3 Units.**
Focuses on specific major drug classifications, discussion of the therapeutic use of these drugs, and their application to medical conditions.

**NGRD 623. Neonatal Pharmacology. 3 Units.**
Advanced principles of neonatal pharmacotherapeutics, pharmacodynamics and pharmacokinetics. Additional overview of specific drug classifications within the neonatal population. Prerequisite NGRD 621.

**NGRD 624. Advanced Health Assessment. 4 Units.**
Focuses on advanced health assessment skills and knowledge necessary to successfully conduct a comprehensive history and physical throughout the life span. Emphasizes a wholistic plan of care, including health promotion strategies, while considering cultural and developmental variations of the patient.

**NGRD 625. Advanced Clinical Pathophysiology. 4 Units.**
Provides graduate students with an integrated understanding of normal human physiology and the most common pathological changes that occur throughout the life span. Focuses on using pathophysiological concepts to explain clinical observations and management.

**NGRD 629. Special Topics. 1-4 Units.**
Lecture and discussion of a current topic in graduate nursing bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter. May be repeated for additional credit.

**NGRD 650. Advanced Role Development and Collaboration. 4 Units.**
Focuses on transition to advanced practice and doctoral role. Topics include advanced practice nursing, theoretical bases, competencies, interprofessional collaboration, legal requirements, evidence-based practice, research, and professional writing.

**NGRD 651. Theoretical Foundations for Evidence-Based Practice. 4 Units.**
Focuses on the philosophical, theoretical, and scientific foundations of nursing practice and research. Examines evidence-based models and theories for use in clinical decision making, program development, and research design.

**NGRD 652. Health-Care Systems Leadership. 4 Units.**
Applies leadership theories and organizational models to complex professional and systems issues addressed by the advanced practice nursing leader. Focuses on development of leadership competencies for quality health care.

**NGRD 653. Health Systems Policy Development and Advocacy. 4 Units.**
Evaluates the impact of sociopolitical systems/processes within the context of current trends and issues affecting population health. Explores the impact of nursing on systems in the workplace, community, professional organizations, and government. Emphasizes strategic planning, policy formation, and advocacy.

**NGRD 654. Social Determinants of Health. 4 Units.**
Examines factors that contribute to disease prevention, health promotion, and well-being in vulnerable and diverse populations. Analyzes models, programs, and systems that address assessment, implementation, and evaluation for safe, equitable, culturally competent, and just health care.

**NGRD 655. Health Systems Finance. 4 Units.**
Focuses on health-care economics and finance—including evaluation of financial reports, business plans, and cost-benefit analyses of care-delivery systems. Explores strategies for optimizing fiscal resources to ensure safe patient care and best practices.

**NGRD 656. Outcomes Assessment for Strategic Planning. 4 Units.**
Examines and evaluates patient outcomes across the health-care system. Considers strategic planning, quality improvement, and information and technology systems that promote excellence in nursing practice and research.

**NGRD 657. Intermediate Statistics. 4 Units.**
Topics in intermediate statistics—including ANOVA, multiple regression, other multivariate statistical procedures, and interpreting computer output. Applies statistical analysis in translational research and research design.

**NGRD 658. Nursing Research and Translational Science. 4 Units.**
Provides a comprehensive understanding of scientific thinking, research methods, and translation science. Focuses on the research and evidenced-based practice (EBP) roles of scholarship for doctorally prepared nurse leaders. Prerequisite: NGRD 657.

**NGRD 659. Professional Writing for Nurse Leaders. 4 Units.**
Principles and methods of scholarly writing for research and evidence-based practice (EBP) dissemination.

**NGRD 660. Integrative Leadership Case Study. 1-6 Units.**
Focuses on integration of advanced concepts for DNP practice. Provides opportunity to extend learning from previous academic work to achieve the knowledge needed for the D.N.P. degree. Course may be processed as an IP but must be completed before beginning NGRD 667 DNP Proposal Development.

**NGRD 664. Advanced Statistics. 4 Units.**
Explains the different methods of multivariable analyses and other advanced statistical methods (multiple linear, multiple logistic regression, and survival analysis); and indicates reasons for choosing one method over another. Students required to perform an appropriate multivariable analysis on a data set, conduct an appropriate literature review for confounding variables, and present their findings within a specific time frame. Prerequisite: NGRD 657.

**NGRD 667. DNP Proposal Development. 3 Units.**
Examines the Iowa Model of Research in Practice (IMRP) guidelines and process to systematically develop the approach for implementation of an evidence-based project to improve patient care quality. Includes identification of the EBP question, the search for evidence, and steps for effective translation of the project into the specific practice setting.

**NGRD 669A. DNP Practice Inquiry Project. 4 Units.**
The first of six courses in the development of the DNP project. Student focuses on identifying and describing in detail the project problem, forming the project guidance committee and project team in the practice setting, and beginning development of the DNP project paper and PowerPoint presentation. Prerequisite or concurrent*: NGRD 656, NGRD 657, NGRD 658, NGRD 667*.

**NGRD 669B. DNP Practice Inquiry Project. 4 Units.**
The second of six courses in the development of the DNP project. Student comprehensively reviews and critiques relevant literature, works through the IRB approval process, and continues developing the DNP project paper and PowerPoint presentation. Prerequisite or concurrent*: NGRD 667, NGRD 669A*.

**NGRD 669C. DNP Practice Inquiry Project. 2 Units.**
The third of six courses in the development of the DNP project. Student pilots the project in the practice setting, and continues developing the DNP project paper and PowerPoint presentation. Prerequisite or concurrent: NGRD 669A, NGRD 669B.

**NGRD 669D. DNP Practice Inquiry Project. 2 Units.**
The fourth of six courses in the development of the DNP project. Student implements the change project using appropriate communication strategies with key personnel; and adapts change strategies appropriately, while continuing to develop the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 667, NGRD 669A, NGRD 669B, NGRD 669C.

**NGRD 669E. DNP Practice Inquiry Project. 2 Units.**
The fifth of six courses in the development of the DNP project. Student monitors and analyzes the change project, evaluates key variables, implements adjustments as needed, identifies implications for future work. Student continues developing the DNP project paper and PowerPoint presentation. Prerequisite or concurrent: NGRD 669D.

**NGRD 669F. DNP Practice Inquiry Project. 2 Units.**
The last of six courses in the development of the DNP project. Student develops results for dissemination through publication and presentation, and completes the DNP project paper and PowerPoint presentation. Prerequisite or concurrent: NGRD 669E.

**NGRD 679. Writing for Professional Publication. 4 Units.**
Provides a review of fundamental writing skills appropriate for doctoral nursing students and a mentored writing experience that includes information, resources, and guidance to facilitate development of a publishable manuscript.

**NGRD 680. Strategies for Advanced Theory Development in Nursing. 4 Units.**
Engages the student in examining and applying the process of concept and theory development. Students analyze phenomena of interest, use selected strategies to construct conceptual relationships, and evaluate theoretical frameworks for development of nursing science. Prerequisite: NGRD 651.

**NGRD 681. Philosophical Foundations of Nursing Science. 4 Units.**
Explores the development of scientific thought and knowledge. Examines sources of knowledge and the assumptions underlying major approaches to scientific inquiry. Critiques these approaches in relation to knowledge development of nursing science.

**NGRD 683. Mentored Research. 2 Units.**
Student participates in the research process or engages in research activities guided by mentors. Experience contributes to ongoing development of the student's knowledge in research planning, design conduct, analysis, or dissemination. Research activity may continue beyond one quarter (IP eligible). Acceptance into the Ph.D. degree program in nursing.

**NGRD 684. Quantitative Research Methods. 4 Units.**
Examines quantitative research methods applicable to advancing and developing nursing science. Topics range from the formulation of research problems and questions to discussing and identifying complex designs and methods. Guides the student in development of a quantitative research proposal that focuses on an area of study that may serve as the initial step in conducting independent dissertation research. Prerequisite: Minimum of one doctoral-level statistics course, or equivalent.

**NGRD 685. Qualitative Research Methods. 4 Units.**
Overview of qualitative research methods. Emphasizes selected qualitative and mixed research methodologies specific to social, clinical, and health services research. Topics include theoretical bases for conducting qualitative research; research design; data gathering, including interviewing, observation, archival and historical research, and data analysis and writing. Introduces various approaches for integrating qualitative and quantitative methodologies.

**NGRD 686. Applied Psychometrics for Health Care. 4 Units.**
Advanced study of psychological tests and application in the health sciences. Includes review of basic statistics and an introduction to more advanced analyses important to test development and evaluation. Focuses on methods of test development, procedures for evaluating psychometric adequacy, and issues in the use and interpretation of test scores. Prerequisite: STAT 531 or equivalent.

**NGRD 688. Nursing Science Seminar. 1 Unit.**
Nursing phenomena. Focus varies according to national emphases in nursing research and focus areas of participants. Emphasizes critical examination of conceptual, theoretical, and methodological issues relative to the selective topic. Prerequisite: Doctoral standing or consent of instructor.

**NGRD 689. Spiritual Care: Theory, Research and Practice. 4 Units.**
Examines spirituality and religiosity in the context of health and illness, and provides or coaches others in providing spiritually sensitive health care. Emphasizes empirical, personal, and ethical sources of knowledge about spirituality and religiosity, using knowledge generated in health care, psychology, anthropology, and other fields.

**NGRD 695. Advanced Qualitative Research. 4 Units.**
Builds upon NGRD 685 Qualitative Research Methods. Focuses on an in-depth exploration of descriptive qualitative methods, including coding, with expansion and application of the method for dissertation design. Prerequisites: NGRD 685.

**NGRD 696. Master's Thesis. 1-5 Units.**
Completion of the requirements of the master's thesis. Prerequisites: NGRD 657; NGRD 658; approval of advisor.

**NGRD 697. Dissertation Research. 1-8 Units.**
Development, conduct, analysis, and defense of dissertation research. IP may be applied as needed, depending on the progress of the work. Prerequisite: Satisfactory completion of the Comprehensive Examination.

**NGRD 699. Guided Study. 1-6 Units.**
Opportunity for intensive study in a selected area of nursing, under faculty direction.

# Nursing/Graduate Acute Care Nurse Practitioner (NGAC)

## Courses

**NGAC 501. Acute Care Advanced Pharmacology I. 2 Units.**
Principles of pharmacodynamics, pharmacotherapeutics, and pharmacokinetics. Overview of major drug classifications, discussion of therapeutic use of drugs, and application to acute medical conditions. Addresses specific legal and ethical issues for APRNs, including CA BRN Schedule 2 prescribing.

**NGAC 502. Acute Care Advanced Pharmacology II. 3 Units.**
Applies principles presented in NGAC 501 to medications commonly prescribed in the acute care settings. Overview of specific major drug classifications, discussion of the therapeutic use of drugs, and application to medical conditions. Focuses on transitioning the acute care patient to primary care and enhancing the transitional communication between providers. Prerequisite: NGAC 501.

**NGAC 533. Pediatric Acute Care Nurse Practitioner III. 6 Units.**
Prepares students to address physiologic and psychological needs of infants, children, and adolescents with acute, critical, chronic, and mental health conditions. Focuses on fundamental principles of advanced pediatric acute care management and most commonly affected systems. Prerequisite: NGPE 532.

**NGAC 535. Pediatric Acute Care Nurse Practitioner V. 6 Units.**
Prepares students to address physiologic and psychological needs of infants, children, and adolescents with acute, critical, chronic, and mental health conditions. Focuses on increasingly complex conditions and the care of critical and end-of- life patients. Prerequisite: NGPE 534.

**NGAC 536. Pediatric Acute Care Nurse Practitioner VI. 7 Units.**
Emphasis on integrating prior learning and increasing clinical competence in the pediatric acute care settings caring for children from birth through 21 years of age. Focuses on integration and synthesis of knowledge and skills under the guidance of an expert preceptor with the goal of working towards independence and in collaboration with the health-care team in preparation for the national certification exam. Prerequisite: NGAC 535.

**NGAC 540. Acute Care Nurse Practitioner Skills Lab. 1 Unit.**
Builds on skills, professional responsibilities, and legal issues that impact and/or influence the clinical practice of the acute care nurse practitioner (ACNP). Enhances the focus on health-care concepts and skills essential for the ACNP with emphasis on care of emergent conditions, demonstration of assessment and development of a plan for an acute care patient, and psychosocial and spiritual care with a focus on the medically underserved. Prerequisite: NGAC 501, NGAC 502, NGRD 624.

**NGAC 541. Adult Gerontology Acute Care Nurse Practitioner I. 6 Units.**
Introduces the role, professional responsibilities, and clinical practice of the adult-gerontology acute care nurse practitioner (AGACNP). Focuses on acute care health-care concepts related to health maintenance, promotion of optimal wellness and common, and acute illnesses across the life span. Prerequisite or concurrent: NGAC 540.

**NGAC 542. Adult Gerontology Acute Care Nurse Practitioner II. 6 Units.**
Builds on the role, professional responsibilities and legal issues that impact and/or influence the clinical practice of the adult/gerontology acute care nurse practitioner (ACAGNP). Focuses on acute care concepts related to management of patients and families with acute and chronic conditions, with emphasis in pulmonary, cardiovascular, neurological, renal, gastrointestinal, musculoskeletal, immunological, endocrine, hematology, oncology, acute care and trauma, EKG, radiology, and lab testing. Prerequisite: NGAC 541.

**NGAC 543. Adult Gerontology Acute Care Nurse Practitioner III. 7 Units.**
Continues the focus on the AGACNP role of health promotion and management of patients with common chronic conditions across the adult life span. Focuses on acute health care concepts, promotion of optimal wellness, management of patients and families with acute and chronic conditions with emphasis on the following systems: pulmonary, cardiovascular, neurological, renal, gastrointestinal, musculoskeletal, immunological, endocrine, hematology, oncology, and trauma. Prerequisite: NGAC 542.

**NGAC 544. Adult Gerontology Acute Care Nurse Practitioner IV. 7 Units.**
Continues the focus on the AGACNP role of health promotion and management of patients with common chronic conditions across the adult life span. Focuses on acute health care concepts, promotion of optimal wellness, management of patients and families with acute and chronic conditions with emphasis on the following systems; pulmonary, cardiovascular, neurological, renal, gastrointestinal, musculoskeletal, immunological, endocrine, hematology, oncology, and trauma. Prerequisite: NGAC 543.

**NGAC 545. Adult Gerontology Acute Care Nurse Practitioner V. 8 Units.**
Focuses on integration and synthesis of knowledge and skills under the guidance of an expert preceptor with the goal of working towards independence in collaboration with the health care team and in preparation for the national certification exam. Prerequisite: NGAC 544.

# Nursing/Graduate Adult-Gerontology Nurse Practitioner (NGAG)

## Courses

**NGAG 500. Gerontological Health and Wellness. 2 Units.**
Begins development of the advanced practice role of health promotion, maintenance, and management. Focuses on fragile elders with acute and chronic conditions. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGAG 501. Primary Care Adult-Gerontology Nurse Practitioner I. 5 Units.**
Introduces the role, professional responsibilities, and clinical practice of the primary care adult-gerontology nurse practitioner (AGNP). Focuses on primary health care concepts related to health maintenance and promotion of optimal wellness and common, acute illnesses of the adolescent to adult. Per week: lecture 3 hours, practicum 6 hours. Prerequisite: NGAG 500.

**NGAG 502. Primary Care Adult-Gerontology Nurse Practitioner II. 6 Units.**
Focuses on the AGNP role of health promotion and management of reproductive health and related conditions across the adolescent to adult life span. Per week: lecture 3 hours, practicum 9 hours. Prerequisite: NGAG 501.

**NGAG 503. Primary Care Adult-Gerontology Nurse Practitioner III. 8 Units.**
Continues focus on the AGNP role of health promotion and management of patients with common chronic conditions across the adult life span.Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGAG 502.

**NGAG 504. Primary Care Adult-Gerontology Nurse Practitioner IV. 8 Units.**
Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGAG 503.

**NGAG 505. Primary Care Adult-Gerontology Nurse Practitioner V: Practicum. 8 Units.**
Emphasizes integrating prior learning and increasing clinical competence in primary care settings. Includes discussion and on-line certification practice testing in addition to final practicum. Per week: lecture 1 hour, practicum 21 hours. Prerequisite: NGAG 504.

**NGAG 509. Primary Care Adult-Gerontology Nurse Practitioner: Skills Laboratory. 1 Unit.**
Focuses on kinetic learning and practice of primary care clinical skills and procedures. Prerequisite: NGAG 501.

# Nursing/Graduate Clinical Nurse Specialist (NGCN)

## Courses

**NGCN 551. Adult - Gerontology: CNS I. 4 Units.**
Focuses on theoretical basis of advanced nursing practice for adult and aging clients related to health-care delivery and continuity of chronic illness care in vulnerable populations. Contents applied to selected client populations. Prerequisite: NGRD 621, NGRD 622, NGRD 625.

**NGCN 552. Adult - Gerontology: CNS II. 4 Units.**
Focuses on the physiological basis of advanced practice nursing care of adult and aging clients with specific acute and chronic health conditions. Utilizes a systems approach to the management of complex patient problems. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGCN 553. Adult - Gerontology: CNS III. 4 Units.**
Focuses on issues relevant to the clinical nurse specialist caring for the adult and aging client. Includes topics and applications relevant to organization leadership, clinical reasoning, quality improvement, collaboration, consultation, finances, and other concepts necessary for CNS role implementation. Per week: theory 2 hours, clinical 6 hours.

**NGCN 554. Adult - Gerontology: CNS Clinical Practicum. 2-8 Units.**
Experiential learning of the advanced practice role under the guidance of faculty and clinical experts in the area of adult and aging. Emphasizes the clinical competencies outlined by AACN. Per week: clinical hours variable. Prerequisite: NGCN 551, NGCN 552, NGCN 553.

**NGCN 561. Pediatrics: Clinical Nurse Specialist I. 4 Units.**
Focuses on theoretical basis of advanced nursing practice for the child and family related to health-care delivery and continuity of chronic illness care in vulnerable populations. Students apply content to selected client populations. Prerequisite: NGRD 621, NGRD 622,NGRD 625.

**NGCN 562. Pediatrics: Clinical Nurse Specialist II. 4 Units.**
Focuses on the pathophysiological basis of advanced practice nursing care of the child with specific acute and chronic health conditions. Utilizes a systems approach to the management of complex patient problems. Prerequisite: NGCN 561.

**NGCN 563. Pediatrics: Clinical Nurse Specialist III. 4 Units.**
Focuses on issues relevant to the clinical nurse specialist caring for the child and family. Includes topics and applications relevant to organization leadership, clinical reasoning, quality improvement, collaboration, consultation, finances, and other concepts necessary for CNS role implementation. Per week: theory 2 hours, clinical 6 hours. Prerequisite: NGCN 562.

**NGCN 564. Pediatrics: Clinical Nurse Specialist Clinical Practicum. 2-8 Units.**
Experiential learning of the CNS advanced practice role under the guidance of faculty and clinical experts in the area of the child and family. Emphasizes the clinical competencies outlined by AACN. Per week: clinical hours variable. Prerequisite: NGCN 561, NGCN 562, NGCN 563.

# Nursing/Graduate Family Nurse Practitioner (NGFP)

## Courses

**NGFP 510. Family Nurse Practitioner: Pediatrics and Adolescent. 5 Units.**
Focuses on the FNP role of health promotion and management of common conditions in infants, children, and adolescents. Emphasizes normal growth and development and principles of anticipatory guidance. Per week: theory 3 hours, clinical 6 hours.

**NGFP 511. Family Nurse Practitioner I. 5 Units.**
Introduces the role, professional responsibilities, and clinical practice of the primary care family nurse practitioner (FNP). Focuses on primary health-care concepts related to health maintenance and promotion of optimal wellness and common, acute illnesses across the life span. Per week: lecture 3 hours, practicum 6 hours. Prerequisite: NGFP 510.

**NGFP 512. Family Nurse Practitioner II. 6 Units.**
Focuses on the FNP role of health promotion and management of reproductive health and related conditions across the adult life span. Per week: lecture 3 hours, practicum 9 hours. Prerequisite: NGFP 511.

**NGFP 513. Family Nurse Practitioner III. 8 Units.**
Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGFP 512.

**NGFP 514. Family Nurse Practitioner IV. 8 Units.**
Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGFP 513.

**NGFP 515. Family Nurse Practitioner V: Practicum. 8 Units.**
Emphasizes integrating prior learning and increasing clinical competence in primary care settings. Includes discussion and on-line certification practice testing in addition to final practicum. Per week: lecture 1 hour, practicum 21 hours. Prerequisite: NGFP 514.

**NGFP 519. Family Nurse Practitioner: Skills Lab. 1 Unit.**
Focuses on kinetic learning and practice of primary care clinical skills and procedures. Prerequisite: NGFP 511.

# Nursing/Graduate Nurse Anesthesia (NGNA)

## Courses

**NGNA 571. Advanced Role for the Nurse Anesthetist I. 2 Units.**
Examines advanced practice registered nursing roles, with an emphasis on the role of the nurse anesthetist, issues relevant to nurse anesthesia practice, and wellness.

**NGNA 572. Advanced Role for the Nurse Anesthetist II. 2 Units.**
Examines the regulation of nurse anesthesia practice, ethical and legal aspects of nurse anesthesia practice, the business of anesthesia, and the various roles of the nurse anesthetist. Prerequisite: NGNA 571.

**NGNA 573. Scientific Foundations of Nurse Anesthesia Practice. 4 Units.**
Focuses on the application of principles of chemistry and physics to the practice of anesthesia.

**NGNA 574. Anesthesia Equipment and Technology. 2 Units.**
Examines various equipment and technology utilized in anesthesia practice. Prerequisite: NGNA 573.

**NGNA 575. Advanced Clinical Anatomy for the Nurse Anesthetist I. 2 Units.**
Emphasizes the clinical significance of selected respiratory, nervous, vascular, and musculoskeletal system anatomical structures and associated functional aspects as they relate to the practice of anesthesia.

**NGNA 576. Advanced Clinical Anatomy for the Nurse Anesthetist II. 2 Units.**
Emphasizes the clinical significance of selected respiratory, nervous, vascular, and musculoskeletal system anatomical structures and associated functional aspects as they relate to the practice of anesthesia.

**NGNA 577. Advanced Physiology for the Nurse Anesthetist. 4 Units.**
Examines selected aspects of advanced cell biology and systems physiology that are related to homeostasis and foundational to the practice of anesthesia.

**NGNA 578. Advanced Physiology and Pathophysiology for the Nurse Anesthetist I. 4 Units.**
Examines normal human physiology and the causes, processes, and clinical manifestations of disease. Focuses on pathophysiology of the cardiovascular, pulmonary, musculoskeletal, and neuromuscular systems, as well as the anesthesia management of patients with associated disorders. Prerequisite: NGNA 577.

**NGNA 579. Advanced Physiology and Pathophysiology for the Nurse Anesthetist II. 4 Units.**
Examines normal human physiology and the causes, processes, and clinical manifestations of disease. Focuses on pathophysiology of the endocrine, gastrointestinal, hepatic, and renal systems, as well as the anesthesia management of patients with associated disorders. Also examines pediatric and obstetric physiology and pathophysiology relevant to the practice of anesthesia. Prerequisite: NGNA 577, NGNA 578.

**NGNA 580. Advanced Health Assessment for Nurse Anesthetists. 4 Units.**
Focuses on health history and physical assessment as they relate to the perioperative patient population. Includes invasive and noninvasive systems assessment and diagnostic methods. Principles and application of health promotion strategies for the CRNA population.

**NGNA 581. Advanced Pharmacology for the Nurse Anesthetist I. 6 Units.**
Applies principles of pharmacology to the practice of anesthesia, including the pharmacodynamics, pharmacokinetics, pharmacotherapeutics, and toxicology of inhalation anesthetics, intravenous anesthetics, opioid agonists and antagonists, non-opioid analgesics, neuromuscular blocking agents, and anesthetic adjuncts.

**NGNA 582. Advanced Pharmacology for the Nurse Anesthetist II. 2 Units.**
Applies principles of pharmacology to the practice of anesthesia, including the pharmacodynamics, pharmacokinetics, pharmacotherapeutics, and toxicology of local anesthetics and anesthetic adjuncts. Prerequisite: NGNA 581.

**NGNA 583. Advanced Pharmacology for the Nurse Anesthetist III. 2 Units.**
Applies principles of pharmacology to the practice of anesthesia, including the pharmacodynamics, pharmacokinetics, pharmacotherapeutics, and toxicology of autonomic agents and additional drugs of interest. Prerequisite: NGNA 582.

**NGNA 584. Principles of Nurse Anesthesia Practice I. 4 Units.**
Examines basic principles of anesthesia related to the perianesthetic management of patients undergoing surgical, diagnostic, and therapeutic procedures, culminating in the creation and implementation of a simulated anesthetic plan of care.

**NGNA 585. Principles of Nurse Anesthesia Practice II. 4 Units.**
Builds upon basic principles of anesthesia and introduces advanced concepts in the individualized perianesthetic management of patients with cardiovascular, pulmonary, and neurological disorders. Culminates in the creation and implementation of an anesthetic plan of care, including the diagnosis and treatment of simulated altered physiological responses coincident to the provision of anesthesia services and cardiovascular and/or pulmonary complications. Prerequisite: NGNA 584.

**NGNA 586. Principles of Nurse Anesthesia Practice III. 4 Units.**
Focuses on the individualized perianesthetic management of patients with various coexisting diseases across the life span, including neonatal, pediatric, obstetric, and geriatric patient populations. Prerequisite: NGNA 584, NGNA 585.

**NGNA 587. Principles of Nurse Anesthesia Practice IV. 4 Units.**
Focuses on the perianesthetic management of special patient populations and surgical subspecialties. Prerequisite: NGNA 584, NGNA 585, NGNA 586.

**NGNA 591. Clinical Practicum I. 2 Units.**
Introduces the clinical setting through preceptored experiences in the management of patients throughout the perianesthetic continuum. Prerequisite: NGNA 584, NGNA 585.

**NGNA 592. Clinical Practicum II. 2 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on basic principles of anesthesia, including preparation of the anesthetizing area and successful creation and implementation of an anesthetic plan of care. Prerequisite: NGNA 591.

**NGNA 593. Clinical Practicum III. 2 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on basic principles of anesthesia, emphasizing refinement of anesthetic management to improve patient safety and prevent iatrogenic complications. Prerequisite: NGNA 591, NGNA 592.

**NGNA 594. Clinical Practicum IV. 2 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on predicting and preventing anesthetic management issues in cases with increasing complexity. Prerequisite: NGNA 591, NGNA 592, NGNA 593.

**NGNA 595. Clinical Practicum V. 4 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on basic and advanced principles of anesthesia through the introduction of specialty rotations. Prerequisite: NGNA 591, NGNA 592, NGNA 593, NGNA 594.

**NGNA 596. Clinical Practicum VI. 4 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on refinement of anesthetic management skills through continued participation in specialty clinical rotations. Prerequisite: NGNA 591, NGNA 592, NGNA 593, NGNA 594, NGNA 595.

**NGNA 597. Clinical Practicum VII. 4 Units.**
Preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on the development and implementation of anesthetic care plans using all major techniques for all surgical specialties. Prerequisite: NGNA 591, NGNA 592, NGNA 593, NGNA 594, NGNA 595, NGNA 596.

**NGNA 598. Clinical Practicum VIII. 4 Units.**
Provides preceptored clinical experience in the full scope of nurse anesthesia practice. Focuses on refinement of decision-making with increased flexibility and speed. Prerequisite: NGNA 591, NGNA 592, NGNA 593, NGNA 594, NGNA 595, NGNA 596, NGNA 597.

**NGNA 599. Clinical Practicum IX. 4 Units.**
Culminating clinical course focusing on refinement and demonstration of requisite knowledge, skills, and competences necessary for entry into practice. Prerequisite: NGNA 591, NGNA 592, NGNA 593, NGNA 594, NGNA 595, NGNA 596, NGNA 597, NGNA 598.

# Nursing/Graduate Nurse Educator (NGNE)

## Courses

**NGNE 500. Teaching and Learning Theory. 3 Units.**
Explores the components of the teaching-learning process, including traditional and current modalities. Provides opportunities for students to practice specific teaching strategies.

**NGNE 501. Curriculum Development in Higher Education. 3 Units.**
Emphasizes the basic principles of curriculum building (needs assessment, program planning, implementation, and evaluation) within the context of the purposes, trends, and issues of the undergraduate curriculum in higher education. Considers content in nursing science and physical therapy and related disciplines in the context of the philosophical base and nursing and physical therapy theory. Synthesizes knowledge and application through a curriculum development project.

**NGNE 502. Assessment of Learning Outcomes. 3 Units.**
Explores methods of assessing classroom and clinical performance in nursing. Assists students in developing measurement instruments that assess clinical reasoning. Discusses test administration, results analysis, and appropriate feedback. Addresses social, ethical, and legal issues related to evaluation, testing, and grading.

**NGNE 503. Educational Leadership. 2 Units.**
Focuses on development of leadership skills within the nursing education arena that facilitates quality education. Explores the processes of moving from a nurse faculty role to a leadership role with a perspective toward developing educational approaches that meet current and future needs of students and facilitate the development of nursing faculty. Learned leadership to advance nursing education by being involved with others, being authentic, and creating an environment for change.

**NGNE 504. Teaching Practicum. 3 Units.**
Assists the student in developing the ability to teach both theory and clinical components in the specialty area of choice. Emphasizes the nurse teacher as facilitator of learning. Integrates expected knowledge and skills related to educational methodology and clinical nursing. Practice teaching done in the classroom and clinical setting. Per week: theory 0 hours, practicum 9-12 hours. Prerequisite: NGNE 500.

**NGNE 505. Clinical Practicum: Nurse Educator. 3 Units.**
Focuses on in-depth clinical expertise in selected area of nursing practice. Considers strategies to use clinical expertise in facilitating future nursing students' learning.

# Nursing/Graduate Pediatric Nurse Practitioner (NGPE)

## Courses

**NGPE 531. Primary Care Pediatric Nurse Practitioner I. 4 Units.**
Focuses on basic primary health-care concepts of children from birth through 21 years of age related to health maintenance and promotion of optimal wellness. Emphasis on learning developmental milestones and childhood immunizations as well as assessment of physiological, psychological, sociocultural, developmental and spiritual variables. Introduces the role of a pediatric nurse practitioner in the primary care setting. Discusses health care issues related to ethics and culture. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGPE 532. Primary Care Pediatric Nurse Practitioner II. 6 Units.**
Continues development of the pediatric nurse practitioner primary care role for children from birth through 21 years of age related to assessment and management of common and acute illnesses while incorporating health maintenance and prevention. Introduces principles of pharmaceutical management and prescription writing. Discusses the role of a pediatric nurse practitioner in the community. Prerequisite: NGPE 531.

**NGPE 533. Primary Care Pediatric Nurse Practitioner III. 6 Units.**
Continues development of the PNP primary care role in screening, assessment, and management of chronic diseases in children from birth through 21 years of age. Per week: theory 3 hours, practicum 9 hours. Prerequisite: NGPE 532.

**NGPE 534. Primary Care Pediatric Nurse Practitioner IV. 6 Units.**
Emphasizes assessment and management of children from birth to 21 years of age with complex chronic disorders, genetic syndromes and special healthcare needs. Introduces role of pediatric nurse practitioner in caring for children with special health care needs. Prerequisite: NGPE 533.

**NGPE 535. Primary Care Pediatric Nurse Practitioner V. 6 Units.**
Focus on screening, management, and referral of children from birth through 21 years with mental-health, developmental, and learning disorders. Prerequisite: NGPE 534.

**NGPE 536. Primary Care Pediatric Nurse Practitioner VI: Practicum. 7 Units.**
Focuses on integration and synthesis of knowledge and skills under the guidance of an expert preceptor, with the goal of working independently and collaboratively within a health-care team. Includes discussion and certification practice testing in addition to final practicum. Prerequisite: NGPE 535.

**NGPE 539. Primary Care Pediatric Nurse Practitioner: Skills Laboratory. 1 Unit.**
Equips pediatric nurse practitioner students with common ambulatory care skills most often used in pediatric primary care clinics. Corequisite: NGPE 531.

# Nursing/Graduate Psychiatric Mental Health Nurse Practitioner (NGPM)

## Courses

**NGPM 541. Psychiatric Mental Health Nurse Practitioner I. 4 Units.**
Focuses on psychopharmacology principles and treatment in clinical management of psychiatric disorders and symptoms across the life span. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGPM 542. Psychiatric Mental Health Nurse Practitioner II. 6 Units.**
Focuses on mental health promotion and assessment of psychiatric disorders occurring in children, adolescents, adults, and families across the life span. Prerequisite: NGPM 541.

**NGPM 543. Psychiatric Mental Health Nurse Practitioner III. 6 Units.**
Focuses on modalities of evidence-based treatment of children, adolescents, and family with common, chronic, and complex psychopathology; and on clinical experience in the assessment and management of these psychiatric disorders. Prerequisite: NGPM 542.

**NGPM 544. Psychiatric Mental Health Nurse Practitioner IV. 6 Units.**
Focuses on modalities of evidence-based treatment of the adult, geriatric, and family with common, chronic, and complex psychopathology; and on clinical experience in the assessment and management of these psychiatric disorders. Prerequisite: NGPM 543.

**NGPM 545. Psychiatric Mental Health Nurse Practitioner V. 6 Units.**
Focuses on modalities of evidence-based psychotherapies, as well as complementary and alternative approaches across the life span—with emphasis on select psychiatric disorders, community psychiatric populations, and brief solution-oriented psychotherapy. Prerequisite: NGPM 544.

**NGPM 546. Psychiatric Mental Health Nurse Practitioner VI: Practicum. 7 Units.**
Final clinical practicum with opportunity to develop autonomy while working with preceptors in clinical settings. Focuses on integration of learning from all prior psychiatric mental health nurse practitioner courses and clinical experiences. Includes discussion and certification practice testing in addition to final practicum. Prerequisite: NGPM 545.

**NGPM 549. Psychiatric Mental Health Nurse Practitioner VII: Skills Laboratory. 1 Unit.**
Focuses on practice of psychiatric care clinical skills and procedures. Prerequisite: NGPM 546.

# Nutrition (NUTR)

## Courses

**NUTR 490. Topics in Foods and Food Preparation. 1 Unit.**
On-line course provides an introduction to foods and food preparation. Includes relationship of food composition to food preparation, cultural and ethnic food patterns, sensory evaluation of food, and culinary techniques.

**NUTR 506. Nutritional Metabolism. 3 Units.**
Macronutrient structure, chemistry and functions as well as their metabolic roles in human health, including the prevention and pathogenesis of various diseases. Topics will cover the fundamentals of macronutrient metabolism. Prerequisite: General and organic chemistry.

**NUTR 508. Plant-Based Nutrition for Life Cycle. 2 Units.**
Comprehensive study of nutritional and metabolic requirements throughout the life cycle and how these are supplied by plant-rich diets. Includes contemporary issues related to plant-based nutrition. Helps the learner evaluate current scientific literature and develop informed dietary guidance.

**NUTR 509. Public Health Nutrition and Biology. 3 Units.**
Introduces the concepts of nutrition and biology as related to public health. Includes life-cycle issues and discussion of major nutrition-related diseases and their prevention. Integrates molecular and biological approaches to public health problems; and addresses the role of nutritional assessment, intervention, and policy to solve public health issues.

**NUTR 510. Advanced Public Health Nutrition. 3 Units.**
Advances in public health nutrition and the science base for application to the prevention of disease in the community. Includes nutritional guidelines, policies, monitoring systems, efficacious interventions throughout the life cycle, and interactions between genetic and nutritional factors. Prerequisite: NUTR 504 or equivalent.

**NUTR 517. Advanced Nutrition I: Carbohydrates and Lipids. 4 Units.**
Advanced study of the nutrition, metabolism, and function of carbohydrates and lipids as related to health and disease. Prerequisite: NUTR 504; or biochemistry equivalent; or consent of instructor.

**NUTR 518. Advanced Nutrition II: Proteins, Vitamins, and Minerals. 4 Units.**
Advanced study of the nutrition, metabolism, and function of proteins, vitamins, and minerals as related to health and disease.

**NUTR 519. Phytochemicals. 2 Units.**
Discusses the role of phytochemicals in disease prevention and treatment. Reviews current research in this area.

**NUTR 520. Sustainable Food Systems. 3 Units.**
Introduces the concept of sustainable food systems in relation to nutrition. Discusses the evolution of the food system from historical to modern context and what challenges food systems pose to sustainability. ExplaIns strategies to address these challenges, including plant-based diets and reducing food loss and food waste. Provides a foundation for understanding and commenting on contemporary issues in food systems sustainability.

**NUTR 525. Nutrition Policy, Programs, and Services. 3 Units.**
Develops professional skills in management of nutrition programs. Includes legislative advocacy and analysis of current nutrition programs at local, state, and federal levels. Laboratory.

**NUTR 526. Nutrition Counseling and Education. 2 Units.**
Counseling skills, specifically counseling one-on-one and groups, in order to facilitate changes in nutrition status. Teaching/learning styles, development of therapeutic relationships with patients/clients, and development of listening skills. Case-study evaluation and development of group education lesson plans. Includes 1 unit of laboratory.

**NUTR 527. Assessment of Nutritional Status. 3 Units.**
Provides a foundation for understanding how to collect and interpret anthropometric, biochemical, clinical, and dietary data; and for understanding how to use such data in analyzing food and nutrient intake and needs in individuals, groups, and populations of varying health statuses. Includes 1 unit of laboratory.

**NUTR 529. Health Aspects of Vegetarian Eating. 3 Units.**
Introduces concepts of vegetarian nutrition as related to health and longevity. Addresses nutritional adequacy, as well as the benefits of vegetarian eating related to the prevention of major chronic diseases, such as heart disease, cancer, obesity, diabetes, and osteoporosis. Covers the interplay between the risks and benefits of vegetarian eating.

**NUTR 530. Dietary Assessment of Populations. 2 Units.**
Presents an overview of dietary assessment of populations. Discusses methodological issues in the context of the study population, research design, and data collection. Critically evaluates dietary assessment literature. Topics include: variation in diet, advantages and limitations of different dietary assessment techniques, study design, development of food frequency questionnaires, nutrient biomarkers, and assessment of anthropometric measures and physical activity. Prerequisite: Basic nutrition course.

**NUTR 531. Community Nutrition Intervention I. 2 Units.**
Provides training and practice identifying/assessing community health issues. Students collaborate with local associations and faculty advisers to analyze a public health issue and evaluate intervention alternatives using an asset-based, problem-solving approach.

**NUTR 532. Community Nutrition Intervention II. 1 Unit.**
Laboratory focusing on the implementation and evaluation of strategies to address community health issues identified and analyzed in NUTR 531. Service learning course. Prerequisite: NUTR 531.

**NUTR 534. Maternal and Child Nutrition. 3 Units.**
Advanced study of the role of nutrition in human growth and development during the prenatal period, lactation, infancy, and childhood.

**NUTR 535. Research Applications in Nutrition. 3 Units.**
Overview of research methods in nutrition. Provides an understanding of foundational issues of research design from both the quantitative and qualitative perspectives, as well as understanding of the sequence of procedures in proposal development. Laboratory included.

**NUTR 556. Nutritional Applications in Lifestyle Intervention. 3 Units.**
Review of literature on the basic nutrients, protein, fat, carbohydrate, vitamins, minerals, and water. Develops skills to analyze, evaluate, and prescribe dietary intake for weight loss, weight maintenance, and weight gain. Reviews current dietary guidelines and pertinent food components relative to their health effects. Trains in skills, tools, and strategies for effective nutrition education. Practical training in nutritional assessment and education skills for lifestyle interventions.

**NUTR 557. Nutrition Care Process for Diabetes and Heart Disease. 2 Units.**
Knowledge, application, and practice applying the nutrition care process and terminology in assessing patients with diabetes and heart disease; and developing critical thinking skills in identifying and documenting information available in patients' medical chart. Includes 1 unit of laboratory.

**NUTR 564. Contemporary Issues of Vegetarian Diets. 2 Units.**
Introduces scientific and social issues of vegetarian diets. Provides background information on the history and rationale of vegetarianism, as well as data on the health benefits and risks of a vegetarian diet.

**NUTR 578. Exercise Nutrition. 3 Units.**
Nutritional needs of professional and recreational athletes. The role of macro- and micronutrients and of supplements as ergogenic aids. Presents overview of current research in the areas of exercise nutrition.

**NUTR 585. Topics in Global Nutrition. 3 Units.**
Discussion of current issues of importance in international nutrition.

**NUTR 595. Special Topics in Nutrition. 1-4 Units.**
Current topics in nutrition. May be repeated for additional credit.

**NUTR 597. Special Topics in Clinical Nutrition. 1-3 Units.**
Current topics in clinical nutrition. May be repeated for additional credit.

**NUTR 605. Seminar in Nutrition. 1 Unit.**
Explores current major issues in nutrition. Students choose and research a topic or problem and discuss their findings in class. Written report required. May be repeated for additional credit. Prerequisite: Five graduate units in nutrition; or consent of instructor.

**NUTR 608. Doctoral Seminar in Public Health Nutrition. 1-3 Units.**
Enhances skills relative to scientific literature review, critical thinking, scientific discussion with peers, presentation using advanced audiovisual aids, writing review paper and abstract as per peer-reviewed journal requirements. Maximal interaction with faculty, peers, and visiting nutritional professionals. Limited to doctoral degree students in nutrition. May be repeated for additional credit.

**NUTR 617. Preventive Nutrition I: Carbohydrates and Lipids. 2 Units.**
Critically reviews the current scientific literature to discuss topics surrounding advances in macronutrient (CHO and lipid) metabolism, discusses the role of quantity and quality of carbohydrate and fat in disease prevention, and provides the rationale and science base of its application to practice. Prerequisite: NUTR 504, NUTR 518. or equivalent.

**NUTR 618. Preventive Nutrition II: Protein, Vitamins and Minerals. 2 Units.**
Advanced study of current knowledge in nutrition and the rationale and science base of its application to practice in the prevention of disorders. Focuses on the role of proteins, vitamins, and minerals. Prerequisite: NUTR 504, NUTR 517, or equivalent.

**NUTR 619. Preventive Nutrition III: Phytochemicals. 3 Units.**
Critically review of the current scientific literature to discuss topics surrounding advances in phytochemical metabolism and foods and food groups that are phytochemical rich; and to understand their role in disease prevention.

**NUTR 620. Advanced Topics in Nutrition. 3 Units.**
Lecture and discussion of an advanced topic in nutrition bearing on the theory or practice of one aspect of the discipline. Specific content varies from year to year. May be repeated for additional credit. Topics may include: nutrigenomics and epigenetics, environment and nutrition, microbiome and diet, etc. Limited to doctoral degree students.

**NUTR 634. Concepts of Nutritional Epidemiology. 3 Units.**
Overview of nutritional epidemiology. Includes: nutritional epidemiology literature; variations in diet; advantages and limitations of diet-assessment techniques; design, development; validation of food-frequency questionnaires; nutrient biomarkers; implications of total energy intake; and, measurement error and correction. Prerequisite: STAT 521 or PHCJ 615; consent of instructor.

**NUTR 639. Research Methods in Nutrition. 2 Units.**
Introduces students to the research process related to clinical/human nutrition investigation, familiarizing them with the steps to follow as they organize their research in a logical, focused and efficient way. Covers development of a research question, a research plan, and a study design. Gives consideration to subject selection, sample size, and ethical issues. Prerequisite: STAT 521.

**NUTR 643. Advanced Applications in Nutritional Epidemiology. 2 Units.**
Applies critical thinking to the development of nutritional epidemiology research. Includes: expansion and enhancement of nutrition databases; critical appraisal of self-reported exposure and outcome data; and, access to and exploration of AHS-2 databases. Prerequisite: NUTR 634.

**NUTR 664. Vegetarian Nutrition: Person, Population, Planet. 3 Units.**
Presents and discusses the scientific and social issues related to vegetarian diets. Provides background information on the history and rationale for vegetarianism, as well as evidence for the health benefits and risks of a vegetarian diet. A forum in which to discuss personal attitudes and lifestyle approaches to vegetarianism. For doctoral students only.

**NUTR 678. Advanced Exercise Nutrition. 3 Units.**
Discusses current research in the field of exercise nutrition; nutritional needs of professional and recreational athletes; and the role of macro- and micronutrients as ergogenic aids. Requires a presentation and a term paper on a current research topic in exercise nutrition. Limited to doctoral students. Instructor approval required for master's degree students.

**NUTR 685. Preliminary Research Experience. 1,2 Unit.**
Experience in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation/research project. Limited to doctoral degree students.

**NUTR 694. Research. 1-12 Units.**
Independent research for doctoral degree candidates and qualified master's degree students on problems currently being studied in the program, or in other programs(s) with which they collaborate. Research program arranged with faculty member(s) involved. Minimum of 100 hours required for each unit of credit. Written report required.

**NUTR 695. Thesis. 2 Units.**
Preparation of report of individual, guided experimental-research study in nutrition, under direct faculty supervision. Limited to graduate students whose thesis project has been approved by their research committee.

**NUTR 696. Directed Study/Special Project. 1-4 Units.**
Individual arrangements for advanced students to study under the guidance of a program faculty member. May include readings, literature reviews, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program.

**NUTR 697. Dissertation Proposal. 1-10 Units.**
Doctoral student develops a written dissertation proposal and works in collaboration with the dissertation committee chair on mutually agreed-upon objectives that will provide the basis for evaluation. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Prerequisite: NUTR 697 and advancement to candidacy.

**NUTR 698. Dissertation. 1-14 Units.**
Student prepares manuscript presenting results of doctoral research study. Limited to doctoral degree students.

**NUTR 799B. Dietetic Practicum. 6 Units.**
Assignment to hospital or other school-approved organization where practical application of the materials studied regarding food service and medical nutrition therapy is made under the guidance of department faculty and the organization involved. Intended to meet the dietetic practice hours of the Graduate Coordinated Program in Public Health Nutrition and Dietetics.

**NUTR 799D. Dietetic Practicum. 12 Units.**
Assignment to hospital or other school-approved organization where practical application of the materials studied regarding food service and medical nutrition therapy is made under the guidance of department faculty and the organization involved. Intended to meet the dietetic practice hours of the Graduate Coordinated Program in Public Health Nutrition and Dietetics.

# Occupational Medicine (OMED)

## Courses

**OMED 524. Foundations of Occupational Health and Safety. 3 Units.**
Overview of fundamental aspects of occupational health and safety, including: occupational epidemiology; risk/hazard assessment, control, and communication; and industrial hygiene, safety, and ergonomics. Prerequisite: Consent of instructor.

**OMED 525. Clinical Toxicology, and Occupational Health Disorders. 3 Units.**
Overview of general principles and basic concepts toxicology, major mechanisms of toxicity, and responses of various organ systems to toxicants. Includes toxicological principles and management of selected substances and toxic agents, as well as evaluation of validity of toxicological literature.

# Occupational Therapy (OCTH)

## Courses

**OCTH 501. Professional Foundations I. 3 Units.**
Foundational understanding of the philosophical and historical underpinnings of the occupational therapy profession, and the unique role and therapeutic use of occupation across multiple settings. Introduces the professional paradigms of frames of reference, professional organizations, and occupation in health and society. Initiates the process of therapeutic use of self as a reflective professional.

**OCTH 502. Professional Foundations II: Human Occupation. 3 Units.**
Develops an understanding of how occupation, embedded in a diverse social-cultural context, is shaped and changed throughout the human life span. Examines the concept of occupation, as defined in occupational therapy and occupational science, in the context of its historical relationship to human adaptation and health. Explores social participation through individual and group occupations. Prerequisite: OCTH 501.

**OCTH 503. Professional Foundations III. 1 Unit.**
Explores service delivery models to meet societal health and participation needs. Includes basic business elements of occupational therapy practice, grant writing, and the teaching and learning process. Prerequisite: OCTH 501, OCTH 502.

**OCTH 504. Professional Foundations IV. 2 Units.**
Introduces leadership and management with roles and responsibilities specific to occupational therapy practice. Explores standards of practice, supervision, and advocacy options for populations and the profession.

**OCTH 505. Occupation-Based Activity Analysis. 3 Units.**
Analyzes activities in all areas of occupations based on dynamic interaction of client factors, performance skills, performance patterns, and contexts. Includes in-depth understanding of the kinesiology components of joint mobility, stability, tone, and power. Relates activity demands to their influence on performance in occupations. Applies concepts to grading and adapting activities and occupations. Prerequisite: AHCJ 512.

**OCTH 506. Functional Neuroscience. 3 Units.**
Provides a foundational understanding of neuroscience—including anatomy and function of the central and peripheral nervous systems, neurological conditions related to anatomical structure and function, and relationship of the nervous system to engagement in occupation. Prerequisite: AHCJ 512.

**OCTH 507. Trends in Neuroscience. 2 Units.**
Explores current research and practice trends in neuroscience for enhancing understanding of occupational engagement as it relates to health and well-being. Prerequisite: OCTH 506.

**OCTH 508. Splinting. 1 Unit.**
Design and fabrication of splints, with reference to various populations across the life span. Emphasizes safety precautions and monitoring. Prerequisite: OCTH 505.

**OCTH 509. Design and Technology. 2 Units.**
Introduces a broad spectrum of assistive technologies which address the gap in occupational performance. Examination and assessment of theoretical and societal issues, population and policy trends, scientific advances, environmental constraints, and funding opportunities. Explores principles of universal design and public policy that support engagement in home and community environments.

**OCTH 510. Functional Kinesiology. 1 Unit.**
Applies anatomical and mechanical fundamentals of human motion to conduct muscle testing and goniometry. Emphasizes upper extremity. AHCJ 510.

**OCTH 511. Conditions in Occupational Therapy: Orthopedic. 4 Units.**
Common orthopedic and rheumatological disorders, and the implications for participation in occupations across the life span. Introduces safety issues surrounding these disorders, as well as the influence of contexts. Prerequisite: AHCJ 510; OCTH 510.

**OCTH 512. Conditions in Occupational Therapy: Neuroscience. 4 Units.**
Reviews common neurological disorders and the implications for participation in occupations across the life span. Examines guiding theories and evidence-based practice. Introduces safety issues surrounding these disorders, as well as the influence of contexts. Prerequisite: OCTH 506.

**OCTH 514. Conditions in Occupational Therapy: Behavioral Health. 4 Units.**
Examines common disorders and guiding theories related to behavioral health and the implications for participation in occupations across the life span. Explores roles and how occupations and roles are related, resulting in healthy emotional connections and occupational participation. Discusses safety issues surrounding these disorders, as well as the influence of context.

**OCTH 515. Conditions in Occupational Therapy: Infants, Children, Youth. 4 Units.**
Reviews common disorders and conditions, along with implications for participation in occupations for infants, children, and youth from individual and family perspectives. Examines guiding theories, evidence-based practice, federal laws, and policies related to these populations. Introduces safety issues surrounding these disorders, as well as the influence of contexts.

**OCTH 516. Conditions in Occupational Therapy: General Medicine. 4 Units.**
Reviews common general medicine disorders and the implications for participation in occupations across the life span in both traditional and nontraditional settings. Examines guiding theories and evidence-based practice. Introduces safety issues and standard protocols surrounding these disorders, as well as the influence of contexts. Prerequisite: OCTH 510.

**OCTH 517. Introduction to Physical Agent Modalities. 1 Unit.**
Prepares the student for use of physical agent modalities with differential diagnoses in multiple practice settings. Discusses treatment goals and use of physical agent modalities within practice guidelines, assesses common practice techniques, explores regulations and safety, and reviews the process for obtaining advanced practice certification in physical agent modalities.

**OCTH 521. Analysis and Intervention I: Orthopedic. 3 Units.**
Assesses common orthopedic conditions, including safe transfer techniques; as well as training in the use of adaptive equipment. Treatment planning emphasizes evaluation findings and safety considerations of the client's condition and contexts.

**OCTH 522. Analysis and Intervention: Behavioral Health. 3 Units.**
Introduces assessments for common behavioral health diagnoses. Emphasizes designing and coordinating occupation-based and client-centered interventions. Demonstrates ability to facilitate groups, and implements de-escalation strategies. Applies wholistic approach in working with clients to promote health and participation in a variety of contexts.

**OCTH 523. Analysis and Intervention: Neuroscience. 3 Units.**
Introduces assessment of clients with common neurological disorders such as changes in cognitive, visual/perceptual, balance, and coordination skills. Includes conditions' impacts on participation in occupations. Addresses safety and adaptation of tools, techniques, and the environment to client needs. Emphasizes treatment planning based on the synthesis of evaluation findings and safety considerations of clients' conditions and contexts.

**OCTH 524. Analysis and Intervention: Infants, Children, Youth. 3 Units.**
Introduces analysis and treatment planning for common diagnoses and conditions of infants, children, and youth. Emphasizes design and coordination of evidence-based, client-centered interventions. Design and coordination of groups and family-centered care. Applies wholistic approach in working with clients to promote health and participation in a variety of contexts. Prerequisite: OCTH 502.

**OCTH 527. Analysis and Intervention: General Medicine. 3 Units.**
Student synthesizes evaluation and assessments to develop intervention plans for clients with general medicine conditions, and to promote participation in occupations. Student demonstrates ability to safely transfer clients and to provide patient and family training; as well as ability to adapt tools, techniques, and environment.

**OCTH 530. Sensorimotor. 2 Units.**
Includes evidence-based current rehabilitation trends and best practice relevant to adult neurological rehabilitation. Emphasizes sensorimotor approaches to rehabilitation, CIMT, NDT, PNF, Rood, Brunnstrom, and clinical decision making. Integrates neurologic and orthopedic rehabilitation strategies through activities of daily living. Prerequisite: OCTH 506.

**OCTH 534. Introduction to Sensory Processing. 2 Units.**
Explores Ayres Sensory Integration theory and practice, assessment, and intervention to enable understanding and implementation of sensory integration and sensory processing through life span. Provides skill sets that occupational therapy practitioners use to promote roles and participation in areas of occupation such as activities of daily living, play, sleep, and education.

**OCTH 544. Advanced Occupational Therapy History. 3 Units.**
Provides the student with an extensive understanding of the history of occupational therapy by critically reviewing historical incidents, the history of occupational therapy and societal theories and practices, political conditions, and historical incidents. Facilitates the student's ability to enact advocacy and to better understand future projections in the field.

**OCTH 545. Current Trends in Occupational Therapy Practice. 3 Units.**
Provides an overview of current trends in the field of occupational therapy and health care. Topics may include issues related to health-care funding, policy, emerging practice areas, and health disparities.

**OCTH 551. Occupation and Wellness. 2 Units.**
Provides the student with an understanding of the connections among occupation, occupational therapy practice, and wellness by critically investigating research and theoretical perspectives. Leads to a better understanding of the uniqueness of an occupational perspective of health and its relationship to daily living.

**OCTH 552. Professional Transition. 3 Units.**
Provides the student with an opportunity to explore a variety of topics relevant to transitioning into occupational therapy professional practice. Preparation for national certification examination.

**OCTH 560. Occupational Therapy Advocacy and Leadership. 3 Units.**
Introduces business for occupational therapy practitioners, including financial statements and budgetary processes, marketing, management, and consultation. Emphasizes the use of strategic planning for decision-making processes of program development, productivity, and accountability. Introduces roles and responsibilities of leadership; and explores standards of practice, supervision, and advocacy options for populations and the profession.

**OCTH 570. Critical Inquiry and Evidence-Based Practice I. 1 Unit.**
Defines evidence-based practice (EBP) and its relevance to occupational therapy practice and professional growth. Describes steps to complete EBP and discusses common statistical methods used in occupational therapy research. Includes philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics.

**OCTH 574. Critical Inquiry and Evidence-Based Practice II. 3 Units.**
Student develops and implements a scholarly research proposal by systematically identifying and investigating a problem, issue, or question of relevance to occupational therapy practice. Emphasizes writing skills and critical analysis in preparation of literature review, purpose, conceptual framework, proposed methodology, and data analysis for the Institutional Review Board proposal.

**OCTH 575. Critical Inquiry and Evidence-based Practice III. 2 Units.**
Student finalizes research proposal and implements a scholarly research project by systematically engaging in data collection, data management, and data analysis. Incorporates research ethics.

**OCTH 576. Critical Inquiry and Evidence-based Practice IV. 2 Units.**
Student implements a scholarly research proposal by systematically analyzing data relevant to occupational therapy practice. Emphasizes synthesis of findings and writing scholarly paper.

**OCTH 598. Occupational Therapy Advanced Specialty Tracks. 1-3 Units.**
Presents in-depth practice application in an area of occupational therapy. Opportunity to pursue various topics related to current trends. Develops advanced clinical skills, where appropriate.

**OCTH 600. Occupational Science and Health Promotion. 3 Units.**
Explores occupational science as an academic discipline and how it supports occupational therapy's role in health promotion. Utilizes theoretical perspectives and research to analyze and understand occupation's relationship to lifestyle, health, well-being, and prevention.

**OCTH 601. Spirit of Diverse Abilities I. 3 Units.**
Examines perspectives in order to view and understand the disability experience and the role of spirituality and occupational justice in practice. Emphasizes theoretical approaches. Discusses role of occupational therapy in social justice.

**OCTH 602. Spirit of Diverse Abilities II. 3 Units.**
Explores and discusses the experience of disability and occupational injustice. Explores and applies these concepts in relation to the profession of occupational therapy and the greater society. Students explore issues such as homelessness, diversity, disparity, and ethics. Prerequisite: OCTH 601.

**OCTH 604. Health, Society, and Participation. 3 Units.**
Incorporates health and participation to integrate the individual, community, and greater society. Students engage in grant searching and grant writing. Discusses logic models and program. Emphasizes participatory research; program development; needs assessment; healing environments; social justice issues; global issues; World Health Organization; International Classification of Functioning, Disability and Health; AIDS; culture; and mission work in relation to the profession of occupational therapy.

**OCTH 605. Education for Health Professionals. 3 Units.**
Explores the philosophical foundations of knowledge and learning theory. Prepares health professionals for the roles and expectations of education in academic and practice settings. Discusses instructional design, media, student assessment, teaching skills, course development, mentoring, and curriculum design.

**OCTH 606. Leadership for Health Professionals. 3 Units.**
Explores leadership theory, administrative characteristics and strategies, professionalism, team facilitation, clinical reasoning, ethics, and advocacy. Students participate in legislative process and analyze international issues and social justice in relation to professional practice.

**OCTH 632. Capstone I: Introduction to Theory & Research. 4 Units.**
Introduces theoretical foundations and designs for research. Emphasizes skills necessary to plan and develop an independent research study. Grant-writing instruction for funding of capstone projects. Students design their capstone experience with guidance from the primary course instructor: identification of a focus area, objectives, goals, outcomes, onsite instructor, faculty mentor, and time frame.

**OCTH 633. Capstone Proposal: IRB or Program Development. 4 Units.**
Reflective discussions of research interests and experiences; and, proposed research design, planning, conceptual framework, methodology, and data analysis as preparation for development and eventual implementation of a research proposal or capstone activity. Focus on Institutional Review Board training and successful proposal submission. Prerequisite: OCTH 631, OCTH 632.

**OCTH 634. Capstone II. 3 Units.**
Continues the capstone project. Students complete a needs assessment and program development, data collection, data management techniques, and introduction to various data analysis strategies. Individual projects and activities vary.

**OCTH 635. Capstone III. 4 Units.**
Implements capstone approved in OCTH 634. Critical discussion of experiences and problem solving with classmates.

**OCTH 636. Capstone IV. 4 Units.**
Completes implementation aspects of capstone. Initiates preparation of a manuscript and participation in online critical discussions with classmates.

**OCTH 637. Professional Publication and Dissemination. 4 Units.**
A culmination course in which students reflect on their capstone experiences and complete their program development. Students prepare a professional manuscript to be submitted for publication. Critical discussion with peers regarding knowledge transference to impact individuals, society, the profession, and clinical practice. Prerequisite: OCTH 636.

**OCTH 699. Directed Study. 2,3 Units.**
Student pursues an area of special interest under the direction of the faculty advisor. Topic must be approved by the occupational therapy department.

**OCTH 701. Service in Occupational Therapy Practice. 1 Unit.**
Includes philosophy of service, learning by experience, reflection, and civic engagement. Provides opportunity for students to apply critical thinking skills, team-based learning, and information learned in didactic coursework to collaborate with the community and address client and community needs.

**OCTH 702. Service Learning I. 3 Units.**
Service learning experiences utilize active learning strategies that involve students in experience, reflection, sustainability, and civic engagement. Emphasizes needs assessment. Encourages collaboration with community partners and addresses the needs of the community through the development of the service learning project. Develops critical thinking and team-based learning skills.

**OCTH 703. Service Learning II: Level I Fieldwork. 3 Units.**
Supervised psychosocial fieldwork experience building on the service-learning project. Emphasizes application of knowledge, intervention planning and implementation, and outcome assessment. Encourages collaboration with community partners, and addresses needs of the community through the development of a service learning project. Develops critical thinking and practice skills. Prerequisite: OCTH 702.

**OCTH 711. Level I Fieldwork 1. 2 Units.**
Observation and supervised interaction in clinical and/or community-based programs to introduce students to fieldwork experience, apply knowledge to practice, and develop understanding of the needs of clients.

**OCTH 712. Level I Fieldwork. 1 Unit.**
Observation and supervised interaction in clinical and/or community-based programs to introduce students to fieldwork experience, apply knowledge to practice, and develop understanding of the needs of clients.

**OCTH 713. Level I Fieldwork. 1 Unit.**
Supervised interaction in a school-based setting to allow student to apply knowledge to practice, and to develop understanding of client needs.

**OCTH 721. Level II Fieldwork Experience 1. 8 Units.**
A twelve-week (forty hours/week) supervised fieldwork experience in clinical and/or community-based programs. Emphasizes assessment, planning, treatment, problem solving, administration, and professionalism. Successful completion necessary before student is eligible to take the certification examination.

**OCTH 722. Level II Fieldwork Experience 2. 8 Units.**
A twelve-week (forty hours/week) supervised fieldwork experience in clinical and/or community-based programs. Emphasizes assessment, planning, treatment, problem solving, administration, and professionalism. Successful completion necessary before student is eligible to take the certification examination.

# Ophthalmology (OPHM)

## Courses

**OPHM 891. Ophthalmology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of ophthalmology, including research.

# Oral and Maxillofacial Surgery (OMFS)

## Courses

**OMFS 604. Selected Topics in Oral and Maxillofacial Surgery. 1 Unit.**
Covers current topics in oral and maxillofacial surgery, and practice management during weekly seminars and monthly grand rounds by experts in their respective fields.

**OMFS 605. Integrated Orthodontic and Surgical Correction of Dentofacial Deformities. 1 Unit.**
Addresses preoperative diagnosis, planning, intraoperative procedures, and postoperative care of orthognathic patients. Includes: congenital and developmental deformities; surgical-orthodontics patient management; preoperative skeletal, dental, and soft-tissue analyses; and cephalometric analysis in treatment planning.

**OMFS 606. Applied Surgical Anatomy. 1 Unit.**
Applies anatomic principles involved in clinical diagnosis and in assessing clinical problem areas. Discusses anatomic consequences of surgical and treatment procedures and the anatomic aspects of emergencies occurring in practice. Emphasizes the vascular supply and neuroinnervation of structures of the oral cavity, and adjacent areas of the head and neck.

**OMFS 607. Principles of Medical History, Physical Examination, and Clinical Medicine. 2 Units.**
Focuses on developing accurate history-taking and physical examination skills. Specific topics include review of organ systems and associated pathology (physical and laboratory), hospital protocol, and charting. Residents perform history and physical (H&P) on medical and surgical patients. Emphasizes proficiency in developing differential diagnoses of common medical and surgical problems.

**OMFS 608. Surgical Oral and Maxillofacial Pathology Conference. 0.5 Units.**
Uses recent pathology cases as the basis for review and discussion of common and ominous lesions encountered. Emphasizes differential diagnosis and patient management. Guest lecturers cover selected topics in oral and maxillofacial pathology. Repeated registrations required to fulfill the total units.

**OMFS 609. Literature Review in Oral and Maxillofacial Surgery. 0.5 Units.**
A monthly discussion of recent literature from selected journals. Reviews classic landmark articles and their impact on the specialty. Repeated registrations required to fulfill total units.

**OMFS 614. Clinical Experience in Oral and Maxillofacial Surgery Practice. 7 Units.**
Addresses oral and maxillofacial surgery with emphasis on dentoalveolar surgery, complicated fractures of the facial bones, reconstructive maxillofacial surgery, surgical orthognathic correction, treatment of developmental and acquired deformities of the jaw, implant surgery, temporomandibular joint surgery, and osseous grafting of postresection and posttraumatic maxillofacial defects.

**OMFS 615. Current Trends in Medicine and Surgery. 2 Units.**
Off-service specialty seminars on a wide range of topics, including anesthesia, internal medicine, ICU care, general surgery, and various specialty topics. Repeated registrations required to fulfill the total units.

**OMFS 616. Application of Surgical Principles to Orthognathic Surgery. 1 Unit.**
Introductory multidisciplinary lecture-seminar emphasizing preoperative diagnosis, treatment planning, intraoperative procedures, and postoperative care of orthognathic patients; description of congenital and developmental deformities, emphasizing all aspects of surgical orthodontic patient management.

**OMFS 617. Critical Decision Making in Oral and Maxillofacial Surgery. 1 Unit.**
Expands critical decision-making skills in patient care. Reviews data gathering, treatment alternatives, treatment of complications, and outcome assessment analysis.

**OMFS 618. Introduction to General Anesthesia. 1 Unit.**
Introduces the theory and practice of general anesthesia.

**OMFS 696. Scholarly Activity in Oral and Maxillofacial Surgery. 1 Unit.**
Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for residents to fulfill the certificate requirements for scholarly activity/research in oral and maxillofacial surgery. Multiple registrations may be needed to complete these activities.

**OMFS 697A. Research. 1 Unit.**
Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**OMFS 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**OMFS 697C. Research. 1 Unit.**
Resident completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**OMFS 698. Thesis. 1 Unit.**

# Oral Diagnosis, Radiology and Pathology (ODRP)

## Courses

**ODRP 311. General and Oral Pathology DH. 5 Units.**
Basic disease processes and selected organ system diseases. Discusses common and important oral mucosal, soft tissue, and jaw lesions. Emphasizes signs for early recognition and differential diagnosis.

**ODRP 756. Radiology III: Oral & Maxillofacial Radiology. 1.5 Unit.**
Presents an orderly and sequential approach to the formulation of a radiographic differential diagnosis. Establishes a working diagnosis based on the radiographic findings of patients affected by lesions or conditions involving the teeth, jaws and adjacent oral anatomy. A differential diagnosis is obtained by including or excluding certain lesions or conditions based on their radiographic manifestations and clinical presentation.

**ODRP 807. Oral Medicine I: TMJ/Orofacial Pain I. 1 Unit.**
Introduces diagnosis and treatment of temporomandibular joint disorders (TMD). Teaches anatomy, pathology, and diagnostic imaging of the temporomandibular joint. Presents clinical features and mechanisms of masticatory muscle pain, disc disorders, occlusal disorders, and arthritis of the TMJ. Includes patient cases focusing on these disorders. Student learns how to perform an orofacial pain examination and initial treatment for patients with temporomandibular joint disorders.

**ODRP 808. Oral Medicine II: Medically Compromised Patient. 2 Units.**
Etiology, pathophysiology, clinical presentation, medical management, and dental treatment modifications for patients with medical conditions of the cardiovascular, pulmonary, gastrointestinal, genitourinary, endocrine, immunologic, hematologic, and neurologic systems; as well as psychiatric disorders and infectious and oncologic diseases. Case-based, small-group discussions.

**ODRP 811. Oral Medicine III: TMJ/Orofacial Pain II. 1 Unit.**
Advanced topics on temporomandibular joint disorders and orofacial pain. Introduces diagnosis and management of acute and chronic orofacial pain conditions, including neuropathic pain, headaches, and comorbid psychiatric disorders. Student learns to recognize, screen, and make appropriate referrals for chronic orofacial pain. Case presentations focus on nonodontogenic pain that presents as tooth pain.

**ODRP 821. Special Care Dentistry. 1 Unit.**
Instruction in the multidisciplinary medical and dental assessment and management of older adults. Includes clinical experience in a multidisciplinary team setting.

**ODRP 826. Oral Medicine IV: Clinical Oral Pathology and Oncology. 2 Units.**
Differential diagnosis and initial management of oral disease, utilizing clinical case studies. Epidemiology, methods of detection, diagnosis, and management of oral and maxillofacial cancer. Principles of cancer therapy by surgical modalities. Includes discussion of cancer prevention and posttherapy reconstruction. Reviews tobacco cessation protocols.

# Oral Pathology (ORPA)

## Courses

**ORPA 533. Radiology Topics for Graduate Dental Programs. 2 Units.**
Applies principles of radiology to the specialty level. Presents new imaging modalities, as well as methods to create a custom image center for the provider's needs. Equips provider to evaluate equipment, state laws, and other factors in setting up a modern practice.

# Orthodontics (ORDN)

## Courses

**ORDN 524. Introduction to Graduate Orthodontics. 12 Units.**
Lecture course outlining the principles of applied design, the application of forces to produce tooth movement, and the tissue response to such forces. Overview of orthodontics to prepare the student for clinical practice of orthodontics diagnosis and treatment planning, including cephalometrics, growth forecasting, and preparation of visual treatment objectives.

**ORDN 524L. Introduction to Graduate Orthodontics Laboratory. 6 Units.**
Selected laboratory projects to enhance the didactic portion of the course.

**ORDN 525. Materials Science and Mechanics. 2 Units.**
Structure and properties of materials used in orthodontics. Analyzes the effects of mechanical and heat treatment. Surveys strength and mechanics in force-delivery systems.

**ORDN 526. Applied Anatomy. 2 Units.**
Fundamentals of anatomy as applied to a special region or application.

**ORDN 527. Clinical Photography. 1 Unit.**
Clinical proficiency in intraoral and extraoral photography. Discusses and uses photographic equipment and techniques on orthodontic patients. Camera, lens, and flash required.

**ORDN 535. Advanced Cephalometrics. 2 Units.**
Studies cephalometrics from a historical perspective to the present time, including most of the major analyses.

**ORDN 536. Concepts of Physical Anthropology. 2 Units.**
Basic and classic concepts of physical anthropology as they relate to orthodontics.

**ORDN 545. Growth and Development. 3 Units.**
Principles of growth and development from the subcellular to the tissue level. Emphasizes myogenesis and osteogenesis. Prenatal and postnatal development of the face and jaws, including the classic concepts of facial growth. Considers general growth, with the goal of developing ability to recognize abnormal signs, observe variations, diagnose pathological conditions, know the normal, predict height, and use various standards to assess growth and development.

**ORDN 546. Fundamentals of Occlusion. 2 Units.**
The development of the human face and dentition. A concept of dynamic functioning occlusion.

**ORDN 571. Diagnosis and Treatment Planning I. 2 Units.**
Student diagnoses and treats assigned patients.

**ORDN 574. Diagnosis and Treatment Planning II. 2 Units.**
Continues ORDN 571, with follow-up of clinical cases with progress records.

**ORDN 584. Current Orthodontics Literature I. 2 Units.**
Presents current papers in various subspecialties of orthodontics.

**ORDN 591. Current Orthodontics Literature II. 2 Units.**
Presents current papers in various subspecialties of orthodontics.

**ORDN 597. Orthognathic Surgery Theory and Literature Review. 2 Units.**
Presents current papers in various subspecialties of orthodontics, with primary emphasis on surgical orthodontics. Presents cases with various problems requiring surgery.

**ORDN 604. Seminar in Orthodontics. 1 Unit.**
Critically reviews suggested etiological factors of malocclusion. Problems of diagnosis and the rationale of various treatment philosophies. Liberally uses current literature. Discussion by guest lecturers with demonstrated competence in the field.

**ORDN 605. Advanced Seminar in Orthodontics. 1 Unit.**
Second-year seminar. Design of clinical diagnosis and practice management. Repeated registrations to fulfill the total units required.

**ORDN 606. Craniofacial Genetics. 2 Units.**
Basic genetics. Introduces craniofacial clinic.

**ORDN 608. Speech, Language, Breathing, and Orofacial Myofunction. 1 Unit.**
Studies areas related to speech, language, breathing, and behavior affecting the orofacial complex and occlusion.

**ORDN 634. Orthodontics Clinical Conference. 2 Units.**
Students prepare and present diagnosis, case analysis, and treatment plan—with primary emphasis on difficult and unusual cases.

**ORDN 635. Finishing Mechanics I. 2 Units.**
Orthodontic treatment modalities, emphasizing finishing mechanics for the patient.

**ORDN 636. Finishing Mechanics II. 1 Unit.**
A seminar course created for first-year graduate orthodontic students, exposing them to alternate treatment philosophies and modalities. Guest orthodontists present the main portion of the course and demonstrate their treatment concepts in finishing orthodontic cases.

**ORDN 654. Practice Teaching in Orthodontics. 1-4 Units.**
Students gain experience in teaching clinical orthodontics to predoctoral dental students. Repeated registrations to fulfill the total units required.

**ORDN 655. Temporomandibular Function and Dysfunction. 2 Units.**
The temporomandibular joint and dysfunction in health and disease. Diagnosis, treatment planning, and treatment of the temporomandibular joint, emphasizing the integration of orthodontics and temporomandibular joint treatment.

**ORDN 657. Orthodontic Board Preparation. 1-6 Units.**
Student presents completed orthodontic cases to faculty and other students. Prepares for the American Board of Orthodontics. Repeated registrations required to fulfill the total units required.

**ORDN 697A. Research. 1 Unit.**
Student identifies a research project, prepares a proposal, and obtains approval for the protocol.

**ORDN 697B. Research. 1-4 Units.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**ORDN 698. Thesis. 3 Units.**

**ORDN 725. Clinical Practice in Orthodontics. 7 Units.**
Diagnosis and treatment of assigned patients, including adults. Repeated registrations to fulfill the total units/clock hours required.

**ORDN 801. Minor Tooth Movement. 2 Units.**
Lecture, laboratory demonstration, and clinical exercise prepares students to diagnose and treat limited clinical problems. Applies theory. Minor tooth movement.

**ORDN 811. Principles of Orthodontics II. 1 Unit.**
Biophysical principles. Removable and fixed orthodontic appliances, adult orthodontics, surgical orthodontics. Treatment planning. Interaction with other disciplines. National Board Examination preparation. Selected topics in orthodontics.

# Orthopaedic Surgery (ORTH)

## Courses

**ORTH 891. Orthopaedic Surgery Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of orthopaedic surgery, including research.

# Orthotics and Prosthetics (ORPR)

## Courses

**ORPR 301. Orthotics and Prosthetics Laboratory and Technical Skills. 3 Units.**
Introduces the baseline of material and safety practice of orthotics and prosthetics design, fabrication, and repairs. Provides a solid foundational knowledge of the principles and applications of orthotics and prosthetics materials, technologies, designs, and processes associated with the manufacture of custom devices.

**ORPR 305. Orthotic Fitting Techniques. 3 Units.**
Teaches methods of biometrics, shape capture, and fitting criteria for orthotic devices. Expands knowledge and techniques of applied anatomy in the fitting of orthotic and assistive devices in activities of daily living and patient's occupational needs.

**ORPR 310. Patient Management, Assessment, and Documentation. 3 Units.**
Orthotic and prosthetic patient-care models, patient rights, and ethical practice of care. Advanced principles and processes of patient assessment, management, and complete documentation within the context of interprofessional referrals, interactions, and reimbursement as applied both to the in- and outpatient context.

**ORPR 315. Pedorthics. 3 Units.**
Clinical application of biomechanical interventions of the ankle-foot structure as it refers to walking, medical issues of the foot, and activity levels. Applied anatomical knowledge of the foot and sports medicine within the context of shoes and shoe modifications.

**ORPR 320. Biomechanical Evaluation. 3 Units.**
Establishes orthotic and prosthetic biomechanical principles and interventions in the context of normal body mechanics and musculoskeletal pathologies. Examines how these interventions serve to maximize healing, manage pain, support movement and function. Encompasses hole body considerations for the kinetic effects, including gait, ADL, occupational and recreational functions.

**ORPR 323. Economics, Business Management, and Entrepreneurship. 3 Units.**
Establishes principles of economics, financial management, and law as they apply to health-care settings, including: starting a new service, reimbursement, capital and operational budgeting, reading financial statements, and cost-saving measures.

**ORPR 325. Medical Terminology. 3 Units.**
Language of medicine, including: word construction, word analysis, definitions, and the use of terms related to medical science—specifically to orthotics and prosthetics. Course information organized by body systems. Applies knowledge to documentation, interdisciplinary communication, and medical justification as it applies to orthotic and prosthetic care.

**ORPR 330. Lower Extremity Orthotics I. 3 Units.**
Studies foot and ankle-foot orthoses—including myoelectric orthoses—from an anatomical design and fabrication perspective. Effects of their application to the body kinematics and kinetic chain. Considerations for specific pathological applications, as well as awareness of implied benefits and risks. Outcome measurements for particular static and dynamic designs.

**ORPR 340. Lower Extremity Prosthetics I. 3 Units.**
Studies the etiology of amputations below the knee. Considers surgical and immediate postoperative issues as they relate to patient experience, prosthetic outcome, and gait. Looks at prosthetic component selection; socket, interface, and suspension designs in the context of ambulation levels and activities; and specialty applications. Examines skin and tissue physiology, both from a design and end-user perspective. Considers cost and efficiency based on component selection.

**ORPR 345. Spinal Orthotics. 3 Units.**
Examines spinal anatomy, biomechanics, and pathology. Fabrication, fitting, and application of orthotics following critical and differential diagnoses. Application and proper fitting of halos and cervical, thoraco-lumbar, and lumbar devices. Special consideration of design, plaster casting techniques, and CAD measurements for management of scoliosis. Interpret standard radiographs, measure and interpret spinal deformities, and recommend appropriate orthotic management.

**ORPR 402. Pathology I. 3 Units.**
Fundamental mechanisms of disease, including cell injury; inflammation, repair, regeneration, and fibrosis; and vascular, cardiac, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, endocrine, and integumentary pathologies.

**ORPR 404. Materials Science in Orthotics and Prosthetics. 3 Units.**
Introduces the science of materials found in the body and those used to support the body. Includes the composition of common orthopedic and prosthetics materials. Overview of mathematics, physics, simple and complex movement, anatomy, physiology, and thermodynamics which create a rationale behind material and fabrication choices. Addresses chemical composition, stress-strain curves, fatigability, and other essential characteristics considered in orthotic and prosthetic design.

**ORPR 405. Gait Analysis. 3 Units.**
Observation and analysis of normal human locomotion contrasted with pathological gait, and their implications for orthotic and prosthetic interventions and care.

**ORPR 410. Orthotic and Prosthetic Clinical Rotation. 1 Unit.**
Assigns student to a weekly clinic, department, or specialty—with a focus on familiarization with specific orthotic and prosthetic services. Student reports to their cohorts in a once-a-month didactic presentation at the weekly grand rounds, which can include lectures from industry providers on the topic of choice. Site allocation determined by program director; student accountable to quarterly assigned clinical supervisor.

**ORPR 414. Kinesiology I. 3 Units.**
Introduces advanced kinesiology topics, including movement science dealing with the behavioral basis of motor control and motor learning from an information-processing perspective. Kinesiology from an O&P perspective focusing primarily on the lower limbs, with some introduction to upper limb involvement.

**ORPR 415. Lower Extremity Orthotics II. 3 Units.**
Advanced study of knee-ankle-foot orthoses, knee orthoses, hip orthoses, reciprocating gait orthoses, and standing frames from an anatomical design and fabrication perspective. Effects of their application to the body kinetic chain. Considers specific pathological applications, including implied benefits and risks. Outcome measurements for particular static and dynamic designs. Introduces CAD/CAM technologies both for image capture and fabrication.

**ORPR 420. Lower Extremity Prosthetics II. 3 Units.**
Etiology of transfemoral amputations. Surgical and immediate postoperative issues related to patient experience, prosthetic outcome, and potential for gait. Prosthetic component selection, socket interface, and suspension designs addressing ambulation levels and activities. Specialty applications. Mechanical, hydraulic, and electronic knee-motion control. Cost and efficiency calculations. CAD/CAM shape capture and fabrication considerations such as mechanical and electronic alignment capture.

**ORPR 425. CAD/CAM Technologies. 3 Units.**
Applications of CAD/CAM technologies used in clinical practice. Use of most common shape/image capture systems, manipulations, and interfaces with the various central fabrication methods. Includes use of CADs/CAMs in orthotics and prosthetics, including foot orthoses, spinal orthoses, cranial helmets and prosthetic limbs. Data storage and manipulation for use in the fabrication process with technical assistance.

**ORPR 430. Upper Extremity Orthotics. 3 Units.**
Applies anatomy, kinesiology, and biomechanics to serve specific upper extremity neuromuscular needs. Determines the use of functional and electrically powered orthoses based on differential diagnoses. Examines myoelectric assisted translateral motion rehabilitation. Teaches function, purpose, and building of wrist- and cable-driven orthoses.

**ORPR 435. Upper Extremity Prosthetics. 3 Units.**
Studies the etiology of upper limb and forequarter amputations. Considers shape capture, socket design, interface, and suspension in the context of cosmetic, body-powered, and myoelectric functional prostheses. Includes special needs adaptations for occupational and sports situations. Give attention to the distinctions of functionality, efficacy, and cost. Studies the bionic arm and hand and the computer training that goes with this particular technology.

**ORPR 439. Computers and Electronics for O&P Clinicians. 3 Units.**
Basic theory of electricity, transistors, computer circuits, and computer programming. Discusses electrons, structure of the atom, resistance, capacitance, Ohm's law, and basic transistor theory. Windows programming. Includes laboratories and three programming assignments.

**ORPR 440. Bionics and Cyborg Technology. 3 Units.**
Examines emerging bionic technologies aimed at merging man with machine. Includes competencies and promotion of these devices in the context of scientific research and potential patient applications. Examines bionic control systems' embedded software development and associated function. Topics include proficiency in the implementation of cybernetic feedback systems in ortho-prosthetic devices.

**ORPR 491. Research I. 1.5 Unit.**
Introduces the scientific method in health science research. Focuses on problem identification, literature review, conceptual framework, identification of variables, statement of hypothesis, experimental design, and analysis and presentation of data. Includes critical evaluation of research literature. Applies the research process to problems in allied health fields, development of a research proposal, pilot testing, testing and data forms, and research implementation in a practice setting. Prerequisite: AHRM 471, AHRM 472.

**ORPR 505. Current Issues in Orthotics and Prosthetics. 3 Units.**
Reviews and discusses concerns and current advances relating to orthotics and prosthetics, e.g., legislation, regulations, education, professional organization, interdisciplinary patient care, and reimbursement issues.

**ORPR 506. Advanced Specialty Tracks in Orthotics and Prosthetics. 3 Units.**
Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthotics and prosthetics.

**ORPR 507. Anatomy for O and P Professionals. 2 Units.**
Explores anatomy related to skeletal, circulatory, nerve, and muscular systems of the human organism. Addresses anatomical concepts and terminology with relevant joint mechanics, motions, and palpations. Discusses medical effects of procedures and pathologies on body systems. Introduces anatomical considerations for the formulation and implementation of orthotic and prosthetic intervention. Corequisite: ORPR 508.

**ORPR 508. Physiology for O and P Professionals. 2 Units.**
Covers basic chemistry and cell structure, tissue types, and body systems, including skin, muscle, skeleton, nervous, cardiac, respiratory, digestive, and urinary systems, as well as the integration of these systems. Discusses relationships between body systems, and orthotic and prosthetic intervention. Introduces physiological considerations for the formulation and implementation of orthotic and prosthetic intervention. Corequisite: ORPR 507.

**ORPR 509. Pathology for O and P Professionals. 2 Units.**
Presents fundamental mechanisms of disease, including cell injury (inflammation, repair, regeneration, and fibrosis), and vascular, cardiac, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, endocrine, and integumentary pathologies. Emphasizes orthopedic, neurological, neuromuscular, vascular, and psychological disorders and diseases commonly encountered in orthotic and prosthetic practice. Prerequisite: ORPR 507, ORPR 508.

**ORPR 510. Advanced Clinical Rotations. 1 Unit.**
Clinical experience focusing on familiarization with specific orthotic and prosthetic services. Supervised experience providing comprehensive orthotic and prosthetic clinical care. Opportunities to report in clinical, professional, and private sector settings.

**ORPR 511. Spinal Orthotics. 2 Units.**
Examines spinal anatomy, biomechanics, pathology, clinical assessment, measurement, shape capture, fabrication, and fitting techniques for spinal orthotic intervention. Interprets radiographs for spinal deformities. Considers design, management, and treatment with scoliosis devices. Includes cranial remolding orthosis, facial fracture, and burn orthosis. Covers prefabricated, custom-fit, and custom-fabricated orthotic designs. Introduces CAD/CAM technologies for image capture and fabrication. Prerequisite: ORPR 507.

**ORPR 512. Spinal Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 511 in a clinical setting to perform spinal orthotic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of spinal orthotic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to spinal orthotic devices. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Corequisite: ORPR 513. Prerequisite or concurrent: ORPR 511.

**ORPR 513. Spinal Technical Skills. 2 Units.**
Applies material and mechanical principles to designing and fabricating patient-specific devices. Addresses safety, alignment, and durability needs of spinal user. Utilizes multiple lab and technical skills (plaster modifications, vacuum forming, plastic smoothing, riveting, and metal bending). Expands knowledge of applied anatomy in fitting of spinal orthotics. Assesses device fit/function as well as effects on patient daily living activities. Implements CAD/CAM shape capture methods. Corequisite: ORPR 512. Prerequisite or concurrent: ORPR 511.

**ORPR 514. Clinical Affiliation. 8 Units.**
Establishes a clinical affiliation with a facility that complies with NCOPE residency standards and that has been approved by the Professional Development Committee and the MSOP locally assigned site supervisor. Student completes the 500 clinical contact hours required for graduation.

**ORPR 515. Topics in Orthotics and Prosthetics. 1-6 Units.**
Lecture and discussion related to the practice of orthotics and prosthetics. Content varies from quarter to quarter. (May be repeated for additional credit for a maximum 6 quarter units.).

**ORPR 516. Orthotics and Prosthetics Materials Science and Technical Skills. 2 Units.**
Provides foundational knowledge in mathematics, physics, simple and complex movement, anatomy, physiology, and thermodynamics to create rationale behind material and fabrication choices associated with manufacture of custom orthotic and prosthetic devices. Examines the science of materials and safety practices of orthotics and prosthetics design, fabrication, and repairs.

**ORPR 517. Patient Assessment/Kinesiology. 2 Units.**
Expands on knowledge and techniques of applied anatomy, physiology, and kinesiology to assess a patient's need of orthotic and prosthetic devices. Identifies and practices essential elements of the patient evaluation process. Demonstrates procedures for collection of patient history, performance of physical examination, and administration of outcome measures. Introduces scope of practice and documentation methods for orthotics and prosthetics professionals. Corequisite: ORPR 507.

**ORPR 519. Biomechanical Evaluation and Gait Analysis. 2 Units.**
Covers basic biomechanical principles in the context of normal body mechanics. Establishes baseline knowledge for effective evaluation planning for orthotic and prosthetic care. Examines how interventions maximize healing, manage pain, and support movement and function to the whole body, while considering kinetic effects to gait. Contrasts advanced gait analysis of normal human locomotion with pathological gait to determine proper intervention.

**ORPR 522. Self-Care Portfolio and Community Outreach. 2 Units.**
Inventory of self-care and process to accomplish it. Puts self-care in the context of life-long learning, relational responsibility, and social justice. Applies principles of effective community leadership engagement, locally and globally.

**ORPR 524. Psychosocial Aspects of Health Care. 2 Units.**
Addresses psychosocial topics which optimize therapeutic outcomes. Focuses on clinical competence and professional excellence involving health-care providers affected by pathology, impairment, functional limitation, and/or disability. Recommends roles and intervention strategies for health-care providers, including those practicing orthotics and prosthetics.

**ORPR 526. Prosthetics III. 3 Units.**
Focuses on upper and lower limb amputations and prosthetics. Etiology of hip and transcorporectomy amputations, surgical and immediate postoperative issues related to patient experience, prosthetic outcome, and potential for gait. Includes care of the extreme sports amputee, socket interface, suspension designs, skin and tissue physiology, and mechanical and hydraulic knee-motion control. Introduces CAD/CAM shape capture, and fabrication considering mechanical and electronic alignment capture.

**ORPR 527. Orthotics III. 3 Units.**
Advanced study of myoelectric and electronic control to upper extremity and lower extremity orthoses from a design and fabrication perspective. Effects of their application to the body kinetic chain. Considerations for specific pathological applications; awareness of implied benefits and risks. Studies outcome measurements for particular static, dynamic, and electrodynamic designs, including EFS.

**ORPR 528. Prosthetics IV. 3 Units.**
Reviews case presentations of transtibial and transfemoral amputations. Advanced and alternative socket designs, interface materials, suspension systems, and fabrication techniques; and, shape capture techniques, cast modification, socket fitting techinques, fabrication, static and dynamic alignment, alignment transfer, and observational gait analysis. Prerequisite: ORPR 340, ORPR 420, ORPR 526.

**ORPR 529. Practice Management. 2 Units.**
Studies business practices within the orthotic and prosthetic clinical environment relating to patient care, personnel, financial management, and law as they apply to health-care settings. Explores expectations of orthotists-prosthetists as professionals and their role within society—including scopes of practice and the Code of Professional Responsibility.

**ORPR 530. Patient Management and Documentation. 2 Units.**
Practices communication of treatment plan through ethical documentation, coding, prescription recommendations, compliance with regulatory accrediting agencies, and legal considerations surrounding patient care. Explores billing and coding procedures for federal, state, and third-party regulations associated with orthotic/prosthetic care. Studies professional issues such as scopes of practice, Code of Professional Responsibility, and the role of the orthotist-prosthetist on the health-care team.

**ORPR 531. Upper-Extremity Orthotics. 2 Units.**
Examines upper limb anatomy, biomechanics, pathology, clinical assessment, measurement, shape capture, fabrication, and fitting techniques for orthotic intervention. Considers function and purpose of static and dynamic thermoplastic and conventional upper-extremity orthotic interventions. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Prerequisite: ORPR 507.

**ORPR 532. Upper-Extremity Orthotics Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 531 in a clinical setting to perform upper-extremity orthotic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of upper-extremity orthotic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to upper-extremity orthotic devices. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Prerequisite: ORPR 531. Corequisite: ORPR 533.

**ORPR 533. Upper-Extremity Orthotics Technical Skills. 2 Units.**
Applies material and mechanical principles to designing and fabricating patient-specific devices. Addresses safety, alignment, and durability needs of the upper-extremity orthotic user. Utilizes multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and metal bending. Expands knowledge of applied anatomy in the fitting of upper-extremity orthotics. Assesses device fit/function and effects on the patient's activities of daily living. Prerequisite: ORPR 531. Corequisite: ORPR 532.

**ORPR 535. Upper-Extremity Prosthetics. 2 Units.**
Studies etiology, anatomy, biomechanics, clinical assessment, measurement, shape capture, fabrication, fitting techniques, and component selection for upper-limb and forequarter amputations. Considers socket design, interface, and suspension in the context of cosmetic, body-powered, and myoelectric functional prostheses. Includes special needs adaptations for occupational and sports situations. Gives attention to the distinctions of functionality, efficacy, and cost. Prerequisite: ORPR 507.

**ORPR 536. Upper-Extremity Prosthetics Clinical Training. 2 Units.**
Applies concepts covered in ORPR 535 in a clinical setting to perform upper-extremity prosthetic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of upper-extremity prosthetic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to upper-extremity prosthetic devices. Compares body-powered and external-powered prosthetic control principles. Prerequisite: ORPR 535. Corequisite: ORPR 537.

**ORPR 537. Upper-Extremity Prosthetics Technical skills. 2 Units.**
Applies material and mechanical principles to design and fabricate patient-specific devices. Addresses safety, alignment, and durability needs of the upper-extremity prosthetic user, utilizing multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and lamination. Expands knowledge of applied anatomy in fitting upper-extremity prosthetics. Assesses device fit/function and the effects on the patient's activities of daily living. Prerequisite: ORPR 535. Corequisite: ORPR 536.

**ORPR 538. Biomechatronics. 3 Units.**
Development of competencies in biomechatronics. Bionic technology, embedded design programming, and fabrication. Robotic actuation and senses. Advanced material use and fabrication techniques.

**ORPR 540. Rehabilitative Care in Developing Nations. 3 Units.**
Examines the physical rehabilitation state of affairs in developing nations. Outlines specific challenges with rehabilitation delivery from logistics, materials, and cost perspectives. Points out alternative methods to maximize rehabilitation with minimal cost.

**ORPR 541. Lower-Extremity Orthotics I. 2 Units.**
Teaches biomechanical orthotic interventions of the foot and ankle from an anatomical design. Covers criteria for orthotic design, material selection, fitting, and outcome measures for specific pathological applications of orthotic intervention. Gives awareness of implied benefits, risks, and effects of orthotic intervention for the foot and ankle to the kinematics and kinetic chain of the body. Includes prefabricated, custom-fit ,and custom-fabricated orthotic designs. Prerequisite: ORPR 507.

**ORPR 542. Lower-Extremity Orthotics I Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 541 in a clinical setting to perform lower-extremity orthotic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of lower-extremity orthotic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to lower-extremity orthotic devices. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Prerequisite: ORPR 541. Corequisite: ORPR 543.

**ORPR 543. Lower-Extremity Orthotics I Technical Skills. 2 Units.**
Applies material and mechanical principles to design and fabricate patient-specific devices. Addresses safety, alignment, and durability needs of the lower-extremity orthotic user, utilizing multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and metal bending. Expands knowledge of applied anatomy in the fitting of lower extremity orthotics. Assesses device fit/function and the effects on the patient's activities of daily living. Prerequisite: ORPR 541. Corequisite: ORPR 542.

**ORPR 544. Applied Functional Neuroanatomy. 3 Units.**
Evidence-based coverage of the applied functional neuroanatomy of several common adult progressive and nonprogressive neurological diseases. Emphasizes motor control, stroke, traumatic brain injury, spinal cord injury, multiple sclerosis, Parkinson's disease, Guillian-Barre syndrome, amyotrophic lateral sclerosis, and vestibular pathology. Includes literature review, lecture, discussion, and laboratory sessions.

**ORPR 545. Lower-Extremity Prosthetics I. 2 Units.**
Studies etiology, anatomy, biomechanics, clinical assessment, measurement, shape capture, fabrication, fitting techniques and component selection for transtibial and partial foot amputations. Explains determination of functional level and justification for prosthetic components. Investigates socket design, interface materials, suspension systems, static and dynamic alignment, and observational gait analysis. Offers distinctions of functionality, efficacy, and cost. Prerequisite: ORPR 507, ORPR 519.

**ORPR 546. Lower-Extremity Prosthetics I Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 545 in a clinical setting to perform lower-extremity prosthetic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of lower-extremity prosthetic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to lower-extremity prosthetic devices. Prerequisite: ORPR 545. Corequisite: ORPR 547.

**ORPR 547. Lower-Extremity Prosthetics I Technical Skills. 2 Units.**
Applies material and mechanical principles to design and fabricate patient-specific devices. Addresses safety, alignment, and durability needs of the lower-extremity prosthetic user. Utilizes multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and lamination. Expands knowledge of applied anatomy in the fitting of lower extremity prosthetics. Assesses device fit/function and the effects on the patient's activities of daily living. Prerequisite: ORPR 545. Corequisite: ORPR 546.

**ORPR 548. Pharmacology in Rehabilitation. 2 Units.**
Discusses principles of pharmacology related to diagnosis, prevention, and treatment of disease, including a presentation of the pharmacology and therapeutic value of drugs used in rehabilitation medicine. Related topics include pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, and drug toxicity—with special consideration given to pediatric and geriatric pharmacology.

**ORPR 551. Lower-Extremity Orthotics II. 2 Units.**
Teaches biomechanical orthotic interventions of the hip, knee, ankle, and foot from an anatomical design. Covers criteria for orthotic design, material selection, fitting, and outcome measures for specific pathological applications of orthotic intervention. Provides advanced study of knee-ankle-foot orthoses, knee orthoses, hip orthoses, reciprocating gait orthoses, and standing frames. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Prerequisite: ORPR 507, ORPR 519.

**ORPR 552. Lower-Extremity Orthotics II Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 551 in a clinical setting to perform lower-extremity orthotic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of lower-extremity orthotic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to lower-extremity orthotic devices. Includes prefabricated, custom-fit, and custom-fabricated orthotic designs. Prerequisite: ORPR 551. Corequisite: ORPR 553.

**ORPR 553. Lower-Extremity Orthotics II Technical Skills. 2 Units.**
Applies material and mechanical principles to design and fabricate patient-specific devices. Addresses safety, alignment, and durability needs of the lower-extremity orthotic user, utilizing multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and metal bending. Expands knowledge of applied anatomy in the fitting of lower-extremity orthotics. Assesses device fit/function and the effects on the patient's activities of daily living. Prerequisite: ORPR 551. Corequisite: ORPR 552.

**ORPR 555. Lower-Extremity Prosthetics II. 2 Units.**
Studies etiology, anatomy, biomechanics, clinical assessment, measurement, shape capture, fabrication, fitting techniques, and component selection for tranfemoral, hip disarticulation, and hemipelvectomy amputations. Explains determination of functional level and justification for prosthetic components. Investigates socket design, interface materials, suspension systems, static and dynamic alignment, and observational gait analysis. Introduces CAD/CAM technologies. Prerequisite: ORPR 507, ORPR 519.

**ORPR 556. Lower-Extremity Prosthetics II Clinical Training. 2 Units.**
Applies concepts addressed in ORPR 555 in a clinical setting to perform lower-extremity prosthetic management. Analyzes impairments, functional limitations, and patient goals to determine biomechanical objectives. Demonstrates formulation and implementation of lower-extremity prosthetic care. Practices patient assessment, shape capture, fitting procedures, and patient management related to lower-extremity prosthetic devices. Prerequisite: ORPR 555. Corequisite: ORPR 557.

**ORPR 557. Lower-Extremity Prosthetics II Technical skills. 2 Units.**
Applies material and mechanical principles to design and fabricate patient-specific devices. Addresses safety, alignment, and durability needs of the lower-extremity prosthetic user, utilizing multiple lab and technical skills such as plaster modifications, vacuum forming, plastic smoothing, riveting, and lamination. Expands knowledge of applied anatomy in the fitting of lower-extremity prosthetics. Assesses device fit/function and the effects on the patient's activities of daily living. Prerequisite: ORPR 555. Corequisite: ORPR 556.

**ORPR 558. Clinical Rotation. 1 Unit.**
Assigns student to a weekly clinic, department, or specialty with a focus on familiarization with specific orthotic and prosthetic services. Students report to cohorts in a monthly didactic presentation during weekly grand rounds, which can include lectures from industry providers on the topic of choice. Site allocation determined by program director; student accountable to quarterly assigned clinical supervisor.

**ORPR 559. Advanced Clinical Rotation. 1 Unit.**
Provides clinical experiences to familiarize students with specific orthotic and prosthetic services, as well as supervised experience with comprehensive orthotic and prosthetic clinical care. Gives opportunities to observe, participate in, and demonstrate entry-level competencies learned in didactic and clinical curriculum. Requires a monthly didactic student presentation during weekly grand rounds, which can include lectures from industry providers on the topic of choice.

**ORPR 560. Clinical Affiliation. 8 Units.**
Requires clinical experience (500 clinical contact hours) in a recognized NCOPE residency facility. Placement must be approved by the Professional Development Committee and the M.S.O.P. locally assigned site supervisor.

**ORPR 561. Statistics and Research for OP Professionals I. 2 Units.**
Presents statistical methods relative to research design for health professionals, with introduction to SPSS statistical package for computer data analysis. Discusses philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics. Introduces students to appropriate descriptive statistics and graphs for the different levels of measurement, probability concepts, and the binomial and normal distributions.

**ORPR 562. Statistics and Research for OP Professionals II. 2 Units.**
Provides advanced conceptual frameworks, data analyses, and techniques in quantitative and qualitative research. Emphasizes process for obtaining and using evidence-based research in OP clinical practice. Prerequisite: ORPR 561.

**ORPR 564. Research Proposal. 2 Units.**
Introduces the scientific method in health science research. Focuses on problem identification, literature review, conceptual framework, identification of variables, statement of hypothesis, experimental design, and analysis and presentation of data. Includes critical evaluation of research literature. Applies the research process to problems in allied health fields, development of a research proposal, pilot testing, testing and data forms, and research implementation in a practice setting. Prerequisite: ORPR 561, ORPR 562.

**ORPR 565. OP Clinical and Technical Summative Review and ABC Board Prep. 2 Units.**
Reviews concepts of upper-extremity, lower-extremity, and spinal orthotics and prosthetics clinical and technical skills in preparation for the ABCOP national written simulation and clinical patient management (CPM) exams.

**ORPR 566. OP Theoretical Summative Review and ABC Board Prep. 2 Units.**
Reviews theoretical concepts of upper-extremity, lower-extremity, and spinal orthotics and prosthetics in preparation for the ABCOP national combined OP written multiple-choice exam.

**ORPR 575. Couples, Families, and Disabilities. 3 Units.**
Examines the effects disabilities have on couples and family systems, and contributions family members make to the rehabilitation process of individuals with disabilities. Looks at discourse patterns taking place within a person with a disability, within the person's family and social support system, and among the individual, family, and medical and rehabilitation providers. Addresses the issues of human sexuality, reproduction, and disability.

**ORPR 592. Research II. 1.5 Unit.**
Guides and equips students as they work toward completion of their capstone research thesis, which is presented at the annual Capstone Research Day. Includes data-collection review and completion, APA-style formatting rules, data analysis with application of appropriate statistics, graphing, write up of discussion and results.

**ORPR 593. Research III. 3 Units.**
Culminates all research-track courses in a project comprising a master's degree thesis, a research paper, a presentation, and a poster. Includes data analysis and statistical interpretation.

# Otolaryngology (OTOL)

## Courses

**OTOL 891. Otolaryngology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of otolaryngology, including research.

# Pathology (PATH)

## Courses

**PATH 501. Anatomy and Pathology I. 4 Units.**
A systems-based approach to the study of human anatomy utilizing cadaver dissection, correlating gross and microscopic anatomy and associated pathologies.

**PATH 502. Anatomy and Pathology II. 4 Units.**
A systems-based approach to the study of human anatomy utilizing cadaver dissection, correlating gross and microscopic anatomy and associated pathologies.

**PATH 517. Human Systemic Pathology. 9.5 Units.**
Application of basic science principles to patient care. Introduction to important diseases and anomalies of each human organ system and their impacts on patients. Emphasizes etiologies, pathogeneses, macroscopic and microscopic morphologic features, pathophysiologies, biologic behaviors, and relevant laboratory findings. Addresses analytical thinking, productive skills of cooperation among team members, and appropriate use of laboratory testing.

**PATH 521. Anatomical Techniques I. 3 Units.**
Designed specifically for pathologists' assistant students. Comprehensive coverage of surgical and autopsy pathology techniques. Incorporates histology and medical terminology, including clinical and pathologic correlations.

**PATH 522. Anatomical Techniques II. 3 Units.**
Designed specifically for pathologists' assistant students. Comprehensive coverage of surgical and autopsy pathology techniques. Incorporates histology and medical terminology, including clinical and pathologic correlations.

**PATH 524. Clinical Microbiology for Pathologists' Assistants. 3 Units.**
Studies of pathologically pertinent microbes and pathogenic mechanisms; overview of methods of identification and antibiotic sensitivities.

**PATH 534. Civic Engagement and Poverty: Service Learning. 1 Unit.**
Instructs students in working closely with community partners to examine local or international community resilience in response to poverty. Students reflect on how community members and society, as a whole, are affected and fight the effects of poverty, as well as on how a pathologists' assistant can serve a local community. Prerequisite: Matriculated Pathologists' Assistant Student, PGY 1.

**PATH 551. Disease Mechanisms I. 3 Units.**
Comprehensive study of mechanisms of disease and clinical correlations, based on Robbins' Pathologic Basis of Disease.

**PATH 552. Disease Mechanisms II. 3 Units.**
Builds on the basic courses in the pathologists' assistant curriculum. Requires students to use critical-thinking skills in the participatory discussion sessions. Prepares students for clinical practicum experiences.

**PATH 564. Biomedical Photography. 1 Unit.**
Investigates the use of digital cameras, scanners, Adobe®, photomicrography, and macrophotography. Examines fundamental processes applied in digital photography to a wide range of specimen types.

**PATH 581. Basic Pathologic Microanatomy. 2 Units.**
Designed specifically for pathologists' assistant students. Covers normal microanatomy, including clinical correlations and grossing techniques. Lectures enhanced by multihead microscopy sessions.

**PATH 582. Advanced Microanatomy. 2 Units.**
Designed specifically for pathologists' assistant students. Covers disease states in microanatomy, including clinical correlations. Lectures enhanced by multihead microscopy sessions.

**PATH 598. Clinical Laboratory Management. 2 Units.**
Laboratory organization and examination of principles and practices of laboratory management.

**PATH 599. Directed Study. 1.5-18 Units.**

**PATH 644. Clinical Pathology Seminar. 2 Units.**
Provides pathologists' assistant students with an overview of clinical pathology, relating clinical testing to disease processes.

**PATH 741. Pathology Review I. 2 Units.**
An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 742. Pathology Review II. 2 Units.**
An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 743. Pathology Review III. 2 Units.**
An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 744. Pathology Review IV. 2 Units.**
An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 761. Pathologists' Assistant Practicum I. 9 Units.**
Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 762. Pathologists' Assistant Practicum II. 9 Units.**
Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 763. Pathologists' Assistant Practicum III. 9 Units.**
Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 764. Pathologists' Assistant Practicum IV. 9 Units.**
Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 891. Pathology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of pathology, including but not limited to hematopathology, molecular embryopathy, and research.

# Pediatric Dentistry (PEDN)

## Courses

**PEDN 503. Pediatric Dental Seminar. 2 Units.**
Selected clinical topics in pediatric dentistry. Requires repeated registrations to fulfill total units.

**PEDN 508. Pediatric Hospital Dentistry Seminar. 2-4 Units.**
Hospital protocol and the care of patients in a hospital environment.

**PEDN 512. Oral Sedation Seminar. 2 Units.**
Pharmacology, medical considerations, clinical applications, and protocols for oral sedation.

**PEDN 521. Principles of Medicine and Physical Diagnosis. 2 Units.**
Medical and physical diagnosis for the pediatric dental patient.

**PEDN 524. Introduction to Orthodontics. 2 Units.**
Diagnosis and treatment planning for clinical orthodontics.

**PEDN 524L. Introduction to Orthodontics Laboratory. 1,2 Unit.**
Fabrication of various orthodontic appliances.

**PEDN 604. Pediatric Dental Literature. 2-12 Units.**
Pediatric dental literature study, including literature found on the reading list of the American Board of Pediatric Dentistry. Repeated registrations required to fulfill the total units.

**PEDN 654. Practice Teaching for Pediatric Dentistry. 1-5 Units.**
Student gains experience teaching pediatric dentistry in clinical and laboratory settings. Repeated registrations required to fulfill the total units.

**PEDN 680. Elective Study for Advanced Education Students of Pediatric Dentistry. 1-10 Units.**
Topics selected by students in the advanced education program in pediatric dentistry and by department faculty. Repeated registrations required to fulfill the total units.

**PEDN 696. Scholarly Activity in Pediatric Dentistry. 1 Unit.**
Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for residents to fulfill the certificate requirements for scholarly activity/research in pediatric dentistry. Multiple registrations may be needed to complete these activities.

**PEDN 697A. Research. 1 Unit.**
Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PEDN 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PEDN 697C. Research. 1 Unit.**
Resident completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PEDN 698. Thesis. 1-3 Units.**
Required for M.S.-degree track.

**PEDN 725. Pediatric Dental Clinic. 8 Units.**
Clinical pediatric dental experience in both the outpatient and inpatient settings for patients with a variety of clinical needs and problems. Repeated registrations required to fulfill total units.

**PEDN 821. Pediatric Dentistry II. 1 Unit.**
Traumatic injuries to the primary and young permanent teeth and oral soft tissues. Developmental and eruption patterns of primary and permanent teeth. Sports dentistry. Pediatric sedation techniques and monitoring. Oral habits of children. Child abuse.

# Pediatrics (PEDS)

## Courses

**PEDS 599. Pediatrics Directed Study. 1.5-18 Units.**

**PEDS 701. Pediatrics Clerkship. 1.5-12 Units.**
Provides core knowledge, skills, and attitudes unique to pediatricians. Includes skills of communication and examination of pediatric patients. Emphasizes principles of health supervision, including growth, development, routine health maintenance, and recognition and treatment of illnesses and conditions commonly affecting patients from infancy through adolescence.

**PEDS 821. Pediatrics Subinternship. 1.5-6 Units.**
Experience in independently collecting patient histories, performing physical examinations, and formulating differential and primary diagnoses. Includes: identifying the reason for admission, selection of diagnostic testing based on the chief complaint, providing a family-centered approach to patient care, and identifying the need for immediate supervising physician involvement.

**PEDS 822. Pediatrics Intensive Care. 1.5-6 Units.**
Addresses history taking in patients who are critically ill or unable to communicate, recognition of relevant physical examination findings, management of critically ill patients, interactions with family members, documentation of the admission H&P or daily progress notes, and preparation of orders. Presents criteria for continued ICU admission or transfer.

**PEDS 891. Pediatrics Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of pediatrics, including but not limited to inpatient and outpatient care, endocrinology, rheumatology, neurology, oncology, and research.

# Periodontics (PERI)

## Courses

**PERI 524. The Periodontium. 2 Units.**
Reviews literature concerning the anatomy (macro-, micro-, and ultrastructural) and the physiology of the periodontium.

**PERI 531. Periodontal Pathology. 2 Units.**
Reviews literature that forms the basis for current concepts of the etiology and pathogenesis of periodontal diseases. Repeated registrations required to fulfill the total units.

**PERI 601. Periodontal Therapy. 2 Units.**
Reviews literature that forms the basis for current concepts of the treatment of periodontal diseases. Repeated registrations required to fulfill the total units.

**PERI 604. Current Periodontal and Implant Literature. 2 Units.**
Reviews most recent issues of periodontal and implant scientific journals. Repeated registrations required to fulfill the total units.

**PERI 605. Implant Literature Review. 2 Units.**
Reviews literature providing the basis for implant surgery, as well as concepts for implant restoration. Repeated registrations required to fulfill the total units.

**PERI 608. Dental Specialty Practice Management. 2 Units.**
Assists graduate students with transition from school to private practice. Includes practical discussion of and guidance relevant to such considerations as staff, insurance, banking, referral communications, and legal aspects of dentistry. Students required to bring in articles on practice management and to present a business plan for their first few years in practice.

**PERI 611. Introduction to Periodontics. 2 Units.**
Overview of the clinical science of periodontics, including epidemiology, etiology, therapy, clinical methods, and record keeping.

**PERI 614. Implant Treatment Planning. 2 Units.**
Limited to residents enrolled in two disciplines (i.e., advanced education in periodontics and implant surgery, and advanced prosthodontics). Residents required to present cases that involve mutual interests. Repeated registrations required to fulfill the total units.

**PERI 624. Moderate Sedation in Periodontics. 4 Units.**
Addresses administration of moderate, intravenous sedation as preparation to meet or exceed requirements for certification by the California Board of Dentistry. Meets requirements for accreditation by the Commission on Dental Accreditation of the American Dental Association.

**PERI 634. Clinical Conference. 1,2 Unit.**
Case management conference to assist the student in diagnosis, treatment planning, and the management of periodontal diseases and implant surgery. Repeated registrations required to fulfill the total units.

**PERI 654. Practice Teaching in Periodontics. 1 Unit.**
Experience in teaching the predoctoral dentistry student. Repeated registrations required to fulfill the total units.

**PERI 696. Scholarly Activity in Periodontics. 1 Unit.**
Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in periodontics. Multiple registrations may be needed to complete these activities.

**PERI 697A. Research. 1 Unit.**
Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PERI 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PERI 697C. Research. 1 Unit.**
Student completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PERI 698. Thesis. 1 Unit.**

**PERI 706. Fundamentals of Periodontal Surgery—Techniques and Instrumentation. 2 Units.**
Introduces rationale, fundamental techniques, and instrumentation of periodontal surgery. Close seminar and clinic instruction and direct “one-on-one” teaching and learning of the salient aspects of periodontal surgery, using patients receiving treatment.

**PERI 725. Clinical Practice in Periodontics. 1-6 Units.**
Clinical experience in the diagnosis and treatment of periodontal diseases. Repeated registrations to fulfill the total units/clock hours required.

**PERI 726. Clinical Practice in Implant Surgery. 2 Units.**
Clinical experience in the diagnosis and treatment regarding implant surgery. A minimum of sixty clock hours per quarter (twelve quarters) required to fulfill total units.

**PERI 805. Periodontal Surgical Therapy. 1 Unit.**
Introduces surgical periodontal therapy and periodontal wound-healing concepts. Discusses periodontal flaps and their use in various surgical techniques. Reviews surgical management of multirooted teeth. Reviews preprosthetic periodontal surgery. Presents laboratory exercises in application of surgical principles.

# Pharmaceutical Sciences (RXPS)

## Courses

**RXPS 501. Pharmaceutical Calculations. 2 Units.**
Presents foundational mathematical principles concerned with the formulation, preparation and effectiveness of pharmaceutical dosage forms and dispensing of prescription medication commonly seen in a variety of practice settings.

**RXPS 502. Pharmaceutics I. 4 Units.**
Addresses the study and application of physical and chemical principles to the development, preparation, and stabilization of pharmaceutical dosage forms. Also included is a study of biological and physicochemical factors that influence availability of a drug from dosage form and subsequent disposition and response of the drug in the body.

**RXPS 503. Pharmaceutics II. 3 Units.**
Studies the mathematical, physicochemical, and biological principles involved in the design, preparation and effectiveness of pharmaceutical dosage forms employed for various routes of administration. Prerequisite: RXPS 502.

**RXPS 515. Pharmaceutics Laboratory I. 0.5 Units.**
Laboratory designed for the student to apply pharmaceutical principles and to develop proficiency when compounding selected formulations and employing aseptic techniques. Prerequisite: RXPS 501. Corequisite: RXPS 502.

**RXPS 516. Pharmaceutics Laboratory II. 0.5 Units.**
Continues RXPS 515.

**RXPS 541. Foundations of Biomedical Science I. 4 Units.**
Foundational biological, chemical, physiological, and pharmacological principles related to drug action, wellness, and disease. Focuses on the roles that proteins play in enzymatic catalysis, gene regulation, pharmacogenomics, membrane transport, signal transduction, drug toxicity, and the physiology and pharmacology of neurons and myocytes.

**RXPS 542. Foundations of Biomedical Science II. 4 Units.**
Pharmacologic basis for drug treatment of diseases of the nervous, respiratory and endocrine systems. Addresses basic physiologic principles and the pathophysiology of key pathways of all three systems. Themes include: molecular and cell physiology, drug receptor physiology, transporters, asthma, ventilation-perfusion mismatch, lung function changes in obstructive and restrictive lung diseases, diabetes and hypothalamic and pituitary regulation of the endocrine organs.

**RXPS 543. Foundations of Biomedical Science III. 4 Units.**
Presents foundational principles of the pathophysiology of endocrine, cardiovascular, and renal system diseases. Focuses on the pharmacology of drugs used to treat endocrine, cardiovascular, and renal disorders.

**RXPS 544. Foundations of Biomedical Science IV. 4 Units.**
Presents foundational principles of the digestive system, the immune system, and infectious diseases. Focuses on the pharmacology of drugs used to treat digestive and immune disorders as well as bacterial and viral infections.

**RXPS 610. Pharmacokinetics. 4 Units.**
Teaches the basic principles of absorption, distribution, metabolism, and elimination of drugs from the body. Focuses on physical, physiological, and biochemical factors that impact these processes. Includes clinical pharmacokinetics principles and practical examples in the recitation periods. Prerequisite: Successful completion of all P1-level courses and P2; Autumn Quarter standing.

**RXPS 615. Learning and Memory. 2 Units.**
Introduces students to evidence-based, effective strategies to optimize learning and memory. Develops active learners with lifelong learning skills to promote success not only in school but also in the workplace.

**RXPS 616. Neuropsychopharmacology. 3 Units.**
Fundamentals of neuropsychopharmacology, including the functional organization of the brain, and the physiology and biochemistry of major neurotransmitters. Examines how medications and drugs of abuse affect the brain and alter behavior. Discusses common brain disorders with a focus on the mechanisms of action of drugs used for treatment.

**RXPS 617. Natural Products in Current Therapeutics. 2 Units.**
A journal club-style course in which students lead the discussion and dialogue. Explores specific cases of natural product-derived therapeutics from the history of discovery, synthesis, and biological activity to drug development and marketing. Students perform literature searches, read and summarize journal articles, present summaries of multiple articles on a similar topic, and prepare topical presentations for the class.

**RXPS 619. Nutrition and Culinary Arts. 2 Units.**
Develops basic nutrition and culinary arts skills for patient care. Addresses disease reversal, lifestyle-change programs, lifestyle medicine, culinary medicine, culinary prescription, and the whole-food plant-based diets. Includes: chronic disease classification, disease reversal research, label reading, portion size, nutrient comparisons, budgeted meal planning, and community health strategies.

**RXPS 630. Biochemical Aspects of the Obesity and Metabolic Syndrome. 2 Units.**
Explores biochemical factors related to obesity. Emphasizes the impact of these factors on currently available pharmacotherapeutic options and development of new therapies. Focuses on the role of pharmacist-guided lifestyle interventions on the treatment of obesity and metabolic syndrome.

**RXPS 651. Principles of Medicinal Chemistry I. 3 Units.**
The first in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use.

**RXPS 652. Principles of Medicinal Chemistry II. 4 Units.**
The second in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 651.

**RXPS 653. Principles of Medicinal Chemistry III. 3 Units.**
The third in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 652.

**RXPS 710. Dietary Supplements. 2 Units.**
Introduces the use of herbals and other supplements in patient health. Topics include key regulatory and practical concerns; resources for supplement information; and evidence-based use and adverse effects of commonly used supplements for CNS, digestive, reproductive, immune, fitness, and other conditions.

**RXPS 719. Nutrition and Metabolic Syndrome. 2 Units.**
Introduces the role of nutrition, including dietary supplements, in patient health. Topics include the basics of nutrition and nutritional adequacy; vegetarian diets, including the Adventist Health Study; and nutritional considerations related to metabolic syndrome.

**RXPS 730. Current Topics in Medicinal Chemistry and Drug Design. 1 Unit.**
Focuses on discovery and design of new drugs for new therapeutic targets, and on development of new approaches for treatment of diseases.

**RXPS 782. Special Topics in Pharmaceutical Sciences. 1-4 Units.**
Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 783. Special Topics in Pharmaceutical Sciences. 1-4 Units.**
Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 784. Special Topics in Pharmaceutical Sciences. 1-4 Units.**
Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

# Pharmacology (PHRM)

## Courses

**PHRM 501. Pharmacology and Therapeutics SD. 4 Units.**
Principles of drug action: drug receptors, absorption and fate of drugs, drug toxicity, and drug development. Systematically considers the pharmacology and clinical applications of the major drugs used by dental patients. Simulations illustrating the effects of drugs in animals and man.

**PHRM 503. Clinical Pharmacology in Dentistry. 2 Units.**
Review of medications used for the treatment of common medical disorders, and their effect on the management of the dental patient—including the use of local anesthetics, antibiotics, and analgesics.

**PHRM 515. Medical Pharmacology. 6 Units.**
Applies basic sciences to the selection of optimal pharmacologic and nonpharmacologic therapies. Introduction to fundamental principles of pharmacology, including pharmacodynamics and pharmacokinetics. Emphasizes drug mechanism of action, mechanism of side effects, patient-specific factors, and drug indications. Provides opportunities for self-directed learning, team building, and interdisciplinary team-based patient care.

**PHRM 554. Neuropharmacology. 4 Units.**
Systematically discusses drugs that affect primarily the nervous system, with major emphasis on mechanism of action.

**PHRM 564. Cardiovascular and Renal Pharmacology. 3 Units.**
Systematically discusses drugs that affect primarily the cardiovascular and renal systems, emphasizing mechanism of action. Offered on demand.

**PHRM 584. Drug Metabolism and Biochemical Pharmacology. 4 Units.**
Discusses in detail the fate of drugs in the body, together with related aspects of biochemical actions of drugs.

**PHRM 684. Special Problems in Pharmacology. 2-6 Units.**
Assignments in literature reviews and/or laboratory exercises.

**PHRM 697. Research. 1-6 Units.**

**PHRM 699. Dissertation. 1-6 Units.**

**PHRM 891. Pharmacology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of pharmacology, including research.

# Pharmacy Conjoint (RXRX)

## Courses

**RXRX 500A. Professional Development. 1.5 Unit.**
A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on well-being and professionalism/professional identity. Prerequisite: PY1 standing.

**RXRX 500B. Professional Development. 1.5 Unit.**
Continuation of RXRX 500A. Prerequisite: RXRX 500A.

**RXRX 501. School of Pharmacy Forum. 0 Units.**
Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis throughout the four-year program.

**RXRX 506. Introduction to Pharmacy Leadership. 1 Unit.**
Offers academic credit for activities related to leadership development associated with the California Pharmacy Student Leadership Program. Strengthens leadership behavior. Students invited to take part in this program must register for this course and complete it as a condition of their participation. May be repeated once for a maximum of 2 units. Prerequisite: Permission of the Office of Student Affairs; PY-1 Spring Quarter professional year standing.

**RXRX 600A. Professional Development. 1.5 Unit.**
A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on health literacy. Prerequisite: PY2 standing.

**RXRX 600B. Professional Development. 1.5 Unit.**
Continuation of RXRX 600A. Prerequisite: RXRX 600A.

**RXRX 601. School of Pharmacy Forum. 0 Units.**
Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis throughout the four-year program.

**RXRX 700A. Professional Development. 1.5 Unit.**
A three-course sequence. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy. Focuses on interprofessional communication and team STEPPS. Prerequisite: PY3 standing.

**RXRX 700B. Professional Development. 1.5 Unit.**
Continuation of RXRX 700A. Prerequisite: RXRX 700A.

**RXRX 701. School of Pharmacy Forum. 0 Units.**
Presents current topics affecting pharmacy, health care, and career paths from a multidisciplinary perspective. Offered on a weekly basis through the third professional year. throughout the four-year program.

**RXRX 720. Dynamics of Power and Privilege. 1 Unit.**
Introduces the relationship between the concepts of identity, power, and privilege with structural and institutional discrimination in the United States.

**RXRX 721. Diversity, Equity, and Inclusion in Health Care. 1 Unit.**
Introduces the roles that diversity, equity, and inclusion play in health-care outcomes and disparities. Prerequisite: RXRX 720.

**RXRX 722. Diversity, Equity, and Inclusion Community Engagement Project. 1 Unit.**
Applies concepts of diversity, equity, and inclusion within the context of community engagement by the preparation of a proposal for a student-managed project addressing a health-care need within a community of the student's choice. Prerequisite: RXRX 720, RXRX 721.

**RXRX 730. Leadership in Pharmacy Education: Diversity, Equity, and Inclusion. 2 Units.**
Applies concepts of diversity, equity, and inclusion within the context of community engagement by preparation of a proposal for a student-managed project that addresses a health-care need within a community of the student's choice.

**RXRX 798. Independent Study with Faculty. 1-4 Units.**
Development of an individual research or project. Includes: description of the research or project; associated budget; and, assessment methods. May be repeated for a total of 4 units toward the 9-unit elective requirement.

# Pharmacy Practice/Drug Information (RXDI)

## Courses

**RXDI 664. Drug Information and Literature Evaluation. 3 Units.**
Introduces drug information resources, retrieval, and evaluation. Includes: forms of drug literature; primary, secondary, tertiary, and Internet resources; documentation of drug information requests; and, reporting adverse drug reactions. Discusses issues related to herbal medicine and alternative therapeutic options.

# Pharmacy Practice/Experiential Education (RXEE)

## Courses

**RXEE 580. Introductory Pharmacy Practice Experience—Community I. 3 Units.**
Introduction to pharmacy practice in a community setting. Focuses on pharmacist, technician, health-care provider, and patient interactions. Prerequisite: RXEE 690, and a valid pharmacist intern license.

**RXEE 591. Introduction to Community Pharmacy Practice I. 2 Units.**
Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns through practicum and reflection the basic skills required in community pharmacy practice.

**RXEE 592. Introduction to Community Pharmacy Practice II. 2 Units.**
Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns basic skills required in community pharmacy practice through practicum and reflection.

**RXEE 680. Introductory Pharmacy Practice Experience—Community II. 2 Units.**
Introduction to pharmacy practice in a community setting with emphasis on applying clinical knowledge to patient counseling and education on prescription and self-care medications. Addresses pharmacist, technician, other health-care provider, and patient interactions. Prerequisite: RXEE 580, and a valid pharmacist intern license.

**RXEE 690. Introduction to Hospital Pharmacy Practice. 2 Units.**
Exposes students to the various clinical, administrative, and distributive roles and responsibilities of a hospital pharmacist. Prerequisite: P2 standing.

**RXEE 790. Introduction to Clinical Pharmacy Practice. 2 Units.**
Exposes students to a variety of clinical pharmacy services—including ambulatory care, medicine, and a number of specialty practice areas. Prerequisite: P3 standing.

**RXEE 821. Advanced Pharmacy Practice Experience I. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 822. Advanced Pharmacy Practice Experience II. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 823. Advanced Pharmacy Practice Experience III. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 824. Advanced Pharmacy Practice Experience IV. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 825. Advanced Pharmacy Practice Experience V. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 826. Advanced Pharmacy Practice Experience VI. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 827. Advanced Pharmacy Practice Experience VII. 6 Units.**
Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 828. Advanced Pharmacy Practice Experience VIII. 6 Units.**
Immersion in clinical practice within inpatient settings. Addresses comprehensive pharmaceutical care plans within the Pharmacist Patient Care Process. Prerequisite: Successful completion of didactic courses; valid pharmacist intern license.

# Pharmacy Practice/Pharmaceutical Care (RXPC)

## Courses

**RXPC 561. Pharmaceutical Care I. 4 Units.**
First of three courses addressing pharmacy practice. Introduces the essence of being a professional and the challenges of applying these ideals. Includes: professionalism; practice philosophies; professional relationships; career paths; and, lifelong-learning in pharmacy. Incorporates study of the top 200 drugs by brand and generic names, therapeutic and drug classifications, and manufacturer.

**RXPC 571. Pharmacist Guided Self-Care I. 3 Units.**
Familiarizes the student with nonprescription health care products. Emphasizes patient assessment, indicated medical conditions, pharmacology, product selection, self-administration techniques, and patient counseling/follow-up. Lecture/discussion to simulate patient encounters.

**RXPC 572. Pharmacist Guided Self-Care II. 3 Units.**
Continues RXPC 571.

**RXPC 761. Pharmacy Practice I. 2 Units.**
First of three laboratory courses addressing pharmacy practice. Presents issues in contemporary pharmacy practice. Includes: roles of the pharmacist in drug-therapy management; drug-administration techniques, devices, and compounding techniques; evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management; application of appropriate communication and computer skills; and, the role of the pharmacist as a health educator.

**RXPC 762. Pharmacy Practice II. 2 Units.**
Second of three laboratory courses addressing pharmacy practice. Presents issues in contemporary pharmacy practice. Includes: roles of the pharmacist in drug-therapy management; drug-administration techniques, devices, and compounding techniques; evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management; application of appropriate communication and computer skills; and, the role of the pharmacist as a health educator.

**RXPC 763. Pharmacy Practice III. 3 Units.**
Capstone course that enhances students' skills and abilities in clinical application of knowledge, patient assessment, patient case presentation, and literature evaluation. Includes three activities that reinforce many of these skills.

# Pharmacy Practice/Therapeutics (RXTH)

## Courses

**RXTH 529. Strategies for Achieving a Successful Career in Pharmacy. 2 Units.**
Explores factors that determine job satisfaction and success in the pharmacy workplace, as well as contemporary changes in the pharmacist job market that directly affect pharmacist employability. Guides students in the development of strategies that will enable them to effectively compete in a highly competitive job market, optimizing their chances of achieving job satisfaction and success once employed.

**RXTH 560. Pharmacist-Guided Self Care. 5 Units.**
Introduces students to pathophysiology, pharmacologic, and nonpharmacologic management of conditions indicated for self-treatment. Enables students to provide patient-centered care through gathering pertinent information by patient interviewing, assessing the appropriateness of self-treatment or referral, recommending over-the-counter (OTC) products, and developing a patient-specific treatment plan--including patient education, counseling, and follow up.

**RXTH 570. Introduction to Disease Management. 2.5 Units.**
Introduces students to medical terminology, physical examination, interpretation of major diagnostic tests/laboratory results, and important patient safety considerations. Familiarizes students with various disease states—such as benign prostatic hyperplasia, urinary incontinence, glaucoma, gout, osteoarthritis, and rheumatoid arthritis. Prepares students to assess patients and determine the appropriate nonpharmacologic and pharmacologic treatment options for specific conditions.

**RXTH 603. Interprofessional Dental Clinic. 2 Units.**
Provides opportunity for pharmacy and dentistry students to work and learn together in the setting of an urgent care dental facility. Students interview patients and collect data (chief complaint, medical history, medication history, etc.) pertinent to the patients' dental care. Emphasizes the collaboration of different professions to deliver health care and improve the health of patients. Develops communication skills between health care providers.

**RXTH 604. Medical Missions. 3 Units.**
Prepares students to participate in an organized, interprofessional, cross-cultural medical mission trip, health-care experience, or international health program. Includes hands-on, experiential learning that enhances competence in physical assessment. Reviews major chronic diseases encountered in select medical mission destinations, including the appropriate role for student pharmacists in diagnosis and treatment.

**RXTH 605. Advanced Diabetes Management. 2 Units.**
Advances students' knowledge and skills applicable to issues regarding personalized treatment of diabetes. Topics include lifestyle management, social issues, mental health issues, type 1 DM, type 2 DM, and diabetes management technology. Challenges students to use guidelines, literature, personalization, and professional judgment in approaching patient care.

**RXTH 606. Antimicrobial Stewardship. 1 Unit.**
Develops an understanding of the role of the pharmacist in antimicrobials stewardship programs (ASP), as well as the process of ASP. Includes hospital practice and administrative duties associated with ASP.

**RXTH 608. Viral Infections Evidence-Based Therapy. 2 Units.**
Introduces students to chronic hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infections, focusing on evidence-based treatment of these viral infections. Students interpret clinical data for various available therapies that allow them to select patient-specific treatments based on evidence. Students examine issues of internal, external, statistical, and clinical validity as they relate to specific patient cases in HCV and HIV.

**RXTH 609. Advanced Literature Evaluation. 1 Unit.**
Provides an opportunity for students to critically evaluate journal articles in a systematic format. Introduces students to the journal club format of presenting literature and learning how to assess the merit of studies with respect to design, statistical methods, and potential applications.

**RXTH 610. Introduction to Pharmacy Informatics. 1 Unit.**
Provides a foundation for understanding health information technology (HIT) and pharmacy informatics. Presents the HIT and specific informatics language that make up the infrastructure for real-world information management and health information exchange.

**RXTH 611. Introduction to Nuclear Pharmacy. 2 Units.**
Introduction to radiopharmaceuticals. Includes: routinely used diagnostic and therapeutic agents; evaluation of radiopharmaceuticals in terms of indications, dosages, side effects, drug interactions, and potential for pharmacist intervention; practice guidelines and regulatory requirements for radiopharmaceuticals and nuclear pharmacy; and, diagnostic and therapeutic utility of radiopharmaceuticals.

**RXTH 614. Parenteral and Enteral Nutrition. 1.5 Unit.**
Provides a comprehensive review of malnutrition in critically ill patients, and discusses the treatment approach based on patient's medical and nutritional status and requirements. Introduces students to therapy-related complications and discusses how to prevent and manage them.

**RXTH 619. Clinical Pharmacokinetic Dosing and Monitoring. 3 Units.**
Integrates the principles of pharmacokinetics--including factors affecting the absorption, distribution, metabolism, excretion, and binding of drugs--into the process of monitoring, evaluating, and adjusting a specific dosing regimen. Teaches students to interpret laboratory results, assess clinical findings, and apply pharmacokinetic principles to determine an individualized dosing regimen for a specific patient, based on drug serum concentrations and clinical circumstances.

**RXTH 671. Fluids and Electrolytes. 2 Units.**
Covers the pathophysiology and management of conditions related to fluid, electrolyte, anemia, acid-base, and nutritional disorders. Discusses pharmacotherapy, dietary requirements, and sources of electrolytes . Enables students to manage these disorders, establish and employ rational treatment, and provide parameters to monitor progress of recommended therapies.

**RXTH 674. Renal and Respiratory Diseases. 3.5 Units.**
Covers the pathophysiology, management, and drug therapy of conditions related to renal and respiratory diseases. Prepares students to manage renal and respiratory diseases, establish and employ rational treatment, and provide parameters to monitor progress of the regimens.

**RXTH 683. Endocrine. 3.5 Units.**
Introduces students to the pathophysiology and disease-state management of common endocrine disorders. Introduces students to pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these common endocrine disorders. Prepares students to integrate their current knowledge and skills of therapeutics to formulate individualized therapeutic plan for patients. Prerequisite: Completion of all P1 and Autumn Quarter P2 courses.

**RXTH 684. Cardiovascular I. 3.5 Units.**
Teaches the pathophysiology, management, and drug therapy of hypertension, hyperlipidemia, and coronary artery diseases. Includes the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Emphasizes evidence-based medicine and national guidelines for the management of these diseases. Prepares students to determine the most appropriate treatments and monitoring parameters.

**RXTH 685. Cardiovascular II. 3.5 Units.**
Teaches the pathophysiology, management, and drug therapy of thromboembolic disorders, arrhythmia, stroke, transplantation, pulmonary hypertension, and heart failure. Includes the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Prepares students to determine the most appropriate treatments and monitoring parameters.

**RXTH 686. Cardiology Clinic Medication Reconciliations. 1 Unit.**
Teaches pharmacy students to conduct medication reconciliation to ensure that the medical team has a complete record and understanding of prescription and non-prescription medications taken by a patient during transition points of care (e.g., admissions, discharges, clinic visits, and moving between institutions or providers). Prerequisite: Third-year student.

**RXTH 701. Pediatric Pharmacotherapy. 2 Units.**
Expands the student's therapeutic knowledge regarding common pediatric disease states and prepares students to identify and address common drug-related problems in pediatric patients. Prerequisite or concurrent*: RXTH 704*, completion of winter quarter of PY3 year.

**RXTH 702. Advanced Topics in Neurology and Therapeutics. 2 Units.**
Develops the knowledge and skills necessary for scientific inquiry and promotes an enduring attitude of self-learning. Elements include creative and critical thinking, literature analysis, and discussion of findings. Students assigned projects and activities. Prerequisite: RXTH 771.

**RXTH 703. Advanced Topics in Critical Care. 2 Units.**
Presents disease states and treatments in critically ill patients in the clinical environment. Preparation for clinical rotations and inpatient pharmacy practice.

**RXTH 704. Special Populations. 3 Units.**
Introduces students to the core concepts involved in the care of pediatric and geriatric patients. Expands students' knowledge base of pharmacology, pharmacokinetics, and pharmacodynamics of drugs. Includes anatomy, physiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical trial evidence. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish the course outcomes.

**RXTH 708. Mental Health in the Movies. 2 Units.**
Evaluates the depiction of mental health conditions in various media, including books and movies.

**RXTH 757. Advanced Cardiovascular Life Support. 3 Units.**
Focuses on the development of skills necessary for the management of patients with acute cardiovascular emergencies.

**RXTH 770. Infectious Diseases I. 3.5 Units.**
Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of anti-infective agents; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with various infections. Integration of students' knowledge and skills in a variety of ways to accomplish course outcomes.

**RXTH 771. Central Nervous System II. 3.5 Units.**
Introduces students to management (evaluation, treatment, monitoring, and follow-up) of patients with neurological conditions (Table I). Describes basic pathophysiology of common neurological conditions, along with pharmacokinetic and pharmacodynamic properties of the most common therapeutic agents. Provides practical experience in managing patients with neurological conditions, along with additional comorbid conditions, through case-based activities.

**RXTH 772. Infectious Diseases II. 3.5 Units.**
Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of anti-infective agents; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with various infections. Integrates students' knowledge and skills in a variety of ways to accomplish course outcomes. Prerequisite: RXTH 770.

**RXTH 773. Central Nervous System I. 3.5 Units.**
Introduces students to management (evaluation, treatment, monitoring, and follow-up) of patients with psychiatric illnesses (Table I). Describes basic pathophysiology of common psychiatric illnesses, along with pharmacokinetic and pharmacodynamic properties of the most common therapeutic agents. Provides practical experience in managing patients with psychiatric illness, along with additional comorbid conditions, through case-based activities.

**RXTH 774. Gastrointestinal Disorders. 2.5 Units.**
Introduces students to the pathophysiology and management (assessment, evaluation, treatment, monitoring, and patient education) of common gastrointestinal disorders, liver diseases, hepatitis; and other topics such as stress ulcer prophylaxis. Covers the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of these diseases. Assimilates relevant literature and current guidelines into treatment plans.

**RXTH 775. Oncology. 2.5 Units.**
Introduces student pharmacists to the pathophysiology, pharmacology, and therapeutic management of common hematologic malignancies and solid tumors. Students gain an understanding of the management of adverse side effects due to chemotherapy. Provides an avenue for student pharmacists to practice critical- thinking skills and clinical decision making using interactive, case-based lecturing and recitation cases.

**RXTH 776. Infectious Diseases. 7 Units.**
Introduces pharmacology, pharmacokinetics, and pharmacodynamics of anti-infective agents, as well as the Pharmacists' Patient Care Process, to manage patients with common infections.

**RXTH 782. Special Topics in Pharmacy Practice. 1-4 Units.**
Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 783. Special Topics in Pharmacy Practice. 1-4 Units.**
Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 784. Special Topics in Pharmacy Practice. 1-4 Units.**
Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

# Pharmacy/Social and Administrative Sciences (RXSA)

## Courses

**RXSA 545. Public Health and Lifestyles. 3 Units.**
Introduction to principles of public health and public health practice. Addresses how pharmacy practice interfaces with public health delivery in a variety of settings; identification and evaluation of public health education programs; and, how the pharmacist ensures conditions under which all people can be healthy.

**RXSA 547. Pharmacy Law. 2 Units.**
Introduces students to the most relevant federal and state laws and regulations that define legal and ethical pharmacy practice. Provides students with the tools necessary to practice pharmacy consistent with these standards. Includes lectures, discussions, small-group problem solving, assignments, and examinations.

**RXSA 555. Epidemiology and Public Health. 3 Units.**
Examines the fundamentals of public health epidemiology. Addresses distribution and determinants of health and illness, factors contributing to health promotion and disease prevention, implementation of activities that advance public health and wellness, and immunization delivery.

**RXSA 600. Philippines Medical Mission Preparation. 1 Unit.**
Orientation to cultural, professional, and clinical experiences in the Philippines. Surveys geographical, cultural, and epidemiological history of the Batangas people. Reviews preparation of medications to be dispensed during the mission. Describes the pharmacist's scope of practice in the medical mission and provision of competent pharmacy care. Develops and implements mission responsibilities, tasks, and itineraries.

**RXSA 618. Writing for Publication. 3 Units.**
Addresses publishable, professional writing. Includes: pre-writing exercises, basic components of articles, journal style sheets, bibliographies, citing works within a text, and writing conventions such as mechanics, usage, and sentence formation.

**RXSA 640. Epidemiology and Biostatistics. 3 Units.**
Introduces epidemiology, basic statistical concepts, analytical methods, and medical literature-evaluation techniques. Exposes students to biostatistical concepts through clinical application of statistics, using SPSS7 or other currently available statistical packages. Prerequisite: Successful completion of all P1-level courses; P2; Autumn Quarter standing.

**RXSA 646. Principles of Management. 3 Units.**
Introduces pharmacy students to the five core managerial sciences, i.e., human resource management, operations management, marketing, accounting, and finance. Particularly emphasizes human resource management and operations management skills. Lectures incorporate real-life management cases for discussion, followed by lecture on the principles of management topics.

**RXSA 650. Biostatistics. 3 Units.**
Exposure to commonly used descriptive and inferential statistical techniques. Addresses selection of appropriate parametric and non-parametric statistical tests for research and interpretation of findings in the literature. Includes presentation of statistical information in tabular and graphical formats.

**RXSA 743. Health Systems, Reimbursement, and Pharmacoeconomics. 3 Units.**
Explores health outcomes research and pharmacoeconomic analyses. Includes: cost-benefit analyses across drug treatments; resource allocation; practice guidelines for pharmacoeconomic evaluation; pharmacists' roles in the health-care system; and, drug and clinical pharmacy reimbursement in practice settings.

**RXSA 748. Advanced Topics in Pharmacy Law. 1 Unit.**
Exposes the student to current issues in pharmacy law and regulation both at the federal and state levels. Introduces pending legislation at both the state and federal levels. Assigned legal articles and pending legislation read and presented during class allow the student to become familiar not only with the issue(s) being presented, but also to analyze and present the issues' impact on the practice of pharmacy in general and on the student's personal practice of pharmacy.

**RXSA 750. Wall Street Journal. 1 Unit.**
Students read selected Wall Street Journal health-related articles and discuss the events that have resulted in news coverage each week in the areas of pharmaceutical/biotechnology, providers/insurance, research, policy, and medical products.

**RXSA 751. Social-Behavioral Aspects of Pharmacy Practice. 3 Units.**
Focuses on models and theories of behavior change with particular emphasis on public health, health education, preventive health, health promotion, and pharmacological practice. Includes patient and needs assessments.

**RXSA 757. Clinical Research and Methodology (CRM). 2 Units.**
Builds on the principles of biostatistics and drug information to develop the skills necessary for a practitioner to design and develop a clinical research study worthy of scholarly publication and presentation. Highly recommended for students who wish to pursue a career in managed care, pharmacy practice in an academic setting, or as a clinical coordinator in hospital settings. Offered Spring Quarter of PY3. Prerequisite: Completion of RXDI 664 and RXSA 640 with a grade of B- or better.

# Philosophy (PHIL)

## Courses

**PHIL 204. Introduction to Philosophy. 4 Units.**
Introduces philosophical ideas and methods concerning knowledge, reality and values. Topics include the sources and limits of knowledge, and the nature of reality. Other topics that may be examined from a philosophical perspective include the nature of the self, truth, ethics, religion, science, language, beauty and art, political theory, or mind.

**PHIL 616. Seminar in the Philosophy of Science. 2 Units.**
Explores the meaning(s) of scientific facts, laws, and theories—with special attention to the development of scientific thought, the nature of scientific discovery, contrasting interpretations of scientific inquiry, and the ethical ramifications of scientific discovery.

# Physical Education Activity (PEAC)

## Courses

**PEAC 110. Independent Activities. 1 Unit.**
Develops an appropriate fitness/activity program in conjunction with the instructor. Develops motor skills and physical stamina in a manner that will promote lifelong involvement in physical activity.

**PEAC 128. Recreation Swimming. 1 Unit.**
Covers the mechanics of a variety of strokes, training methods, training principles, and safety through swim techniques that maximize fitness outcomes and minimize injuries. Designed to teach and apply the principles of lifetime physical fitness, utilizing the five major components of cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition. Prerequisite: Students must have beginning swimming ability as determined by the instructor.

# Physical Medicine and Rehabilitation (PMRH)

## Courses

**PMRH 891. Physical Medicine and Rehabilitation Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of physical medicine and rehabilitation, including pain management and research.

# Physical Therapist Assistant (PTAS)

## Courses

**PTAS 201. Anatomy. 4 Units.**
Anatomy of the human body, with emphasis on the neuromuscular and skeletal systems, including anatomical landmarks. Basic neuroanatomy of the central nervous system.

**PTAS 203. Applied Kinesiology. 3 Units.**
Introduces functional anatomy of the musculoskeletal system. Applies biomechanics of normal and abnormal movement in the human body. Lecture and laboratory.

**PTAS 204. Applied Gait. 1 Unit.**
Introduces normal phases of gait. Identifies common gait abnormalities. Clinical application towards therapeutic exercises and gait training. Lecture and laboratory.

**PTAS 205. Introduction to Physical Therapy. 1 Unit.**
Physical therapy practice and the role of the physical therapist assistant in providing patient care. Quality assurance. Interpersonal skills. Introduces the multidisciplinary approach. Familiarizes the student with health care facilities and government agencies.

**PTAS 206. Documentation Skills. 1 Unit.**
Introduces basic abbreviations, medical terminology, chart reading, and note writing.

**PTAS 212. Physical Therapy Procedures. 3 Units.**
Principles of basic skills in the physical therapy setting. Goniometry. Sensory- and gross-muscle testing. Mobility skills in bed and wheelchair and transfer training. Gait training and activities of daily living. Body mechanics, positioning, and vital signs. Identifies architectural barriers. Teaching techniques for other health care providers, patients, and families. Wheelchair measurement and maintenance. Lecture and laboratory.

**PTAS 224. General Medicine I. 3 Units.**
Introduces general medical conditions, including pathology and management of medical problems: diseases of the body systems--including cardiovascular, urinary, digestive, nervous, endocrine, and musculoskeletal systems. Theoretical principles and practical application of respiratory techniques, exercises, and postural drainage. CPR certification required prior to the end of the term. Prerequisite: PTAS 201.

**PTAS 225. Neurology. 3 Units.**
Introduces neurological conditions, including pathology and management of medical problems of stroke, head injury, Parkinson's disease, spinal cord and nerve injuries, and other conditions.

**PTAS 226. Orthopaedics I. 3 Units.**
Introduces common orthopaedic conditions, pathologies, and surgical procedures involving the peripheral joints. Introduces joint mobilization. Procedures and progression of therapeutic exercises for each specific joint covered as these exercises relate to tissue repair and healing response. Practical laboratory includes integration of treatment plans and progressions.

**PTAS 227. Therapeutic Exercise. 2 Units.**
Introduces therapeutic exercise theories and practical applications. Tissue response to range of motion, stretch, and resistive exercise. Laboratory covers practical applications of various types of exercise techniques and machines used in the clinics, and a systematic approach to therapeutic exercise progression.

**PTAS 231. Physical Therapy Biophysical Agents. 3 Units.**
Introduction to administration and practice of physical therapy biophysical agents including heat and cold applications, hydrotherapy, massage, aquatic therapy, physiology and control of edema, standard precautions, sterilization techniques, and pain management. Lecture and laboratory. Prerequisite: PTAS 201.

**PTAS 234. General Medicine II. 1 Unit.**
Introduces equipment, lines, tubes, and procedures for interventions in acute/inpatient settings by the physical therapist assistant. Mobilization, functional mobility, exercise, and transfers within the acute care setting. Identifies the roles of multidisciplinary team members managing critical care patients. Prerequisite: PTAS 212, PTAS 224.

**PTAS 236. Applied Electrotherapy. 3 Units.**
Principles and techniques of electrotherapy procedures, including basic physiological effects. Indications and contraindications for specific electrotherapy modalities. Practical application and demonstration of modalities in a laboratory setting.

**PTAS 238. Wound Care. 1 Unit.**
Normal structure and function of the skin. Pathology of the skin, including problem conditions, burns, and wounds. Lecture and laboratory to include wound identification, measuring, dressing, treatments, and debridement. Model wounds used for hands-on training.

**PTAS 241. Applied Pediatrics. 2 Units.**
Normal and abnormal development, from conception to adolescence. Emphasizes developmental sequence, testing, and treatment of neurological and orthopaedic disorders. Practical laboratory.

**PTAS 243. Applied Geriatrics. 3 Units.**
Introduces various aspects of geriatric care. Wellness care and adaptation to exercise modalities. Procedures pertaining to the geriatric patient. Diagnosis and aging changes that affect function in geriatric rehabilitation.

**PTAS 251. Orthopaedics II. 3 Units.**
Introduces common orthopaedic conditions, pathologies, and surgical procedures of the spine. Treatments, procedures, and progression of therapeutic exercises of the spine as related to tissue repair and healing response. Practical laboratory includes integration of treatment plans and progressions.

**PTAS 252. Applied Neurology. 3 Units.**
Introduces techniques to facilitate neurodevelopmental treatment, proprioceptive neuromuscular facilitation, Brunnstrom, and principles of therapeutic exercise of the cardiac patient. Practical laboratory.

**PTAS 261. Physical Therapy Practice. 1 Unit.**
Student observes evaluations, treatments, and various diagnoses; completes a resume and a state licensing application; and prepares and presents a case study and in-service. Billing procedures and third-party payors.

**PTAS 264. Applied Orthotics and Prosthetics. 2 Units.**
Introduces basic principles in the use of selected prosthetic and orthotic devices. Exposes student to various types of devices; discusses patient adjustment to devices. Examines indications and contraindications for orthotic and prosthetic use with patients seen in physical therapy. Prerequisite: PTAS 203.

**PTAS 265. Professional Seminar. 1 Unit.**
Contemporary theories and practices of physical therapy. Topics covered by faculty and guest lecturers include: sports taping, ortho taping, soft tissue, geriatric experience through affective learning, and vestibular rehabilitation. Lecture and laboratory.

**PTAS 275. Psychosocial Aspects of Health. 2 Units.**
Psychological and sociological reactions to illness or disability. Includes trauma, surgery, and congenital and terminal illness. Individual and family considerations.

**PTAS 293. Physical Therapist Assistant Clinical Experience I. 6 Units.**
One six-week assignment to be completed during the Spring Quarter. Students exposed to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. Combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

**PTAS 294. Physical Therapist Assistant Clinical Experience II. 6 Units.**
One six-week assignment to be completed during the Summer Quarter. Students exposed to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. Combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

**PTAS 295. Physical Therapist Assistant Clinical Experience III. 6 Units.**
The terminal, six-week assignment completed during the final quarter of the program. Exposes students to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. The combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

# Physical Therapy (PHTH)

## Courses

**PHTH 501. Neurology I. 3 Units.**
Physical therapy management of individuals with balance and vestibular disorders resulting in impairments, functional limitations, and disabilities. Emphasizes application and integration of theoretical constructs, evidence-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcome measurements.

**PHTH 502. Neurology II. 3 Units.**
Physical therapy management of individuals with neurological disorders (including stroke, traumatic brain injury, multiple sclerosis, Parkinson's disease) resulting in impairments, functional limitations, and disabilities. Emphasizes application and integration of theoretical constructs, evidence-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement.

**PHTH 503. Neurology III. 3 Units.**
Physical therapy management of individuals with spinal cord injury, Guillain-Barre Syndrome, and Amyotrophic Lateral Sclerosis resulting in impairments, functional limitations, and disabilities. Emphasizes application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement.

**PHTH 504. Neurology IV. 1 Unit.**
Capstone experience assessing critical thinking and clinical application of previously learned content supporting neurologic physical therapy practice.

**PHTH 505. Integrated Clinical Experience. 1 Unit.**
A year-long course that provides the students—assisted by faculty and clinical therapist—experience with mock and real patients. Emphasis is on critical thinking related to assessment, safety, and treatment progression. Course incorporates didactic education into practical application.

**PHTH 506. Exercise Physiology. 3 Units.**
Addresses physiologic, metabolic, circulatory, and structural adaptations, responses, and interactions that occur during acute and chronic exercise. Includes body fat analysis and risk of disease in the obese client. Applies tests and measures to concepts and applications of exercise prescriptions.

**PHTH 508. PT Communication and Documentation. 2 Units.**
Introduces principles and dynamics of professional verbal and written communication, including use of electronic health records and the ICF model. Emphasizes skills required in a clinical setting for effective communication with third-party payors, health-care professionals, and patients. Includes quality and legal considerations in documentation of evaluations, progress notes, daily notes, discharge summaries, and letters of justification.

**PHTH 509. Biophysical Agents. 3 Units.**
Fundamental principles, physiological effects, and application techniques in the use of biophysical agents, including thermotherapy, cryotherapy, hydrotherapy, ultrasound, and electrotherapy procedures. Manual modalities, including massage techniques, myofascial and trigger point release. Lecture and laboratory.

**PHTH 510. Kinesiology. 3 Units.**
Fundamental principles of joint and muscle structure and function related to the development of treatment strategies for the physical therapist. Analyzes and applies the biomechanics of normal and pathological movement of the human body. Functional anatomy of the musculoskeletal system, including palpatory techniques for bone, ligament, and muscle.

**PHTH 511. Clinical Orthopaedics. 2 Units.**
Addresses the physical therapist's management of patients with functional impairments stemming from orthopaedic pathologies in all body regions. Introduces patient/client management; including, examinations, evaluations, diagnoses, prognoses, interventions, and outcomes. Emphasizes postoperative rehabilitation to enhance outcomes following orthopaedic procedures.

**PHTH 512. Clinical Psychiatry. 2 Units.**
Introduces mental and personality disorders. Reviews abnormal behaviors commonly found in a clinical setting.

**PHTH 513. Therapeutic Procedures. 3 Units.**
Blood pressure determination and aseptic techniques. Principles and utilization of posture and body mechanics. Selection and use of wheelchairs, ambulation aids, and other equipment. Progressive planning toward complete activities of daily living.

**PHTH 514. Manual Muscle Testing. 3 Units.**
Methods of evaluating muscle strength and function using specific and gross manual muscle tests. Integrates manual muscle testing with other aspects of patient care. Live patient demonstrations and discussion regarding each patient. Lecture, demonstration, and laboratory.

**PHTH 516. Histology. 2 Units.**
Surveys fundamental tissues (epithelial, connective, muscle, and nervous) and the histopathology of selected diseases, including changes in bone and cartilage.

**PHTH 517. Movement Science. 2 Units.**
An integrative approach to movement impairment and neuromuscular approaches in the evaluation and management of musculoskeletal pain syndromes. Identifies clinical reasoning and examination of movement patterns. Extensive laboratory practice with patient/case studies.

**PHTH 518. Aspects of Health Promotion. 2 Units.**
Dynamics of physical therapy involvement in health promotion for the individual and the community. Factors in the promotion of a healthful lifestyle, including cardiovascular enhancement, stress reduction and coping mechanisms, nutritional awareness, weight management, and substance control. Students design and implement community-based health education program.

**PHTH 519. Locomotion Studies. 3 Units.**
Basic and advanced observational analysis of normal and abnormal human locomotion in adults. Compares differences in gait impairments at each joint and at different stance/swing phases. Use of assessment tools and clinical reasoning in the attributes and interventions of normal and abnormal gait characteristics. Basic pathological and soft tissue impairments to gait cycle. Correlates energy expenditure to gait.

**PHTH 521A. Orthopaedics 1A. 3 Units.**
Discusses physical therapy examination, evaluation, and interventions relevant to the clinical management of musculoskeletal conditions of the upper extremities. Presents instruction related to orthopaedic physical therapy interventions—including joint mobilization, hand splinting, and other selected manual techniques for specific upper extremity musculoskeletal conditions. Utilizes lecture, laboratory, and case studies to develop and integrate these concepts.

**PHTH 521B. Orthopaedics 1B. 3 Units.**
Students further develop concepts of examination, differential diagnosis, prognosis, and interventions that are expanded to patients with musculoskeletal conditions of the lower extremities. Utilizes lecture, laboratory, and case studies to develop and integrate these concepts.

**PHTH 522. Orthopaedics II. 3 Units.**
Evidence-based theory of spinal examination, evaluation, and physical therapy intervention. Expanded principles of functional anatomy, tissue and joint biomechanics, pathology, and treatment. Differentiates causes of neck and head pain—including temporomandibular joint disorders, myofascial pain dysfunctions, and cervicogenic headaches.

**PHTH 523. Orthopaedics III. 3 Units.**
Evidence-based theory of lumbopelvic, lumbar and thoracic spine examination, evaluation, and physical therapy intervention. Expanded principles of functional anatomy, tissue and joint biomechanics, pathology, and treatment. Differentiates etiology of lumbar, lumbopelvic, and thoracic pain.

**PHTH 525. General Medicine. 3 Units.**
An understanding of medical and surgical disorders for the physical therapist. Basic pathology and/or etiology and clinical manifestations. Medical treatment for conditions within selected specialties of: endocrinology, arthritis, oncology, and integumentary management.

**PHTH 526A. Cardiopulmonary I. 3 Units.**
Anatomy and physiology of the cardiovascular system as applied to patient management. Physical therapy management of patients diagnosed with cardiac diseases and complications. Identifies disease processes, including definition, etiology, pathophysiology, clinical presentation, and the clinical course of cardiac conditions. Analyzes and examines ECGs of various forms with basic interpretation. Includes lecture and laboratory.

**PHTH 526B. Cardiopulmonary II. 3 Units.**
Normal anatomy and physiology of the pulmonary system as applied to physical therapy management. Medical and physical therapy management of patients diagnosed with pulmonary diseases and complications. Analyzes arterial blood gases in a systematic manner and relates findings to the disease and ventilatory process. Discusses PFTs for obstructive and restrictive diseases. Includes lecture and laboratory.

**PHTH 528. Therapeutic Exercise I. 3 Units.**
Introduces basic exercise techniques used in the practice of physical therapy. Techniques include, ROM, stretching/flexibility, joint mobilization, muscle performance (including strength, power, and endurance), and aquatic rehabilitation.

**PHTH 530. Therapeutic Exercise II. 3 Units.**
Formulation and implementation of exercise prescriptions based on impairments and protocols. Opportunities to design treatment progressions for the extremities. Emphasizes spinal stabilization approaches for the axial skeleton.

**PHTH 532. Biostatistics I. 2 Units.**
Fundamental procedures of analyzing and interpreting data. Sampling, probability, descriptive statistics, normal distribution, sampling distributions and standard error, confidence intervals and hypothesis testing, power, effect size. Introduction to epidemiological measures to estimate risk and select measures of clinical improvement.

**PHTH 534. Soft Tissue Techniques. 2 Units.**
Physical therapy evaluation and treatment-planning strategies for individuals with orthopedic dysfunction primarily related to soft tissue injury resulting in pathology, impairments, functional limitations, and disabilities. Emphasizes laboratory hands-on application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, intervention, and measurement of outcomes.

**PHTH 539. Integrative Physiology. 4 Units.**
Physiology of the human body, including integumentary, skeletal, muscular, neuronal, cardiovascular, respiratory, endocrine, digestive, urinary, and reproductive physiology.

**PHTH 540. Concepts of Acute Care. 2 Units.**
Presents procedures, equipment, lines and tubes, medications, and treatments used while treating adult and pediatric patients in the acute care setting. Covers ICU, NICU, and CCU using current research on mobilization and improving function. Identifies roles of multidisciplinary team members managing critical care patients.

**PHTH 555. Medical Screening. 2 Units.**
Emphasizes information gathering from history taking, review of systems, and directed questioning—combined with a focused examination to establish a working diagnosis. Emphasizes clinical pattern recognition for both musculoskeletal and nonmusculoskeletal disorders. Students learn strategies to differentiate between musculoskeletal and nonmusculoskeletal disorders. Highlights knowledge and skills related to screening for medical pathology.

**PHTH 557. Pediatrics I. 3 Units.**
Examines typical sequential human development observed throughout prenatal, infant, toddler, and childhood periods, in the context of physical therapy; and provides an introduction to atypical development. Emphasizes observation of motor development and learning, and identification and documentation of movement for both the typically and atypically developing child.

**PHTH 558. Pediatrics II. 3 Units.**
Discussion, demonstration and practice of physical therapy assessment and treatment of pediatric clients with developmental disabilities. Select diagnoses will be studied including cerebral palsy, spina bifida, muscular dystrophy and torticollis, as well as other common impairments. Specific treatment interventions will be practiced including pediatric NDT, sensory processing, orthotic assessment, positioning and handling for the treatment of the pediatric client.

**PHTH 559. Geriatrics. 2 Units.**
Overview of the normal and pathological changes seen during the aging process as related to physical therapy. Includes theories and demographics of aging, physiological and psychosocial changes, principles of geriatric rehabilitation, pharmacology, orthopedic considerations, fall risk, and fall prevention.

**PHTH 561. Physical Therapy Administration. 4 Units.**
Principles of organization and administration in health-care delivery. Multidisciplinary approach to patient management and patient-therapist relations. Administration of physical therapy services. Professionalism, medicolegal considerations, supervision and training of support personnel. Departmental design and budgetary considerations.

**PHTH 563. Research I. 2 Units.**
Introduction to research methods and measurement principles, applied to assessing and interpreting information sources to support patient/client management decisions fundamental to evidence-based practice.

**PHTH 564. Research II. 1 Unit.**
Assessment and interpretation of information sources, evaluating outcomes related to a specific clinical question for purpose of writing an evidenced-based practice literature review.

**PHTH 564A. Scientific Inquiry II A. 1 Unit.**
Students learn the elements of evidence-based practice, how to balance evidence with patients' preferences and clinical expertise, and how to become lifelong learners using evidence-based practice. Guided by a faculty advisor, students develop a focused clinical question; obtain, analyze, synthesize, and integrate evidence; and then evaluate outcomes related to the question.

**PHTH 564B. Scientific Inquiry II B. 1 Unit.**
Students create and submit a written systematic review of the evidence gathered and appraised in PHTH 564A Scientific Inquiry II A. Evidence-based practice experience culminates in a formal oral presentation of the findings to an audience of faculty and peers. Prerequisite: PHTH 563, PHTH 564A.

**PHTH 565. Research III. 1 Unit.**
Assessment and interpretation of information sources, evaluating outcomes related to a specific clinical question for purpose of developing professional poster and oral presentations.

**PHTH 566. Pathology. 4 Units.**
Fundamental mechanisms of disease, including cell injury, inflammation, repair, fluid disorders, neoplasms; developmental, genetic, pediatric, immune, infectious, physical, dietary, blood, vascular, and heart diseases.

**PHTH 568. Integrative Neueroanatomy. 4 Units.**
Basic anatomy and function of the central, peripheral, and autonomic nervous systems and related structures. Gross anatomy of the brain and spinal cord. Functional consideration of cranial nerves, tracks, and nuclei of major systems. Lecture, slides, and laboratory with specimens, models, and exercises.

**PHTH 569. Clinical Neurology. 2 Units.**
Introduces the practice of neurologic physical therapy. Emphasizes neurologic disorders routinely encountered by physical therapists and their clinical manifestations. Presents components of the neurologic physical therapy examination.

**PHTH 571. Short Clinical Experience I. 2 Units.**
Four-week, forty clock hours per week, supervised short clinical experience (SCE) that introduces students to a variety of physical therapy practice settings, and allows them to begin applying and utilizing physical therapy clinical and professional skills learned during the first year of the DPT curriculum.

**PHTH 572. Short Clinical Experience II. 2 Units.**
A four-week, forty clock hours per week, clinical education experience. Students apply and practice knowledge and skills learned in general medicine, neurologic, orthopedics, and preventive care/wellness as they relate to patients across the life span. Supervision by a licensed physical therapist. Includes direct patient care, as well as possible participation in specific site team conferences, demonstrations, special assignments, and observation.

**PHTH 573. Physical Therapy Practicum III. 1.5 Unit.**
Third in a series of three practica. Provision of direct patient care during full-time clinical placement and participation at acute, outpatient, neurorehabilitation, orthopedics, geriatrics, pediatrics, sports medicine, or wellness/preventive care settings. Offered Summer quarter of the third academic year.

**PHTH 575. Orthopaedics IV. 1 Unit.**
A three-quarter course that integrates examination procedures taught in the orthopaedic curriculum. Culminates in a comprehensive laboratory practical that includes the five elements of patient/client management, as described in the Guide to Physical Therapy Practice: examination, evaluation, diagnosis, prognosis, and intervention.

**PHTH 586. Orthotics and Prosthetics. 2 Units.**
Clinical reasoning in the attributes and interventions of normal and abnormal gait characteristics based on the field of orthotics and prosthetics. Instruction with various types of orthotics and prosthetics in order to collaborate with O&P clinicians and patients in locomotion rehabilitation.

**PHTH 587. Pharmacology. 2 Units.**
Introduction to general principles of pharmacology, including actions of commonly used medications on physiological processes related to physical therapy.

**PHTH 595. Clinical Imaging. 3 Units.**
Covers the various types of imaging used in clinical practice. Educates the future practitioner on the strong and weak points of each type of imaging, what that type of imaging is used for, and how the process is completed start to finish. Covers conventional x-ray, CAT scan, MRI, and MSK ultrasound. Laboratory portion familiarizes the student with MSK ultrasound, including its application and the general interpretation of the image produced.

**PHTH 596. Orthopaedics V. 3 Units.**
Presents the newest evidenced-based clinical evaluation and treatment applications over the spectrum of the patient population in the field of physical therapy. Emphasizes the specialized area of orthopedic physical therapy.

**PHTH 597. Specialized Interventions in Physical Therapy. 2 Units.**
Provides advanced study opportunities to pursue, in greater depth, various topics related to current trends in physical therapy and development of advanced clinical skills, where appropriate. Topics include: women's/men's health, lymphedema, wound care, and other specialized areas in physical therapy.

**PHTH 701. Long Clinical Experience I. 5 Units.**
Ten-week, full-time (40 hours/week average) clinical education assignment for D.P.T. students completed in an affiliated clinic with an emphasis in any of a variety of settings including: acute care, outpatient orthopedics, neurological rehabilitation, geriatrics, pediatrics, sports medicine, and preventive care/wellness.

**PHTH 702. Long Clinical Experience II. 5 Units.**
Eleven-week, full-time (40 hours/week average) clinical education assignment for D.P.T. students completed in an affiliated clinic with an emphasis in any of a variety of settings including: acute care, outpatient orthopedics, neurological rehabilitation, geriatrics, pediatrics, sports medicine, and preventive care/wellness. This is the second of three required affiliations in the final year of the program.

**PHTH 703. Long Clinical Experience III. 5 Units.**
Ten-week, full-time (40 hours/week average) clinical education assignment for DPT students completed in an affiliated clinic with an emphasis in any of a variety of settings including: acute care, outpatient orthopedics, neurological rehabilitation, geriatrics, pediatrics, sports medicine, and preventive care/wellness. This is the final of three required affiliations in the final year of the program.

**PHTH 736. Residency Level Clinical Experience. 1 Unit.**
Clinical mentorship under the supervision of a master clinician. Didactic instruction that draws upon a variety of strategies, including case reviews, 1:1 patient mentoring, experiential video analysis and feedback, activities that involve scientific inquiry, and interpretation of the literature and/or clinical experiences.

# Physical Therapy—Graduate (PTGR)

## Courses

**PTGR 500. Integrative Approach to Early Rehabilitation. 3 Units.**
Advanced study in acute and subacute rehabilitation as it applies to the early intervention of physical therapy. Emphasizes wound care management and treatment; cardiopulmonary assessment and treatment; ECG interpretation; and the evaluation process for acute rehabilitation, including spinal cord injury and stroke. Reviews comprehensive team approach, with utilization of neuropsychology and case management.

**PTGR 501. Advanced Orthopaedic Specialty Tracks I. 3 Units.**
Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasis on the cervicothoracic spine and the shoulder girdle.

**PTGR 502. Advanced Orthopaedic Specialty Tracks II. 3 Units.**
Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasizes the thoracolumbar and the lumbopelvic regions.

**PTGR 503. Medical Documentation and Billing. 3 Units.**
Emphasizes expanded skills in medical documentation and communication in the clinical setting. Includes documentation following Medicare guidelines and the Guide to Physical Therapy Practice, justification of care using measurable objective data, home health episodic payment, billing and reimbursement, workers' compensation, interdisciplinary communication, medical dictation, and electronic medical records and documentation related to physical therapy.

**PTGR 504. Science and Biomechanics of the Fascia and the Art of Myofascial Release. 3 Units.**
Bridges the science and art of myofascial release to learn clinically and anatomically based approaches to myofascial release. Focuses on how the fascia and muscle create dysfunction in the human body and increase stress to the system, leading to the occurrence of symptoms encountered clinically in the form of common musculoskeletal pathologies.

**PTGR 505. Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities. 3 Units.**
Advanced clinical assessment, treatment, and management of orthopaedic disorders of the upper extremities. Emphasis on regional interdependency. Includes biomechanics, examination, and intervention of the cervical spine and shoulder complexes, emphasizing refinement of the cervico-thoracic spine and upper-quarter screen and evaluation. Includes lecture and laboratory.

**PTGR 506. Soft-Tissue Mobilization. 3 Units.**
Helps practicing physical therapy clinicians optimize skills and refine selection of the most effective soft-tissue mobilization techniques to maximize specific musculoskeletal functional outcomes. Students learn new techniques and refine and master previously learned techniques through lecture, demonstration, practical examinations, and hand-on techniques.

**PTGR 507. Advanced Pediatric Clinical Practice. 3 Units.**
Physical therapy management of the pediatric patient. Emphasizes observation and analysis of typical development, common movement dysfunctions, and evidenced-based interventions and treatment techniques for the developmentally delayed child.

**PTGR 508. Current Topics in Neurological Rehabilitation. 3 Units.**
Presents evidence-based physical therapy treatment applications for neurologically impaired patients across the life span. Evaluation and treatment of patients with acquired brain injury, stroke, spinal cord injury, vestibular disorders, diabetic neuropathies, and amputations. Emphasizes designing treatment plans, integrating family training, and maximizing independence using the International Classification of Functioning, Disability and Health (ICF) model.

**PTGR 509. Function-Based Rehabilitation. 3 Units.**
Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes NDT, motor learning, and clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive hands-on sessions focused on mastery of manual therapy application.

**PTGR 510. Neurologic Upper Extremity Management. 3 Units.**
Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes a PNF perspective with a focus on clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive laboratory sessions focused on mastery of manual therapy application.

**PTGR 511. Advanced Clinical Practice I: Orthopaedic Rehabilitation. 3 Units.**
Student demonstrates and practices advanced examination, assessment, and treatment of the lumbar spine, pelvic girdle, and lower extremities. Lecture and demonstration.

**PTGR 512. Advanced Clinical Practice II. 3 Units.**
Physical therapy management of individuals with vestibular disorders resulting in dizziness and postural instability. Emphasizes application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement. Learner-centered pedagogy requiring considerable weekly preclass preparation.

**PTGR 513. Advanced Clinical Practice III. 3 Units.**
Advanced clinical decision-making skills, with focus on patient classification, clinical-diagnosis practice parameters, and practice guidelines. Emphasizes development of clinical algorithms, clinical prognostic skills, and outcome measures.

**PTGR 514. Professional Systems in Management I. 3 Units.**
Administering the academic department: personnel selection, development, and evaluation; finance; team development; and leadership theories.

**PTGR 515. Cardiopulmonary Approaches to Assessment, Wellness, and Disease. 3 Units.**
Review of pathology, etiology, and clinical manifestations of cardiopulmonary disorders encountered by physical therapists. ECG interpretation and assessment. Management of patients/clients at risk for chronic vascular disease. Overview of the epidemiology, risk factors, assessment, and interventions which address risks and negative health effects of metabolic syndrome. Emphasizes evidence-based research to guide the development of assessment, prevention, and intervention strategies.

**PTGR 516. Movement Science of the Upper Quarter. 3 Units.**
Presents pathomechanics of spine and upper extremity injuries. Explores the role of muscular imbalance in the pathogenesis of orthopaedic disorders of the upper quarter, and how faulty biomechanics contribute to injuries. Diagnosis, analysis, and evaluation of normal and abnormal movement patterns. Development and design of specific interventions aimed at changing movement dysfunctions of the upper quarter.

**PTGR 517. Movement Science: Lower Quarter Biomechanical Relationships. 3 Units.**
Presents pathomechanics of lumbar spine and lower extremity injuries. Explores the role of muscular imbalance in the pathogenesis of common orthopaedic disorders of the lower quarter and how faulty biomechanics can contribute to injuries. Diagnosis, analysis, and evaluation of normal and abnormal movement patterns. Development and design of specific interventions aimed at changing movement dysfunctions of the lower quarter.

**PTGR 518. Topics in Rehabilitation. 1-6 Units.**
Lecture and discussion of current topics relating to the practice of physical therapy. Content varies from quarter to quarter. (May be repeated for additional credit for a maximum 6 quarter units.).

**PTGR 519. Home Health Physical Therapy for the Post-Acute Patient. 3 Units.**
An in-depth course for physical therapy students interested in the home health setting. Special emphasis on Medicare guidelines and the requirements necessary to excel in this progressive and growing setting.

**PTGR 520. Cervical Spine. 3 Units.**
Evaluation and treatment of patients using best practices and advanced orthopedic skills for the cervical spine. Differentiates clinical conditions and enhances clinical decision making. Integrates manual therapy into patient care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health for impairment and function-based diagnosis, examination, and intervention.

**PTGR 521. Lumbar Spine. 3 Units.**
Evaluation and treatment of patients using best practices and advanced orthopedic skills for the lumbar spine. Differentiates clinical conditions and enhances clinical decision making. Integrates manual therapy into patient care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health for impairment and function-based diagnosis, examination, and intervention.

**PTGR 522. Assessment and Management of the Knee. 3 Units.**
Evaluation and treatment of patients using best practices and advanced orthopedic skills for musculoskeletal conditions of the knee. Differentiates clinical conditions and enhances clinical decision making. Integrates manual therapy into patient care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health for impairment and function-based diagnosis, examination, and intervention.

**PTGR 523. Advanced Neurological Rehabilitation. 3 Units.**
Studies in-depth the patient with spinal cord injury, including etiology, current treatment techniques in acute and outpatient settings, and principles of exercise physiology. Reviews research activities with regard to a cure for spinal cord injury, as well as the legal aspects of ADA and the individual with a spinal cord injury.

**PTGR 524. Women's Health Issues I. 3 Units.**
Clinical aspects of women's health issues. How to develop a women's health program in the clinical setting. Introduces various pathologies and treatment strategies for specific diagnoses that could be encountered in the clinical setting. Women's health during adolescence, the reproductive years, and the geriatric years.

**PTGR 525. Women's Health Issues II. 3 Units.**
Advanced course further exploring women's health issues—including treatment strategies for women during various phases of their lives. Anatomy and physiology during adolescence, the reproductive years, and the geriatric years.

**PTGR 526. Health-related Quality of Life and Health Satisfaction in Health Care. 3 Units.**
Involves students in the incorporation of Loma Linda University's motto, "To make man whole," as a critical aspect of improving quality of life. Emphasizes ways to improve quality of life in aging and disabled populations. Uses quality-of-life and health-satisfaction instruments and outcomes to inform students' decision making and patient care across the life span and as an indicator of successful aging. Students develop a quality-of-life intervention program.

**PTGR 527. Skilled Nursing Facility Physical Therapy Practice, Interventions and Outcomes. 3 Units.**
Orientation to the skilled nursing clinical setting. Topics include, Medicare, Medicaid/Medi-Cal, and private insurance billing and regulations; resource utilization groups; common patient populations; treatment strategies; and, outcome measurements. Discussion and integration of evidence-based practice maximizing outcomes, compliance, and patient satisfaction.

**PTGR 528. Residency Level Advanced Seminars. 1 Unit.**
Accurate interpretation of emerging evidence with applications to physical therapy conditions. Contextually incorporates traditional classroom instruction, group activities and projects, case presentations, live demonstrations, case-based problem-solving sessions, and role-play activities into the clinical setting. Preparation for specialization certification by the American Board of Physical Therapy Specialists.

**PTGR 529. Integumentary and Lymphatic Systems: Evaluation and Intervention. 3 Units.**
Provides physical therapists with knowledge and skills to identify patients at risk for development of integumentary and lymphatic complications; to prescribe preventive measures to promote skin and lymphatic integrity; and to treat conditions once they develop.

**PTGR 531. Advanced Orthopaedic Procedures I. 3 Units.**
Student demonstrates and practices advanced examination and treatment of the lumbar spine, pelvic girdle, and lower extremities.

**PTGR 532. Advanced Orthopaedic Procedures II. 3 Units.**
Student demonstrates and practices advanced examination and treatment of the cervical spine, shoulder girdle, and upper extremities.

**PTGR 533. Advanced Orthopaedic Procedures III. 3 Units.**
Student demonstrates and practices advanced examination and treatment of the lumbar spine, thoracic spine, and rib cage.

**PTGR 534. Sensory Integration Disorders. 3 Units.**
Exploration of sensory integration disorders—including nystagmus, fluid abnormalities of the inner ear, and physical therapy management of individuals with chronic motion sensitivity and cervicogenic dizziness. Course emphasizes application and integration of theoretical constructs and evidenced-based practice. Prerequisite: PTGR 512.

**PTGR 535. Sensory Integration Disorders II. 3 Units.**
Explores sensory integration disorders and clinical applications. Emphasizes fluid abnormalities of the inner and middle ear, cervicogenic dizziness, theoretical constructs, and evidence-based practice. Learner-centered hybrid course pedagogy includes three on-line and two face-to-face classes. Prerequisite: PTGR 534.

**PTGR 536. Sensory Integration Disorders III. 3 Units.**
Explores sensory integration disorders and clinical applications. Emphasizes the neurophysiology of nystagmus, push-pull system, Ewald's laws, and dynamic visual acuity testing. Learner-centered hybrid-course pedagogy that includes three on-line and two face-to-face classes. Prerequisite: PTGR 534.

**PTGR 550. Introduction to Psychoneuroimmunology: The Science of Whole Person Care. 3 Units.**
Studies the effect of the neurological system on physical health, with a focus on psychoneuroimmunology. Summarizes scientific disciplines that study brain, immune system, and health behavior interactions that provide the health-care professional with an integrative understanding of lifestyle, whole person care for immune system function, and wellness.

**PTGR 551. Clinical Translation of Pain Science. 3 Units.**
Overview of pain science; including, chronic pain, the neurobiology of pain, pain mechanisms, psychological and cognitive aspects of pain, and measurement and assessment of pain. Examines neuropathic pain and its contribution to the "centralized pain" component and cognitive behavioral therapies. Discusses pharmacology concepts that help "retrain the brain" in patients suffering acute pain, while preventing the progression to chronic pain.

**PTGR 552. Pain Science: Interactions of the Brain and Body. 3 Units.**
Study of the transition from acute to chronic pain states. Distinguishes among peripheral neurogenic, central, and somatic pain mechanisms, and provides a foundation for the management of pain disorders through clinical decision-making. Utilizes functional MRI and neurocognitive function to recognize relationships among the brain, personality disorders, and acute and chronic pain.

**PTGR 553. Clinical Reasoning and Critical Thinking in Physical Therapy. 3 Units.**
Examines aspects of the "cognitive engine" related to evaluation, management, and decision-making for orthopaedic physical therapy patients. Develops use of goal-directed thinking, and analytical and evaluative questioning. Supports data gathering and interpretation, evaluation methodology, treatment planning and execution, and prognosing. Provides support for defending, justifying, and rationalizing clinical decisions.

**PTGR 554. Writing for the Physical Therapy Professional and Educator. 3 Units.**
Develops clear, precise, and audience appropriate writing skills. Links practical applications to common writing situations found in the health professions and education, ranging from intradisciplinary written communication to preparing abstracts and manuscripts for submission.

**PTGR 555. Grant Writing for Health Professionals. 3 Units.**
Addresses proposal-writing skills essential for acquiring competitive grant funding from government agencies and private foundations. Includes content knowledge, writing proficiency, research skills, originality, creativity, alignment with agency guidelines, and development and submission of a compelling proposal.

**PTGR 556. Research and Journal Club Seminars. 1 Unit.**
Presents novel and developing topics in the field of rehabilitation and medicine. Provides interactions with well-established and emerging investigators. Encourages state-of-the-art approaches and thinking in rehabilitation scholarship, with emphasis on physical therapy research and innovations.

**PTGR 557. Doctoral Dissertation Seminar. 1 Unit.**
A year-long course that assists doctoral students with development of dissertation chapters through the oral defense of the dissertation. Emphasis on the literature review, research design, committee formation, institutional review board training, time and project management, framing of chapters, dissertation format standards, and dissertation defense etiquette.

**PTGR 570. Muscle Energetics and Biochemistry. 3 Units.**
Surveys biochemistry and metabolic pathways related to muscle function during exercise and at rest. Includes muscle biochemistry, glycolysis, gluconeogenesis, beta oxidation, protein metabolism, and nutritional requirements of the cell. Emphasizes metabolic, cardiac, pulmonary, and neurological disorders that limit optimal muscle function and development of physical therapy protocols to minimize limitations. Covers prerequisites in organic and cellular chemistry.

**PTGR 571. Advanced Physiology I: Neurobiology. 3 Units.**
Surveys cell and whole-body physiology. Includes physiology of the neuron and nerve conduction, molecular transport at the cellular level, cardiovascular and renal physiology, gastrointestinal physiology, endocrinology, and neurophysiology. Emphasizes muscles and neurophysiology as they relate to the cardiovascular, respiratory, and endocrine systems.

**PTGR 572. Advanced Physiology II: Exercise and Thermoregulation. 3 Units.**
Focuses on energy sources utilized by the body for exercise, neural and mechanical structures of mechanisms that control body movements, environmental influences on exercise performance, the physiology of thermoregulation, and principles of aerobic and anaerobic exercise. Applies concepts and principles to normal and disabled human conditions.

**PTGR 573. Pathokinesiology of Gait. 3 Units.**
Advanced observational analysis of normal and abnormal human locomotion, with comparison of pathological differences.

**PTGR 574. Current Issues in Basic Science. 3 Units.**
Studies the current issues in basic science, as related to physical therapy. Topics may include current advances in biomechanics, cell and molecular biology, tissue engineering and transplants, pharmacology, and presentation of basic science research. Content includes scientific literature reviews and participation in a wet lab activity that includes development of a question or hypothesis and experimental plan, possible execution of the plan, and interpretation of results.

**PTGR 577. Pharmacology in Physical Therapy. 3 Units.**
Principles of pharmacology as related to diagnosis, prevention, and treatment of disease, including a presentation of the pharmacology and therapeutic value of drugs used in rehabilitation medicine. Related topics include pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, and drug toxicity–with special consideration given to pediatric and geriatric pharmacology.

**PTGR 578. Medical Screening for Physical Therapists. 3 Units.**
Screening for nonneuromusculoskeletal origins for the musculoskeletal complaints of patients who commonly seek rehabilitation in the physical therapy setting. Particularly emphasizes components of the history and physical examination that suggest medical pathology requiring a medical referral. Knowledge and skills related to screening for medical pathologies of the 11 body systems in patients with musculoskeletal complaints of the thorax, pelvis, spine and extremities.

**PTGR 579. Clinical Imaging for Physical Therapist. 3 Units.**
Explores modern imaging techniques used to assess muscoskeletal disorders and cardiovascular pathologies. Includes radiographs, CAT scans, MRIs, bone densitometry, PET scans. Emphasizes clinical ultrasound imaging as used in physical therapy.

**PTGR 580. Movement Science: Bio-control. 3 Units.**
Emphasizes application and discussions of the contemporary knowledge of motor control and learning to individuals with movement dysfunctions.

**PTGR 584. Functional Magnetic Resonance Imaging. 3 Units.**
Introduces students to the techniques applied in functional magnetic resonance imaging and their applications. Covers the theoretical basics of MRI, different types of techniques and software used for processing, group analysis, and interpretation of results.

**PTGR 585. Three-dimension Medical Imaging Quantitation. 3 Units.**
Introduces basic principles of medical imaging as they relate to volumetrics and 3D rendering. Topics include: concept of the voxel, 3D image generation, multiplanar reformat measurements, segmentation, and data presentation. Hands-on experience with 3D imaging software that teaches common toolsets for 3D processing. Prerequisite: PTGR 584.

**PTGR 586. MATLAB. 3 Units.**
Discusses general programming concepts; different ways to plot, visualize, and explore data; and typically used toolboxes and functions in MATLAB.

**PTGR 590. Political Advocacy and Health Policy for Physical Therapists. 3 Units.**
Focuses on health-care advocacy at the national, state, grassroots, and local levels as it promotes the interests of patients, professionals, and organizations involved in health-care delivery. Students examine and discuss policy issues and strategies relevant to physical therapists and other health professionals and educators; and learn a systematic, comprehensive approach to political advocacy and policy activism.

**PTGR 591. Biomechanics I. 3 Units.**
Reviews classic concepts in biomechanics at the tissue, joint, and whole body level. Provides a basic understanding of classic and current biomechanical research and how to interpret/synthesize this research. Explores topics related to muscle and tendon function/dysfunction, joint lever biomechanical demands and function, and whole body analysis of human movement. Facilitates the development of theoretical framework for biomechanical research questions.

**PTGR 592. Biomechanics II. 3 Units.**
Reviews methodologies related to the biomechanics of human movement. Areas of focus include kinematics, kinetics, energetic, inverse dynamics, data processing and interpretation, and muscle force measurements. Focuses on the interpretation of kinematic, kinetic, and energetic data and appropriate measures to quantify movement. Facilitates the development of methods to test biomechanical research questions and apply biomechanical concepts to the clinical environment. Prerequisite: PTGR 591.

**PTGR 594. Evidence-Based Practice in Physical Therapy. 2 Units.**
A structured overview of evidence-based practice (EBP) for the advancement of physical therapy practice as well as research-supported strategies for implementing EBP in real world clinical settings.

**PTGR 599. Comprehensive Examination. 0 Units.**
Required written examination to be completed at the end of the second didactic year for the Doctor of Science degree and the Doctor of Philosophy degree in physical therapy science. Comprehensively evaluates student's knowledge in four domains without the assistance of outside resources: education, research, clinical practice/science, and ethics/professionalism. Successful completion required for continuation in the program. Prerequisite: PHTH 535 or AHCJ 530; PHTH 536 or AHCJ 531; AHCJ 599.

**PTGR 690. Research Rotations. 1-3 Units.**
Involves students in the research and discovery culture of the University and clinical settings through observation of and/or participation in ongoing faculty research and grant projects; as well as graduate student research projects. Includes research data-collection equipment, mentorship, dissertation defenses, research-finding presentations, and/or pilot studies that students design for this practicum experience.

**PTGR 693. Research and Statistics III: Development and Approval of Research Topic and Questions. 3 Units.**
Research-topic selection, development of research questions, literature review, oral defense of research topic, questions and proposed research design, and approval. Prerequisite: AHRM 582.

**PTGR 694. Proposal Development and Institutional Review Board Approval. 3 Units.**
With oversight by the research guidance committee, student develops a written research proposal that describes the problems to be investigated, the hypotheses and assumptions to be developed, and the proposed experimental design; and that subsequently is submitted to the Office of Sponsored Research for Institutional Review Board approval. Prerequisite: PTGR 693.

**PTGR 695. Research and Statistics V: Data Collection. 3 Units.**
Research data planning, setup, standardization of procedures, collection, electronic data capture, management, and storage leading to dissertation.

**PTGR 696. Research and Statistics VI: Data Analysis. 3,6 Units.**
Individual arrangements for doctoral students to work with their research guidance committee on analysis and presentation of research data. Student prepares manuscript presenting results of doctoral research study.

**PTGR 699. Research and Statistics VII - Dissertation. 3 Units.**
Individual arrangements for doctoral students to work with their dissertation chair and research guidance committee to submit a substantial and acceptable preliminary written doctoral dissertation--either in the traditional formal dissertation or multiple chapter format--in accordance with published guidelines of the Faculty of Graduate Studies, and in the format of the journal in which the candidate hopes to publish. Students prepare and present an oral defense of their research findings.

# Physicians Assistant (PAST)

## Courses

**PAST 501. Anatomy for Physician Assistants I. 2 Units.**
First of three courses in anatomy for physician assistants. Study of the anatomical structure of the human body by organ system. Includes dissection of cadavers and preserved specimens; and, histology, anatomic relations, and the anatomical basis for disease, injury and dysfunction.

**PAST 502. Anatomy for Physician Assistants II. 2 Units.**
Second of three courses in anatomy for physician assistants. Study of the anatomical structure of the human body by organ system. Includes dissection of cadavers and preserved specimens; and, histology, anatomic relations, and the anatomical basis for disease, injury and dysfunction. Prerequisite: PAST 501.

**PAST 503. Anatomy for Physician Assistants III. 2 Units.**
Third of three courses in anatomy for physician assistants. Study of the anatomical structure of the human body by organ system. Includes dissection of cadavers and preserved specimens; and, histology, anatomic relations, and the anatomical basis for disease, injury and dysfunction. Prerequisite: PAST 501, PAST 502.

**PAST 504. Primary Care Pediatrics. 3 Units.**
Introduces common medical and surgical disorders encountered in pediatric medicine. Emphasizes primary care concepts in the care of children. Introduces rare disorders that the physician assistant may encounter in primary care. Presentation of disease processes mirrors adult medicine by discussing etiology, pathophysiology, clinical presentation, diagnostic work-up, and management.

**PAST 505. Women's Health Care. 3 Units.**
Common problems encountered in caring for women; management of these problems. Etiology, pathophysiology, clinical presentation, and diagnostic work-up.

**PAST 511. Pharmacology for Physician Assistants I. 2 Units.**
The first of three parts of a continuum of courses that study the basic concepts of pharmaceuticals used in the diagnosis, prevention, and treatment of diseases—including a systematic presentation of pharmacology and the therapeutic value of the drugs used in medicine. Related topics include drug legislation, routes of administration, adverse effects, drug interactions, and drug toxicity, with special consideration to pediatric and geriatric pharmacology.

**PAST 512. Pharmacology for Physician Assistants II. 2 Units.**
The second of three parts of a continuum of courses that studies the basic concepts of pharmaceuticals used in the diagnosis, prevention, and treatment of diseases--including a systematic presentation of pharmacology, and the therapeutic value of the drugs used in medicine. Related topics include drug legislation, routes of administration, adverse effects, drug interactions, and drug toxicity, with special consideration to pediatric and geriatric pharmacology. Prerequisite: PAST 511.

**PAST 513. Pharmacology for Physician Assistants III. 2 Units.**
The third of three parts of a continuum of courses that studies the basic concepts of pharmaceuticals used in the diagnosis, prevention, and treatment of diseases—including a systematic presentation of pharmacology and the therapeutic value of the drugs used in medicine. Related topics include drug legislation, routes of administration, adverse effects, drug interactions, and drug toxicity, with special consideration of pediatric and geriatric pharmacology. Prerequisite: PAST 511, PAST 512.

**PAST 516A. Physician Assistant Professional Issues. 1 Unit.**
A history of the physician assistant (PA) profession and current trends and issues. Includes the PA's role in health-care delivery, political, legal, and intraprofessional factors that affect PA practice, and the PA's role in relation to physicians and other health-care providers. Addresses professional responsibility and biomedical ethics, professional organizations, program accreditation, graduate certification and recertification, employment consideration.

**PAST 516B. Physician Assistant Professional Issues. 1 Unit.**
Continues PAST 516A. Prerequisite: PAST 516A.

**PAST 530. Diagnostic Techniques for Physician Assistants I. 1 Unit.**
Introduces laboratory investigations and imaging techniques used to confirm or exclude probable diagnoses. Acquire and apply knowledge, skills and medical reasoning required to select both screening and confirmatory tests in a medically sound, cost-effective manner.

**PAST 531. Diagnostic Techniques for Physician Assistants II. 1 Unit.**
Introduces and applies laboratory investigations and imaging techniques used to confirm or exclude probable diagnoses. Acquire and apply knowledge, skills and medical reasoning required to select both screening and confirmatory tests in a medically sound, cost-effective manner. Prerequisite: PAST 530.

**PAST 532. Diagnostic Techniques for Physician Assistants III. 1 Unit.**
Introduces and applies laboratory investigations and imaging techniques used to confirm or exclude probable diagnoses. Acquire and apply knowledge, skills and medical reasoning required to select both screening and confirmatory tests in a medically sound, cost-effective manner. Prerequisite: PAST 530, PAST 531.

**PAST 533. Diagnostic Techniques for Physician Assistants IV. 1 Unit.**
Introduces and applies laboratory investigations and imaging techniques used to confirm or exclude probable diagnoses. Acquire and apply knowledge, skills and medical reasoning required to select both screening and confirmatory tests in a medically sound, cost-effective manner. Prerequisite: PAST 530, PAST 531, PAST 532.

**PAST 547. Basic Medical Science. 3 Units.**
Provides an overview of scientific principles as they pertain to the practice of clinical medicine. Emphasizes microorganisms commonly encountered by physician assistants in clinical practice. Provides a foundation for principles of clinical medicine and pharmacology.

**PAST 551. Normal and Pathologic Physiology for Physician Assistants I. 2 Units.**
Exploration of normal physiological function from a systems-based medical perspective which serves as a foundation for understanding the process of disease. Includes etiology, pathogenesis, and clinical manifestations of medical disorders.

**PAST 552. Normal and Pathologic Physiology for Physician Assistants II. 2 Units.**
Exploration of normal physiological function from a systems-based medical perspective which serves as a foundation for understanding the process of disease. Includes etiology, pathogenesis, and clinical manifestations of medical disorders. Prerequisite: PAST 551.

**PAST 553. Normal and Pathologic Physiology for Physician Assistants III. 2 Units.**
Exploration of normal physiological function from a systems-based medical perspective which serves as a foundation for understanding the process of disease. Includes etiology, pathogenesis, and clinical manifestations of medical disorders. Prerequisite: PAST 551, PAST 552.

**PAST 554. Clinical Skills for Physician Assistants. 3 Units.**
Introduces the basic skills and knowledge needed to evaluate and treat common illnesses and injuries. Safety, aseptic technique, ACLS, airway management, wound care, local anesthesia, injections, suturing, casting, splinting, use of various tubes and drains, basic emergency medicine skills, and basic surgical skills for physician assistants are covered. Includes participation in clinical simulations for enhanced skill development.

**PAST 556. Preventive Medicine and Health Promotion. 2 Units.**
Selected topics dealing with disease prevention. Includes relevance of statistics, epidemiology, research designs, and clinical trials; and, disease trends and lifestyle modification. Examines the roles of physical activity, nutrition, immunization, and public health as approaches in communicable disease prevention. Addresses clinical preventive services leading to tailored health maintenance plans for individual patients.

**PAST 558. Psychiatry for Physician Assistants. 3 Units.**
Focuses on diagnosis and treatment of major psychiatric and mental disorders. Topics include depression, anxiety, phobias, substance and eating disorders, somatoform, psychoses, neuroses, and personality disorders.

**PAST 571. Integrative Spanish for Physician Assistants. 3 Units.**
Reviews and evaluates strategies for providing culturally and linguistically competent care in clinical practice. Emphasizes care of the Spanish-speaking patient. Includes interactive language lab using Spanish-speaking subjects. Students perform a mock OSCE capstone in Spanish at quarters end.

**PAST 572. Culture and Community for Physician Assistants. 3 Units.**
Emphasizes health and medicine. Obtain cross-cultural experience while interacting with non-English-speaking patients, and gaining a greater understanding of patient culture. Requires completion of a community-based service project and immersion within local community.

**PAST 575. Clinical Correlation for Physician Assistants I. 1 Unit.**
Addresses critical thought process needed for diagnosis and management of clinical problems.

**PAST 576. Clinical Correlation for Physician Assistants II. 1 Unit.**
Teaches students to apply knowledge gained throughout the didactic curriculum via an interactive learning experience. Emphasizes the critical thought process needed for diagnosis and management of clinical problems. Prerequisite: PAST 575.

**PAST 577. Clinical Correlation for Physician Assistants III. 1 Unit.**
Emphasizes critical thought process needed for diagnosis and management of clinical problems. Prerequisite: PAST 575, PAST 576.

**PAST 578. Clinical Correlation for Physician Assistants IV. 1 Unit.**
Emphasizes the critical thought process needed for diagnosis and management of clinical problems. Prerequisite: PAST 575, PAST 576, PAST 577.

**PAST 581. Physical Diagnosis for Physician Assistants I. 2 Units.**
Part one of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination.

**PAST 582. Physical Diagnosis for Physician Assistants II. 3 Units.**
Part two of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Prerequisite: PAST 581.

**PAST 583. Physical Diagnosis for Physician Assistants III. 2 Units.**
Part three of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Prerequisite: PAST 582.

**PAST 584. Physical Diagnosis for Physician Assistants IV. 2 Units.**
Part four of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Requires satisfactory completion of the comprehensive physical examination and the didactic year objective structured clinical examination (OSCE). Prerequisite: PAST 583.

**PAST 591. Clinical Medicine for Physician Assistants I. 3 Units.**
Introduction to common medical disorders encountered in primary care and management of these disorders. Includes, clinical presentation, etiology, pathophysiology, diagnostic work-up, and management of the conditions studied. Based upon NCCPA blueprint standards.

**PAST 592. Clinical Medicine for Physician Assistants II. 3 Units.**
Second of four courses that study common medical disorders encountered in primary care, as well as the management of these disorders. Includes the clinical presentation, etiology, pathophysiology, diagnostic work-up, and management of the conditions studied. Course objectives and specific learning objectives based on NCCPA blueprint. Prerequisite: PAST 591.

**PAST 593. Clinical Medicine for Physician Assistants III. 3 Units.**
Third of four courses that study common medical disorders encountered in primary care, as well as the management of these disorders. Includes the clinical presentation, etiology, pathophysiology, diagnostic work-up, and management of the conditions studied. Course objectives and specific learning objectives based upon NCCPA blueprint. Prerequisite: PAST 591, PAST 592.

**PAST 594. Clinical Medicine for Physician Assistants IV. 2 Units.**
Fourth of four courses that study common medical disorders encountered in primary care, as well as the management of these disorders. Includes the clinical presentation, etiology, pathophysiology, diagnostic work-up, and management of the conditions studied. Course objectives and specific learning objectives based upon NCCPA blueprint. Prerequisite: PAST 591, PAST 592, PAST 593.

**PAST 601. Evidence-Based Medicine for Physician Assistants I. 2 Units.**
Introduces student to evidence-based practice, emphasizing the use of medical literature to evaluate and improve the practice of clinical medicine. Teaches student to assess medically oriented information online, as well as evidence-based medicine databases.

**PAST 602. Evidence-Based Medicine for Physician Assistants II. 2 Units.**
Application of evidence-based medicine to the development of a literature review on a selected topic in physician assistant practice. Begins in Winter Quarter with completion in the Summer Quarter. Preparation for the Capstone project. Prerequisite: PAST 601.

**PAST 603A. Capstone. 1 Unit.**
Investigation of topic related to area of interest within primary care or PA profession using evidence-based approach. Includes completion of capstone project and personal portfolio reflective of university values. Prerequisite: PAST 602.

**PAST 603B. Capstone. 1 Unit.**
Continues PAST 603A. Prerequisite: PAST 603A.

**PAST 701. Rotation I. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotations through a medical or surgical service of choice.

**PAST 702. Rotation II. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 703. Rotation III. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 704. Rotation IV. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 705. Rotation V. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 706. Rotation VI. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 707. Rotation VII. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 708. Rotation VIII. 6 Units.**
A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

# Physiology (PHSL)

## Courses

**PHSL 506. Advanced Physiology and Pathophysiology for Nurse Anesthetist I. 5 Units.**
Overview of physiology and pathophysiology (cell, neuro, cardiovascular, pulmonary, GI, renal, endocrine, and reproductive systems).

**PHSL 507. Advanced Physiology and Pathophysiology for Nurse Anesthetist II. 4 Units.**
Part II of physiology and pathophysiology (cell, neuro, cardiovascular, pulmonary, GI, renal, endocrine, and reproductive systems). Prerequisites: PHSL 506.

**PHSL 519. Medical Physiology. 7.5 Units.**
Physiological basis of normal and selected pathological conditions, modern concepts of homeostasis, and negative feedback control systems.

**PHSL 526. Medical Physiology. 7.5 Units.**
Examines the physiological function and regulation of major organ systems, and the integration and interaction of these systems with one another. Includes cardiovascular, respiratory, gastrointestinal, renal, endocrine, reproductive systems, and exercise physiology. Presents essential levels of organization from cellular and molecular to tissue and organ systems. Emphasizes mechanistic and integrative functions that enable adaption and survival in the face of changing needs and resources.

**PHSL 537. Neuroscience. 4 Units.**
Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology.

**PHSL 541. Cell and Molecular Biology. 4 Units.**
Prerequisite: Organic chemistry and one of the following: biochemistry, molecular biology, or cell biology. Physics desirable. Prerequisite: Organic chemistry and one of the following: biochemistry, molecular biology, or cell biology. Physics desirable.

**PHSL 560. Bone Physiology. 3 Units.**
Studies bone cells and bone as an organ. Lectures and discussions include functions of bone cells, effects of growth factors, hormones and physical forces on bone, growth and repair of bone, osteoporosis, and other clinical conditions involving bone. Reviews current literature.

**PHSL 587. Physiology of Reproduction. 2 Units.**
Studies the development of the male and female reproductive systems, neural and hormonal control of reproductive function, fetal development, and parturition. Offered alternate years. Prerequisite or concurrent: PHSL 511, PHSL 512 or PHSL 521, PHSL 522.

**PHSL 588. Pathophysiology. 4 Units.**
Provides graduate students with an integrated understanding of normal human physiology and the most common pathological changes that occur throughout the life span. Focuses on using pathophysiological concepts to explain clinical observations and management.

**PHSL 595. Readings in Physiology. 1-4 Units.**
Assigned reading and conferences on special problems in physiology.

**PHSL 694. Special Problems in Physiology. 2-4 Units.**

**PHSL 697. Research. 1-8 Units.**

**PHSL 699. Dissertation. 2-4 Units.**

**PHSL 891. Physiology Elective. 1.5-24 Units.**
Offers fourth-year medical students the opportunity to explore various areas of physiology, including research.

# Play Therapy (PLTH)

## Courses

**PLTH 513. Introduction to Play Therapy. 3 Units.**
Explores the history and theoretical underpinnings of play therapy. Gives attention to the explanatory nature of theories as informing methods and techniques used in assessment and the healing processes. Emphasis on professional ethics and legal guidelines. Introduces child centered play, cognitive-behavioral play, and Gestalt play therapies. Prerequisite: Completion of theory courses required in respective degree area; permission of instructor.

**PLTH 515. Play Therapy III: Assessment and Diagnosis. 2 Units.**
Foundational play therapy course that provides content on structured and informal assessment processes and techniques. Social and symbolic play provides balance of content and process of differential diagnosis from a neurocognitive basis of development, including variations in the developmental sequence caused by developmental disorders.

**PLTH 516. Child-Centered Play Therapy. 3 Units.**
A foundation play therapy course that provides a systematic treatment approach to child-generated play. Combines didactic presentations and experiential activities that detail the four major elements of CCPT technique: structuring, reflective listening, fantasy play, and limit setting. Gives attention to history and theory of CCPT, the benefits of the model, assessment, and combining CCPT with other models of child therapy.

**PLTH 517. Sandplay: A Therapeutic Process. 3 Units.**
Foundational play therapy course providing didactics on the theoretical basis, content, and process of sandplay. Active learning experiences provide students with opportunities to observe and engage in sandplay with children.

**PLTH 546. Child-Parent Relationship Therapy-CPRT (Filial Therapy). 3 Units.**
Provides students with an understanding of evidence-based play therapy interventions that support filial (parent-child) communication and relationships as children experiencing social, emotional, and behavioral difficulties are treated. Builds upon a previous foundation of play therapy coursework.

**PLTH 547. Play Therapy Approaches for Treating Developmental and Behavioral Disorders. 2 Units.**
Explores developmental play therapy theory, methods, and techniques that provide children with experiences essential to physical and social-emotional growth and secure attachment in child-parent relationships. Emphasizes sensory integration, self-regulation, and adaptations for children with developmental delays. Explores adjunctive resources. Prerequisite: Completion of foundational play therapy courses.

**PLTH 548. Child Psychosocial Play Therapy. 2 Units.**
Provides advanced strategies and methods used to help children and families address environmental and life/stress adjustment issues. Includes child and family support that enhances wellness through self-regulation toward improved. Prerequisite: Completion of foundational play therapy courses.

**PLTH 549. Therapeutic Play for Children Affected by Illness and Injury. 3 Units.**
Teaches the developmental aspects of play therapy, in collaboration with the developmental stages of the child/teen and family in the context of a health-care setting. Provides student with an experiential understanding of play therapy, recreation therapy, education, and practice. Cross-listing: PLTH 549.

**PLTH 550. Trauma Focused Play Therapy. 3 Units.**
Covers play therapy techniques, therapies, and models which help children prevent or resolve psychosocial challenges following trauma, and achieve optimal growth and development. Introduces principles of intervention and ethical/legal guidelines for the assessment and treatment of traumatized children.

**PLTH 650. Play Therapy with Adolescents and Adults. 3 Units.**
Emphasizes advanced play therapy with adolescents and adults. Includes transitional objects using a nondirective stance; games of rapport, courtesy, and good habits; metaphorical thinking; grounded play therapy; poetry and drama; cognitive-behavioral interventions for anger, bullies, victims, and bystanders; and filial therapy with adolescents. Prerequisite: Completion of foundational play therapy courses.

**PLTH 700. Practicum in Play Therapy. 2 Units.**
Provides supervised practice in play therapy assessment, diagnosis, and intervention techniques with children and their parents. Applies toward 45 hours of practicum experience. May be completed in up to five quarters. Prerequisite: Completion of foundational play therapy courses.

# Polysomnography (RSPS)

## Courses

**RSPS 210. Foundation of Polysomnography and Sleep Medicine. 2 Units.**
Covers the history of sleep medicine (polysomnography) from its inception and development to current practice. Enhances understanding of the role and differences of the polysomnographer. Teaches the documentation process in sleep laboratory facilities and understanding of the data required for monitoring patient and charting results during the study. Lectures include physiological factors that identify normal sleep pattern in adult and pediatric populations.

**RSPS 216. 3- and 12-Leads ECG Interpretation. 2 Units.**
Reviews 3-leads interpretation with advancement to 12-leads ECG. Reviews cardiac anatomy and physiology, underlying pathophysiology, and basic rhythm recognition with an overview of related treatments. Emphasizes skills needed by the bedside practitioner to differentiate between benign and life-threatening cardiac dysrhythmias. Includes principles of application and interpretation of the 12-lead system. Emphasizes recognition of the acute myocardial infarction.

**RSPS 227. Neuroanatomy and Physiology of Sleep. 3 Units.**
Covers the basic neuroanatomy of the brain and nervous system that is involved in the various normal and abnormal sleep patterns. Additional topics include: sleep pharmacology and medications; pharmacokinetics, drug mechanism of action; review of basic cardiac physiology and waveforms; respiratory anatomy and physiology and its relation to the central nervous system.

**RSPS 230. Polysomnography Science Methodology. 2 Units.**
Addresses preparation of sleep study patients and use of electroneurodiagnostic equipment in the polysomnography laboratory. Includes electrode placement; principles of the conduction system, signal derivation, and amplification; signal processing, filter, and sensitivity; calibration; and, AC/DC instrumentation.

**RSPS 234. Polysomnography Patient Education and Safety. 1 Unit.**
Covers the management of patient safety in the sleep laboratory. Topics include: patient education about sleep, common chief complaints relative to sleep disorders, infection control, cultural differences and interactions, ethics, and professionalism in the sleep laboratory.

**RSPS 256. Polysomnography Monitoring and Scoring. 2 Units.**
Teaches student to manage and identify device monitoring, such as: vital signs; EEG, ECG, EOG, and EMG waveforms; visual, arousal, cardiac, movement, and respiratory scoring criteria and applicable protocols for observation and documentation. Assessing, monitoring, and recording patient-movement disorders, parasomnias, psychiatric sleep disturbances, and sleep. Data interpretation and recognition and their relation to sleep disorders. Prerequisite: EMMC 314, RSPS 210, RSPS 230.

**RSPS 274. Polysomnography Diseases. 3 Units.**
Recognition of sleep disorders and their pathophysiologies. Includes adult and pediatric obstructive sleep apnea, hypopneas, respiratory effort-related arousals, central apneas, complex sleep apnea, and Cheyne-Stokes. Introduces CPAP and titration methods, bilevel ventilation, oxygen therapy, and surgical interventions as treatments. Addresses nonrespiratory sleep disorders, such as narcolepsy, hypersomnia, insomnia, seizures, and epilepsy. Prerequisite: RSPS 210, RSPS 227.

**RSPS 286. Polysomnography Case Study. 2 Units.**
Student presents patient-case studies based on patient-information gathering that includes history and physical, review of systems, rationale for diagnostics and treatment, vital signs, PMH, questionnaire, scores, waveform, treatments, and study data.

**RSPS 295. Polysomnography Practicum I. 4 Units.**
Introduction to sleep center facilities, working hours, documentation, and personnel. Practice in patient assessment, obtaining patient history, complete set up, data acquisition, and reporting processes. Includes waveform interpretation, sleep study scoring, and patient monitoring. Application of interventional modalities to relieve relative sleep disorders. Prerequisite: RSPS 210, RSPS 227, RSPS 230; EMMC 314.

**RSPS 296. Polysomnography Practicum II. 4 Units.**
Gives students opportunities to perform advanced clinical procedures in the sleep center and perform complete polysomnogram independently under supervision of the sleep center staff. Prerequisites: RSPS 210, RSPS 227, RSPS 230, RSPS 295; EMMC 314.

**RSPS 510. Sleep Neurophysiology and Pathologies. 3 Units.**
First course in a three-course series. Case study-based analysis covering sleep disorders that involves various normal and abnormal sleep patterns and respiratory drive. Discusses common sleep pathologies and pharmacological interventions and treatment.

**RSPS 511. Methodologies in Sleep Disorder Assessment and Intervention. 3 Units.**
Second course in a three-part series. Introduces foundations of patient preparation for polysomnogram evaluation. Discusses physical principles employed in acquiring and interpreting cardiac, neurological, and respiratory diagnostics. Reiterates components of a PSG, cardiac diagnostics (including 3/12-lead ECG), and neurodiagnostics relevant to evaluation of sleep disorders.

**RSPS 512. Advanced Polysomnography Practicum. 3 Units.**
Clinic-based practicum in which students perform a variety of sleep assessments including patient set up, observation/monitoring, data acquisition, evaluation, and scoring. Applies interventional modalities, such as CPAP or bi-level therapy, with appropriate titration to relieve respiratory-related sleep disorders. Opportunities to perform advanced clinical procedures in the sleep center and to perform complete polysomnographs independently. Prerequisite: RSPS 510, RSPS 511.

# Population Medicine (PMED)

## Courses

**PMED 521. Population Medicine I. 4 Units.**
Examination of population health for health practitioners. Includes: development and analysis of proposed preventive services; evidence-based guidelines for preventive services; epidemiology of common chronic diseases; and, community health status indicators. Applies advanced statistical and epidemiological principles. Prerequisite or concurrent: PCOR 501.

**PMED 522. Population Medicine II. 4 Units.**
Advanced examination of population health for health practitioners. Includes: community health characteristics; design and implementation of epidemiologic studies; application of epidemiological methods to public health issues; and, data analysis using advanced statistical methods. Applies advanced statistical and epidemiological principles. Prerequisite or concurrent*: PCOR 502*; PMED 521.

**PMED 523. Population Medicine III. 4 Units.**
Advanced examination of population health for health practitioners. Includes: investigation and response to disease clusters or outbreaks; surveillance system design and operation; epidemiology of common acute diseases; and, analysis using advanced statistical methods. Applies advanced statistical and epidemiological principles. Prerequisite or concurrent*: PCOR 503*; PMED 522.

**PMED 541. Preventive Medicine in Public Health I. 2 Units.**
Provides a selection of preventive medicine topics. Includes knowledge and application of community engagement as a health practitioner, as well as opportunities for the public health professional to develop additional skills.

**PMED 542. Preventive Medicine in Public Health II. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 543. Preventive Medicine in Public Health III. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 544. Preventive Medicine in Public Health IV. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 545. Preventive Medicine in Public Health V. 2 Units.**
Provides a selection of preventive medicine topics. Includes knowledge and application of community engagement as a health practitioner, as well as opportunities for the public health professional to develop additional skills.

**PMED 546. Preventive Medicine in Public Health VI. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 547. Preventive Medicine in Public Health VII. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 548. Preventive Medicine in Public Health VIII. 2 Units.**
Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 699. Research. 1-10 Units.**
Independent research with a population medicine focus. Arranged with faculty member(s).

# Preventive Medicine (PRVM)

## Courses

**PRVM 517. Lifestyle and Preventive Medicine. 4 Units.**
Provides students with a broad foundation in epidemiology and biostatistics skills as it contributes to the organ system curriculum in the second year. Students formulate effective and evidence-based preventive medicine strategies in preparation for treating individual patients and communities. Utilizes a combination of lecture, case-based learning, online self-directed modules, and active learning modules to teach current preventive medicine approaches.

**PRVM 791. Applied Preventive Medicine. 2 Units.**
Longitudinally integrated course. Improves students' ability to identify and apply key concepts in preventive medicine and public health through practical application to patient cases, specifically focusing on literature analysis, preventive services selection, and motivational interviewing. Submitted work included in a portfolio that demonstrates growth in the discipline.

**PRVM 891. Preventive Medicine Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various aspects of preventive medicine and public health, including nutrition, mission opportunities, functional medicine, lifestyle medicine, and research.

# Prosthodontics (PROS)

## Courses

**PROS 500. Prosthodontic Literature Review. 2 Units.**
Discusses assigned topics from classic and current prosthodontic and course-related literature, led by students and moderated by faculty member in charge. Repeated registrations required to fulfill the total units.

**PROS 501. Removable Partial Prosthodontics Literature Review. 2 Units.**
Discusses assigned topics from classic removable partial denture literature, led by students and moderated by faculty member in charge.

**PROS 502. Complete Denture Prosthodontics Literature Review. 2 Units.**
Discusses assigned topics from classic complete-denture literature, led by students and moderated by faculty member in charge.

**PROS 505. Patient Presentation Seminar (Prosthodontics, Implant, Perio). 1 Unit.**
Presents patient treatment. Discusses alternate methods of rehabilitation, as well as related literature. Repeated registrations required to fulfill the total units.

**PROS 515. Practice Teaching in Prosthodontics. 1,2 Unit.**
Teaching experience in the areas of fixed and removable prosthodontics. Repeated registration required to fulfill the total units.

**PROS 525. Dental Materials Science. 2 Units.**
Elements of materials science. Properties of structural solids, metals, ceramics, and polymers related to their structure—using basic laws and principles from physics, chemistry, and engineering science.

**PROS 527. Clinical Application of Dental Materials. 2 Units.**
Discusses clinical application and manipulation of dental materials. Identifies and explains specific clinical problems and behavior based on the acquired knowledge of basic properties.

**PROS 546. Occlusion and Morphology. 2 Units.**
Lecture, seminar, and laboratory course that includes waxing techniques and axial and occlusal morphology of natural teeth. Concepts of occlusal function and dysfunction related to prosthodontic therapy.

**PROS 547. Occlusion: Principles and Instrumentation. 2 Units.**
Continues PROS 546—emphasizing occlusal equilibration, jaw movements, determinants of occlusion, and articulators commonly used.

**PROS 555. Removable Partial Prosthodontics. 2 Units.**
Lecture, seminar, and laboratory course covering principles, concepts, and techniques used to design and fabricate removable partial dentures.

**PROS 556. TMJ Function and Dysfunction. 1 Unit.**
Provides students with information about the function and dysfunction of the temporomandibular joint and associated structures. Prepares students to obtain history, perform clinical examination, recognize disorders, and prescribe treatment. Introduces students to diagnosis and treatment of sleep apnea, as well as neuropathic and neurovascular pain. Students complete a term paper on a related topic.

**PROS 557. Advanced Removable Partial Prosthodontics. 2 Units.**
Advanced clinical and laboratory procedures, emphasizing intracoronal attachments, rotational path, and alternate removable partial-denture design.

**PROS 565. Complete Denture Prosthodontics. 2 Units.**
Clinical and laboratory procedures for the fabrication of complete dentures, including setting and balancing denture teeth.

**PROS 566. Advanced Complete Denture Prosthodontics. 2 Units.**
Lecture and clinical course, with seminar covering the treatment of immediate denture and overdenture, and treatment of difficult and unusual complete denture situations.

**PROS 575. Fixed Partial Prosthodontics. 2 Units.**
Tooth preparation for and fabrication of extracoronal restorations and fixed prostheses, including partial coverage gold crowns, complete coverage gold crowns, pinledge retainers, metal-ceramic crowns, metal-ceramic pontics, and sanitary pontics.

**PROS 576. Advanced Fixed Partial Prosthodontics I (MC Aesthetics). 2 Units.**
Clinical and laboratory procedures, emphasizing advanced metal-ceramic restorations.

**PROS 595. Maxillofacial Prosthetics. 2 Units.**
Design and fabrication of obturators for partial maxillectomy patients, both edentulous and dentulous. Introduces fabrication of extraoral prostheses.

**PROS 604. Literature Review in Implant Dentistry for Prosthodontists. 2 Units.**
Gives the postdoctoral student a deeper understanding of the research and literature currently available on the restoration of implants. Emphasizes biomechanics of implant restorations. Repeated registrations required to fulfill the total units.

**PROS 634. Diagnosis and Treatment Planning. 2 Units.**
Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems. Repeated registrations required to fulfill the total units.

**PROS 637. Geriatric Dentistry. 1 Unit.**
Lectures selected to enhance the knowledge base in the expanding area of elder care. Problems of chronic diseases combined with multiple drug regimens that complicate care for this population.

**PROS 696. Scholarly Activity in Prosthodontics. 1 Unit.**
Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in prosthodontics. Multiple registrations may be needed to complete these activities.

**PROS 697A. Research. 1 Unit.**
Student identifies a research project, prepares a proposal, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PROS 697B. Research. 1 Unit.**
Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PROS 697C. Research. 1 Unit.**
Student completes research project, holds a public presentation of research, and submits a publishable paper to their research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PROS 698. Thesis. 2 Units.**

**PROS 710. Clinical Practice of Prosthodontics. 6 Units.**
Advanced clinical practice in the treatment of individuals with fixed, removable, maxillofacial, or implant prostheses. A minimum of 180 clock hours per quarter. Repeated registrations required to fulfill total units.

# Psychiatry (PSYT)

## Courses

**PSYT 526. Psychopathology. 4.5 Units.**
Covers mental status examinations. Includes: basic tools for gathering psychiatric information; advanced exposure to psychiatric disease and diagnosis; and, implementation of the DSM-V which involves mood, anxiety, psychotic, trauma, childhood, somatic, personality and sexual disorders. Addresses common comorbidities and psychopharmacologic and psychodynamic treatment options for each disorder.

**PSYT 599. Psychiatry Directed Study. 1.5-18 Units.**

**PSYT 701. Psychiatry Clerkship. 1.5-9 Units.**
Six-week clerkship paired with a four-week neurology clerkship. Includes a one-week addiction medicine rotation and two- and three-week rotations working with child, adolescent, and adult populations. Includes a clinical OSCE with a focus on diagnosis of mental illness, development of patient rapport, and identification of risk factors for suicide and homicide. Addresses the identification of ongoing issues of interpersonal transference toward patients and conflict management in patient care.

**PSYT 891. Psychiatry Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to take electives with psychiatry faculty in child and adult settings. An intensive reading/discussion course in religion and psychiatry.

# Psychology (PSYC)

## Courses

**PSYC 101. Introduction to Psychology. 4 Units.**
A general overview course focusing on the scientific study of both the behavioral and mental processes of human beings and animals. Covers history of psychology and scientific thought, biological basis of behavior, research methodology, sensation and perception, states of consciousness, memory, language and intelligence, developmental psychology, learning, personality, and abnormal psychology.

**PSYC 204. Introduction to Behavioral Health. 2 Units.**
Introduces programs, services and professions that constitute the field of behavioral health. Includes an orientation to the skills, knowledge, and legal/ethical considerations needed to work with various client populations. Addresses recovery/resiliency model, and an overview of clinical modalities used in the treatment of various conditions. First level certification in mental health first aid is provided. Prerequisite: Acceptance into the summer Behavioral Health Academy required.

**PSYC 226. Life-Span Development. 4 Units.**
Life-span course emphasizing the physical, mental, emotional, social, andreligious/moral development from conception through adulthood, aging, anddeath.

**PSYC 305. Psychological Foundations of Education. 4 Units.**
Explores educational psychology through application of development and learning theories to instruction, achievement motivation, self-esteem, classroom management, supportive and disruptive processes on school sites, campus standards, disciplinary practices, legal/ethical issues. Requires research on effective educational practices and related foundations. Additional research for graduate credit. Prerequisite: General psychology.

**PSYC 460. The Exceptional Individual. 3 Units.**
Studies the determinants, characteristics, problems, and adjustments of individuals who deviate markedly from the norm in their mental, physical, emotional, or social aptitudes, traits, and tendencies. Emphasizes education and career planning. Open to upper division graduate and postgraduate students only.

**PSYC 479. Human Neuropsychology. 4 Units.**
Introduces brain-behavior relationships, including cerebral asymmetry, disconnection syndromes, disorders of memory and language, biological substrates of affective behavior, motor and perceptual dysfunction, and drug actions.

**PSYC 501. Advanced Statistics I. 4 Units.**
General introduction to statistical analysis—detailing the descriptive/inferential distinction; and covering sampling distributions (e.g., normal, binomial), hypothesis testing, and basic parametric and nonparametric techniques. Corequisite: PSYC 511.

**PSYC 502. Advanced Statistics II. 4 Units.**
Thorough introduction to regression analysis and analysis of variance (ANOVA), with emphasis on hypothesis testing and the development of general models that partition overall variability. Topics covered include simple and multiple regression, one-way and factorial, repeated-measures ANOVA, and analysis of covariance. Evaluation of assumptions and nonparametric alternatives. Prerequisite: PSYC 501, PSYC 511; must be a Psychology student; or consent of instructor.

**PSYC 503. Advanced Multivariate Statistics. 4 Units.**
Applies linear (matrix) algebra to maximum likelihood estimation using multivariate statistical techniques. Includes multivariate analysis of variance, multivariate regression, path analysis and structural equations causal modeling, log-linear models, and time series analysis. Evaluates alternatives to maximum likelihood estimation. Prerequisite: PSYC 501, PSYC 502, PSYC 511; must be a Psychology student; or consent of instructor.

**PSYC 505. Research Methods in Psychological Science. 4 Units.**
Comprehensive examination of research methods in psychology—from the formulation of research problems to the design, execution, and report of findings. Includes experimental and quasi-experimental designs, as well as field and case studies. The exploratory-confirmatory distinction in scientific epistemology, and its implications for research and theory. Reviews and critically analyzes research literature from various areas of contemporary psychological science.

**PSYC 511. Psychometric Foundations. 3 Units.**
Advanced orientation to psychological instruments; their theoretical derivation, construction, and use. Emphasizes reliability, validity, and factor structures.

**PSYC 512. Cognitive/Intellectual Assessment. 2 Units.**
Instruction in administering, scoring, interpreting, and report writing relevant to various adult and child intelligence and achievement instruments, such as WAISIII, WISC-III, WPPSI-R, KBIT, Stanford-Binet, WIAT, PIAT, KABC, WRAT-3, and the Woodcock-Johnson batteries. Considers the empirical reliability and validity data for each instrument. Prerequisite: PSYC 511. Corequisite: PSYC 571.

**PSYC 512L. Cognitive/Intellectual Practice Laboratory. 1 Unit.**
Supervised experiences in administering, scoring, interpreting, and report writing relevant to various adult and child intelligence and achievement instruments.

**PSYC 513. Objective Personality Assessment. 2 Units.**
Instruction in administering, scoring, interpreting, and report writing relevant to various adult and child objective personality instruments, such as MMPI-2, MMPI-A, MACI, PIC, 16PF, CDI, BDI, and BAI. Considers the empirical reliability and validity data for each instrument. Prerequisite: PSYC 512, PSYC 512L, PSYC 571.

**PSYC 513L. Objective Personality Practice Laboratory. 1 Unit.**
Supervised experiences in administering, scoring, interpreting, and reporting relevant to various adult and child objective personality instruments. Prerequisite: PSYC 571.

**PSYC 516. Neuropsychological Assessment. 2 Units.**
Presents administering, scoring, interpreting, and report writing relevant to adult and child neuropsychological instruments. Considers empirical reliability and validity data for each instrument. Focuses on the use of flexible test collections tailored to assess neuropsychological disorders and neurological disorders. Emphasizes neuropsychological test integration, case conceptualization, and diagnostic inference. Prerequisite: PSYC 512, PSYC 512L, PSYC 571.

**PSYC 516L. Neuropsychological Assessment Practice Laboratory. 1 Unit.**
Supervised experiences in administering, scoring, interpreting, and report writing relevant to various adult and child neuropsychological instruments. Prerequisite: PSYC 512, PSYC 512L.

**PSYC 524. History, Systems, and Philosophy of Psychology. 2 Units.**
Addresses the history and systems of psychology. Focuses on how approaches to psychology have defined the field, topics and information they have considered as a part of psychology, and acceptable mechanisms and criteria for advancing the field. Examines current trends and their contributions to the development of psychology as a science and as a profession.

**PSYC 526. Ethics and Legal Issues in Clinical Psychology. 3 Units.**
Overviews current ethical and legal standards for the conduct of psychology. Guidelines and standards drawn from APA Ethical Guidelines, Standards for Providers of Psychological Services, and Standards for Educational and Psychological Tests, as well as relevant California and civil licensing laws.

**PSYC 537. Applied Behavioral Medicine. 3 Units.**
Provides students with a set of applied tools for use in the practice of behavioral medicine/health psychology in integrated settings, including: assessment and treatment of health behaviors such as use of substances, sleep, diet, and physical activity; relaxation training; motivational interviewing; behavioral pain management; and time-limited therapeutic interventions. Prerequisite: PSYC 721.

**PSYC 545. Cognitive Foundations. 4 Units.**
Reviews the major theories, methods, and findings in perception, cognition, and memory, including an introduction to contemporary cognitive science. Applications to the understanding of normal as well as abnormal behavior and psychological interventions.

**PSYC 546. Clinical Psychology and Practice in Medical Settings. 2 Units.**
Provides an understanding of how the behavioral and biological sciences interact to influence health care. Provides an overview of the application and practice of clinical psychology in hospital settings, with special attention to the primary care setting from an integrated sciences model for uniting the contributions of the biomedical and the behavioral sciences in teaching and practice.

**PSYC 547. Health Psychology Assessment. 2 Units.**
Covers the use of assessment instruments for research and clinical applications. Topics include behavioral medicine interviewing, the administration and interpretation of standardized instruments such as the Million Behavioral Health Inventory, quality-of-life assessment, and integrated report writing for medical settings.

**PSYC 550. Clinical Interventions with Service Members, Veterans, and Families. 2 Units.**
Provides multi-disciplinary understanding of military culture and skills and application of evidence-based clinical treatments that foster resilience and provide relief to service members, veterans and their families. Attention to issues of diversity, ethics, and use of self are included throughout clinical case discussion. Clinical issues specific to this population are discussed along with individual, family, and community interventions. Prerequisite: PSYC 721 or SOWK 757C. Cross-listing: COUN 550, SOWK 550.

**PSYC 551. Psychobiological Foundations. 4 Units.**
Basic course in psychobiology. Neuroanatomy, the physiology of the neuron, and neural communication. Includes consideration of structure and function of visual, auditory, and somesthetic sensation and perception. Concludes with coverage of the structure and function of motor systems. Considers visuospatial, visuoperceptual, and visuoconstructive disorders; and apraxia.

**PSYC 553. Cognitive Neuroscience. 4 Units.**
An advanced overview of the discipline that bridges cognitive psychology and neuroscience. Begins with neuroanatomy and the methodologies of electrophysiology and structural and functional imaging; and examines their application to perception, memory, language, cognitive control, attention, decision making, and motivational and emotional behavior.

**PSYC 554. Health Psychology. 4 Units.**
Overviews the field of clinical health psychology. The biopsychosocial model and the management of chronic illness used as a framework in which to address assessment and intervention principles, cultural influences, bioethics, and dying and death issues.

**PSYC 555. Psychopharmacology. 2 Units.**
Advanced coverage of neurotransmitter systems, with particular emphasis on the mechanism of action of various psychoactive substances.

**PSYC 564. Foundations of Social and Cultural Psychology. 4 Units.**
Surveys research, theory, and applications of social psychology within the context of other areas of psychology and related disciplines. Emphasizes scientific study of how people think about, influence, and relate to each other—both at the interpersonal and intergroup levels—within the context of cultural, social, and related phenomena. Applications to areas of psychology, such as clinical, health, and organizational psychology; as well as to economics, politics, and social issues.

**PSYC 565. Psychology of Religion. 3 Units.**
Psychology-based study of religion and spirituality. Focus on the five major world religious traditions, as well as atheism.

**PSYC 566. Cultural Psychology. 4 Units.**
Examines cross-cultural variations in psychological processes and human behavior. Focuses on cross-cultural research, theory, and interventions which address cross-cultural variations and the universality of psychological knowledge in a multicultural society and interdependent world. Includes personality, developmental, and social psychology in clinical and other professional areas.

**PSYC 567. Human Diversity. 3 Units.**
Surveys theories, research, and interventions dealing with culture and ethnicity in mental health and clinical practice. Emphasizes effects of culture, ethnicity, and socioeconomic factors upon working with ethnic minorities, and mainstream individuals and groups. Examines the role of diverse cultural and socioeconomic factors in psychological processes, psychopathology, psychological assessment, and intervention.

**PSYC 571. Adult Psychopathology. 4 Units.**
Advanced overview of the major theoretical and empirical approaches to the understanding and classification of adult psychopathology in light of contemporary psychological research and the context of culture. The DSM-IV provides the basic structure for analysis of the various major types of adult psychopathology, including schizophrenia and other psychotic disorders, mood disorders, anxiety disorders, dissociative disorders, personality disorders, adjustment disorders, and cognitive disorders.

**PSYC 572. Child Psychopathology. 2 Units.**
Advanced overview of the major theoretical and empirical approaches to the understanding and classification of child psychopathology in light of contemporary psychological research and the context of culture. The DSM provides the basic structure for analysis of the major types of child psychopathology, including: mental retardation, learning disorders, pervasive developmental disorders, conduct disorders, and eating disorders.

**PSYC 575. Foundations of Human Development. 4 Units.**
Considers human development from conception through old ageincluding personality as well as social, cognitive, and physiological aspects of development. Emphasizes contemporary developments in research, theory, and applications.

**PSYC 581. Evidence-Based Psychological Practice I. 2 Units.**
Theory, evidence-based practice, and empirically supported treatment protocols of the cognitive and behavioral aspects of the integrated biopsychosocial-spiritual therapy model. Prerequisite: PSYC 571, PSYC 721; or consent of instructor.

**PSYC 581L. Evidence-Based Psychological Practice I. 1 Unit.**
Supervised experience observing and/or engaging in laboratory assignments.

**PSYC 582. Evidence-Based Psychological Practice II. 2 Units.**
Theory, evidence-based practice, and empirically supported treatment protocols of the child and family aspects of the integrated biopsychosocial-spiritual therapy model. Prerequisite: PSYC 571, PSYC 721.

**PSYC 582L. Evidence-Based Psychological Practice II. 1 Unit.**
Supervised experience observing and/or engaging in laboratory assignments.

**PSYC 583. Evidence-Based Psychological Practice III. 2 Units.**
Theory, evidence-based practice, and empirically supported treatment protocols of the phenomological and couple aspects of the integrated biopsychosocial-spiritual model. Prerequisite: PSYC 582, PSYC 571, PSYC 721; or consent of instructor.

**PSYC 583L. Evidence-Based Psychological Practice III. 1 Unit.**
Supervised experience observing and/or engaging in laboratory assignments.

**PSYC 584. Evidence-Based Psychological Practice IV. 2 Units.**
Theory, evidence-based practice, and empirically supported treatment protocols of the child and family aspects of the integrated biopsychosocial-spiritual therapy model. Prerequisite: PSYC 571, PSYC 721; or consent of instructor.

**PSYC 584L. Evidence-Based Psychological Practice IV. 1 Unit.**
Supervised experience observing and/or engaging in laboratory assignments. Prerequisite: PSYC 571. Corequisite: PSYC 584.

**PSYC 591. Colloquia. 1 Unit.**
Students participate in a series of lectures presented by distinguished speakers in the various areas of scientific and professional psychology. Enrollment is for 1 unit each year for three years.

**PSYC 594. Readings in Psychology. 1-4 Units.**

**PSYC 595. Directed Research. 1-13 Units.**
Academic credit for research leading to the second-year project. Requires a total of 13 units.

**PSYC 596. Directed Study. 1-4 Units.**
Academic credit for specific research projects arranged between individual students and faculty members. May include readings, literature review, and/or laboratory research. Not to be used for the second-year project.

**PSYC 597. Supervised Research. 1 Unit.**
Academic credit for research for those students who have not yet advanced to doctoral candidacy. Not to be used for the second-year project.

**PSYC 604A. Advanced Topics in Multivariate Analyses I. 2 Units.**
First of a two-part rotating selection of advanced topics in statistical analysis and research methods in psychology. Topics vary by quarter and include, for example, multilevel modeling and structural equation modeling. Prerequisite: PSYC 501 or CFSD 601; or other previous experience with introductory statistics and regression analysis.

**PSYC 604B. Advanced Topics in Multivariate Analyses II. 2 Units.**
Second of a two-part rotating selection of advanced topics in statistical analysis and research methods in psychology. Topics vary by quarter and include, for example, multilevel modeling and structural equation modeling. Prerequisite: PSYC 503, PSYC 604A.

**PSYC 654. Behavioral Neurology. 2 Units.**
Examines the intersection of the fields of neurology and neuropsychology. Focuses on the pathophysiology, assessment, diagnosis, and treatment of various adult and child brain disorders. Covers material useful for neuropsychological test integration, case conceptualization, and diagnostic decision-making; as well as information necessary for the neuropsychologist to function as a member of a clinical team.

**PSYC 676. Geropsychology. 1 Unit.**
Covers human development from late adulthood through old age and death, with particular emphasis on the physical and psychological factors inherent in the aging process. Social, cognitive, physical, and psychological changes examined in light of contemporary research and theory. Required for California psychology licensure.

**PSYC 681. Clinical Supervision and Consultation. 2 Units.**
Addresses competency-based clinical supervision approaches, and basic models and theories of supervision. Presents professional, ethical, and legal parameters related to supervision. Includes principles, methods, and techniques of individual, group, and live supervision. Emphasizes consultation and issues involved in interdisciplinary collaboration. Emphasizes issues of diversity in a multicultural context.

**PSYC 681L. Clinical Supervision and Consultation Laboratory. 1 Unit.**
Provides hands-on experience in clinical supervision and consultation as students under instructor supervision apply the knowledge, attitudes, and skills acquired didactically. Utilizes videotaping, class presentations, critiques, and simulations to increase student competency.

**PSYC 683. Management and Professional Practice. 1 Unit.**
Seminar course in management and professional practice. In a variety of settings, exposes students to different management processes; as well as to professional, ethical, and legal requirements. Emphasizes management of integrated health and mental health care-delivery systems. Focuses on varied aspects of professional practice, including the roles psychologists play in developing organizational skills needed to function effectively in the changing health care marketplace.

**PSYC 684. Human Sexual Behavior and Treatment. 1 Unit.**
Human sexuality in contemporary society. Physiological, psychological, sociocultural, and developmental factors associated with human sexuality. Interventions for sexual dysfunctions and sexual well-being. Fulfills California state licensing requirements for psychologists.

**PSYC 685. Drug Addiction and Therapy. 2 Units.**
Overviews the definitions, incidence, detection, assessment, effects, and ethical/legal/therapeutic management of substance abuse. Fulfills California state licensing requirements for psychologists.

**PSYC 686. Child, Partner, and Elder Abuse. 3 Units.**
Overviews the definitions, incidence, detection, assessment, effects, and the ethical, legal, and therapeutic management of child, partner, and elder/dependent-adult abuse. Perpetrator and victim characteristics, including cultural and ethnic diversity factors. Controversies regarding assessment techniques, diagnoses, sequelae syndromes, interventions, and forensic issues. Fulfills California state licensing requirements for psychologists.

**PSYC 694. Seminar in Advanced Topics in Psychology. 1-4 Units.**

**PSYC 695. Spirituality Integration Seminar. 1 Unit.**
Integration of faith, religion, and/or spirituality with social sciences. Clinical and theoretical applications, scientific studies.

**PSYC 696. Psy.D. Doctoral Research. 1-4 Units.**
Requires involvement of clinical psychology Psy.D. students in doctoral research in the context of a faculty member's lab. Students meet weekly as a group with a faculty instructor to discuss theoretical, conceptual, and practical issues related literature review, research design, the IRB application process, data collection, data analysis, and dissemination of results through peer-reviewed presentations consistent with the practitioner-scholar model. Prerequisite: PSYC 502, PSYC 505; and admission to Psy.D. degree program.

**PSYC 697. Ph.D. Doctoral Research. 1-4 Units.**
Requires involvement of clinical psychology Ph.D. students in doctoral research in the context of a faculty member's lab. Students will meet weekly as a group with a faculty instructor to discuss theoretical, conceptual, and practical issues related to literature review, research design, the IRB application process, data collection, data analysis, and dissemination of results through peer-reviewed publications/presentations consistent with the scientist-practitioner model.

**PSYC 721. Practicum Preparation I. 3 Units.**
Required for all Psy.D. and Ph.D. degree students. Helps students learn beginning assessment and counseling skills. Incorporates demonstrations to facilitate learning. Prepares graduate students for both internal and external practicum. Prerequisite: PSYC 571.

**PSYC 781. Internal Practicum. 2 Units.**
Required unit for Psy.D. degree students; elective clinical training experience for Ph.D. degree students. Second-year practicum provides students with clinical training before they enter the formal practicum sequence. May be repeated three times for a total of 8 units. Prerequisite: PSYC 571, PSYC 721.

**PSYC 782. External Practicum. 4 Units.**
Provides a pre-internship level of clinical psychology training through intensive, extensive, and continuous clinical psychology experience. Includes, access to practicing psychologists and role models; experience in psychological assessment, diagnostic conceptualizations, and scientifically based treatment regimens; and exposure to ethical, legal, and professional standards in clinical psychology. Prerequisite: PSYC 781.

**PSYC 795. Directed Clinical Experience. 1-3 Units.**
Serves as elective course for students desiring to obtain supplemental clinical experiences beyond those required for degree completion (internal practicum, external practicum, pre-internship, and/or internship).

**PSYC 798. Pre-Internship. 4 Units.**
Clinical experience for students who have successfully completed the practicum year. Prerequisite: PSYC 782.

**PSYC 799A. Internship. 5 Units.**
A one-year internship completed at either an APA- or APPIC-approved placement. Limited to students who begin their internship mid-Summer Quarter (usually the middle of July). Requires 250 contact hours of clinical experience. Student registers initially for 5 units and registers the following Summer Quarter for an additional 5 units. Prerequisite: PSYC 798.

**PSYC 799B. Internship. 10 Units.**
A one-year internship completed at either an APA- or APPIC-approved placement. Limited to students who begin their internship either at the beginning of Summer Quarter or the beginning of Fall Quarter. Requires 500 contact hours per quarter of clinical experience. Student registers for 10 units per quarter. Prerequisite: PSYC 798.

# Public Health—Conjoint (PHCJ)

## Courses

**PHCJ 524. Special Topics in Public Health Practice. 1-4 Units.**
Current topics in public health. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525A. Special Topics in Public Health. 1-4 Units.**
Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525B. Special Topics in Public Health. 1-4 Units.**
Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525C. Special Topics in Public Health. 1-4 Units.**
Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525D. Special Topics in Public Health. 1-4 Units.**
Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 600. Overview of Research Methodologies. 3 Units.**
The basis and limits of science. Enhances understanding of the basic elements of observational, quantitative, qualitative, mixed methods, and policy analysis methods in scientific and evaluation research. Critically evaluates published research. Considers the multiple levels of analysis (individual, group, organization, community and population). For doctoral students only. Prerequisite or concurrent: STAT 509.

**PHCJ 606. Public Health Fundamentals. 4 Units.**
Provides an overview of three areas of public health: health behavior, environmental health, and public health policy. Introduces key health behavior-change theories and psychosocial determinants of health behaviors. Introduces rural and urban environmental factors that affect human-health status, enjoyment of the quality of life, and human survival. Introduces concepts of the health policy process and factors that impact health and access to health care. Open to Non-MPH degree students only.

**PHCJ 607. Professional Leadership. 3 Units.**
An applied course that exposes students to leadership styles and applications within public health and health-care settings, and in which students explore and develop their personal leadership attributes.

**PHCJ 608A. Doctoral Seminar for Public Health. 1 Unit.**
Provides a venue for reviewing, appraising, and writing scientific literature; enhancing skills in critical thinking and professional presentations; and interacting with faculty, peers, and public health practitioners in the discussion of scientific papers and professional development.

**PHCJ 608B. Doctoral Seminar for Public Health. 1 Unit.**
Provides a venue for reviewing, appraising, and writing scientific literature; enhancing skills in critical thinking and professional presentations; and interacting with faculty, peers, and public health practitioners in the discussion of scientific papers and professional development. Students enroll the during the Fall, Winter, and Spring quarters of their first year in the doctoral program for a total of 3 units.

**PHCJ 608C. Doctoral Seminar for Public Health. 1 Unit.**
Provides a venue for reviewing, appraising, and writing scientific literature; enhancing skills in critical thinking and professional presentations; and interacting with faculty, peers, and public health practitioners in the discussion of scientific papers and professional development. Prerequisite: PHCJ 608A, PHCJ 608B.

**PHCJ 609. Building Healthy Individuals. 3 Units.**
Uses theoretical principles to develop culturally sensitive public health interventions for a variety of settings: community, occupational, educational, and health care. Prepares students to assess population's knowledge and learning needs, to practice communication skills by developing level-appropriate educational materials, and to collaborate with other professionals to develop interdisciplinary approaches to improve public health.

**PHCJ 610. Building Healthy Communities. 3 Units.**
Examines the public health system, how health policy is developed, and the diverse stakeholders involved in the process. Examines effective partnerships with government agencies, the private sector, nongovernmental organizations, communities, and social entrepreneurs to build healthy communities. Explores and analyzes in depth how these partnerships have worked together to make positive health improvements through effective policies and programs.

**PHCJ 614. Pedagogy: The Art and Science of Teaching. 2 Units.**
Provides an overview of pedagogical principles such as adult learning theories, curriculum development, instructional effectiveness, and evaluation. Develops skills to identify learning needs of a population and promote learning in academia and in organizational and community settings.

**PHCJ 615. Intermediate Biostatistics. 3 Units.**
Multivariable biostatistics. Introduces analysis of variance, analysis of covariance, repeated measures, linear and binary regression, and data reduction. Includes a discussion of nonparametric tests. Emphasizes selection of a statistical procedure, using statistical software, interpreting and reporting results. Prerequisite: STAT 509, STAT 548 or STAT 549; or consent of instructor.

**PHCJ 616. Administrative Systems in Agency Management. 3 Units.**
Reviews the administrative systems and knowledge necessary to manage public health, health-care, and other agencies. Topics include budgeting and financial management, inclusion and equity in agency management, human resources, interpreting financial statements and analyses, governance, strategic planning, elements in resource generation (fundraising and grant-writing), and leadership for health-care improvement and patient outcomes.

**PHCJ 617. Building Healthy Systems. 3 Units.**
Develops advanced public health leadership in building sustainable health systems. Evaluates linked health agendas, structures, and functions to promote performance goals. Creates skills to evaluate and address population health goals. Identifies opportunities for health systems analysis and strengthening that address health outcomes. Explains applied research methods, tools, and frameworks for carrying out the changes and interventions that bolster policies and promote health equity.

**PHCJ 618. Transformative Communication. 2 Units.**
Prepares doctoral students to communicate public health science effectively and with purpose to diverse stakeholders. Includes general theories of communication; development of a personal philosophy of communication; and use of thoughtful visual aids, including images and media, to enhance communication.

**PHCJ 624A. Scientist Forum. 1 Unit.**
Provides a venue for acquiring critical thinking skills to appraise scientific literature in the field; understand the ethical principles undergirding the teaching, research, and practice of public health; analyze, think, act, and behave like a scientist; be competent in conducting human research; and actively participate in the dissertation proposal/dissertation defense presentations by peers.

**PHCJ 624B. Scientist Forum. 1 Unit.**
Presents elements of proposal writing. Includes student utilization of the framework and development of the concept paper and the dissertation proposal, which includes the first three chapters of the dissertation. Provides a venue for continued professional development of the student through interaction with peers and faculty within the discipline. Prerequisite or concurrent: PHCJ 624A.

**PHCJ 624C. Scientist Forum. 1 Unit.**
Presents core elements of grant writing. Students identify an appropriate funding organization or agency and write and submit a grant. Serves as a forum for continued professional development through participation in peer-proposal defense and dissertation defenses. Prerequisite or concurrent: PHCJ 624A, PHCJ 624B.

**PHCJ 630. Concepts and Practical Issues of Secondary Data. 3 Units.**
Covers secondary data analyses across public health disciplines. Includes: advantages and limitations of secondary analyses; sources of secondary data; developing appropriate hypotheses; sampling methods; subject selection; downloading and cleaning secondary data; missing data; operationalizing relevant variables; and, applying statistical analyses.

**PHCJ 695. Community Practicum. 1-4 Units.**
Provides opportunities for students to integrate the multiple skills they have learned with the practice of public health in a community setting. Requires 100 hours of practicum for each unit of credit to receive a grade. A maximum of 4 units applicable to a degree program.

**PHCJ 698. Doctoral Project. 1-4 Units.**
Provides Dr.P.H. degree students with the opportunity to integrate and apply classroom learning through field-based projects consistent with advanced practice designed to influence programs, policies, or systems addressing public health. Final project allows students to integrate both foundational and concentration- specific competencies. Prerequisite: Advancement to candidacy.

**PHCJ 795. Applied Practice. 2 Units.**
Provides Dr.P.H. degree students with the opportunity to integrate and apply classroom learning through an applied practice experience in which they complete at least one project meaningful for an organization and to advanced public health practice.

**PHCJ 798A. Public Health Practicum. 2 Units.**
Practicum integrating public health coursework into professional settings in public health. Includes a minimum of 100 clock hours.

**PHCJ 798B. Public Health Practicum. 4 Units.**
Practicum integrating public health coursework into professional settings in public health. Includes a minimum of 200 clock hours.

**PHCJ 798C. Public Health Practicum. 6 Units.**
Practicum integrating public health coursework into professional settings in public health. Includes a minimum of 300 clock hours.

**PHCJ 798D. Public Health Practicum. 8 Units.**
Practicum integrating public health coursework into professional settings in public health. Includes a minimum of 400 clock hours.

# Public Health Core (PCOR)

## Courses

**PCOR 501. Public Health for Community Resilience. 5 Units.**
Provides an integrated public health core experience focusing on the health of communities and leading to community engagement. Introduces service learning. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health.

**PCOR 502. Public Health for a Healthy Lifestyle. 5 Units.**
Provides an integrated public health core experience focusing on the health of individuals, identifying factors influencing behavioral and physical health. Introduces service learning. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health. Prerequisite: PCOR 501.

**PCOR 503. Public Health and Health Systems. 5 Units.**
Provides an integrated public health core experience focusing on health systems. Includes policy and advocacy for health issues, as well as structure and function of health systems. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health.

# Radiation Medicine (RDMN)

## Courses

**RDMN 891. Radiation Medicine Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of radiation medicine.

# Radiation Technology (RTCH)

## Courses

**RTCH 283. Basic Imaging. 2 Units.**
Covers basic imaging positioning used in radiology. Topics include: radiology positioning techniques and introduction to technical characteristics of common nuclear medicine studies.

**RTCH 283L. Radiation Clinical Basics Laboratory. 1 Unit.**
Hands-on laboratory experience that includes basic positioning, physics, and principles in radiology.

**RTCH 285. The Principles and Physics of Radiation. 4 Units.**
Covers equipment used to generate X-rays for production of radiographic images. Includes the physics of X-ray production, and interactions of X-rays with patient tissues to produce radiographic images. Stresses proper radiation safety for the patient and hospital personnel.

**RTCH 305. CT Fundamentals. 2 Units.**
Overview of computed tomography (CT) concepts, including cross-sectional anatomy, physics, and clinical procedures.

**RTCH 318. Imaging Modalities. 2 Units.**
Covers the correlation and relevance of nuclear medicine to the other imaging modalities. Topics include: cardiovascular, respiratory, gastrointestinal, genitourinary, and skeletal systems.

**RTCH 325. Applications for Managers. 2 Units.**
Introduces prospective radiology managers and administrators to the basic common applications found in health care.

**RTCH 385. Radiologic Trends in Health Care. 2 Units.**
A faculty-facilitated course that includes class discussion, group work, and presentation of projects utilizing the online learning environment. Focuses on current and future trends in the field of radiology.

**RTCH 387. Writing for Health-Care Professionals. 3 Units.**
Expands upon entry-level academic writing experience by advancing skills in the following areas: avoiding plagiarism, developing academic writing, organizing research materials, synthesizing sources, formatting papers in APA style, and writing a literature review.

**RTCH 413. Management Practicum I. 3 Units.**
Observation of and discussion with selected administrative personnel in a radiology service. Emphasizes practical application of management theory. Projects assigned.

**RTCH 414. Practicum in Radiation Sciences. 3 Units.**
A project-based course with opportunity to demonstrate curriculum-related knowledge and skills in applied settings. Emphasizes practical application of management or educational theory through assigned projects, observation, and discussion involving mentors within administrative or educational roles in the medical imaging professions.

**RTCH 415. Radiation Emergency Procedures. 3 Units.**
Covers radiation emergency procedures and guidelines. Topics include: minor spills, major spills, airborne contamination, ingestion and inhalation contamination, firefighting techniques, X-ray injuries, and lessons learned from radiation disasters.

**RTCH 418. Health Information Management and Radiology Coding for Radiology Managers. 3 Units.**
Integrates health information management systems and radiology coding for prospective radiology managers and administrators. Introduction to health information systems and radiology coding to promote smooth running of a radiology department. Introduces current health information technology guidelines, tools, and concepts behind accurate coding and policy.

**RTCH 454. Computed Tomography Clinical Affiliation. 3 Units.**
Clinical experience working with staff technologists and physicians, performing functions, skills, and procedures expected of computed tomography (CT) technologist in preparation for the ARRT registry exam.

**RTCH 455. Magnetic Resonance Imaging Clinical Affiliation. 3 Units.**
Clinical experience working with staff technologists and physicians, performing the functions, skills, and procedures expected of magnetic resonance imaging (MR) technologist in preparation for the ARRT registry exam.

**RTCH 456. Cardiac Interventional Clinical Affiliation. 3 Units.**
Clinical experience working with staff technologists and physicians, performing functions, skills, and procedures expected of cardiac interventional (CI) technologist in preparation for the ARRT registry exam.

**RTCH 457. Vascular Interventional Clinical Affiliation. 3 Units.**
Clinical experience working with staff technologists and physicians. Perform the functions, skills, and procedures expected of vascular interventional (VI) technologist in preparation for the ARRT registry exam.

**RTCH 464. Moral Leadership. 3 Units.**
Methods of applying servant leadership to management and educational settings. Within a moral framework, discusses concepts of managing learners and professionals, assessing leadership style, the essence of leadership, leadership skill building, and conflict management. Utilizes assigned readings, discussions, papers, and personal inventories to aid in assessing the learner's leadership skills.

**RTCH 467. Management of a Radiologic Service. 3 Units.**
Techniques of organization, planning, and management, with specific applications to a hospital radiology service.

**RTCH 471. Applied Research Methods I. 2 Units.**
Applies research methods to radiation sciences. Directed experience with a research project. Laboratory.

**RTCH 472. Applied Research Methods II. 2 Units.**
Applies research methods to radiation sciences. Directed experience with a research project. Continues RTCH 471.

**RTCH 485. Digital Management in Radiology. 3 Units.**
A student-centered, faculty-facilitated course that is a continuation of RTCH 385. Class discussion, small-group work, and presentation of student projects/paper. New technology and its impact on the radiology department.

**RTCH 489. Effective Communication for Supervisors. 3 Units.**
Helps managers and supervisors build effective skills in the following areas: interpersonal skills, business writing, verbal and nonverbal communication, modes of communication, coaching, and conflict resolution.

**RTCH 497. Advanced Clinical Experience. 2 Units.**
Advanced clinical experience in selected areas of professional practice.

**RTCH 499. Radiation Technology Independent Study. 0.5-2 Units.**
Student submits a project or paper on a topic of current interest in an area related to radiation technology. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest. The .5 unit of credit designed to offer directed experience in the prevention of AIDS and other communicable diseases in the clinical setting.

**RTCH 567. Leadership Theory and Practice. 3 Units.**
A Web-based course that focuses on the leadership aspect of communication. Examines leadership from a theoretical standpoint while relating, assessing, and applying leadership in present-day professional interactions.

# Radiation Technology Advanced Medical Imaging (RTAM)

## Courses

**RTAM 401. Advanced Clinical. 5 Units.**
Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 402. Advanced Clinical. 10 Units.**
Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 403. Advanced Clinical. 10 Units.**
Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 404. Advanced Clinical. 10 Units.**
Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 405. Advanced Clinical. 2 Units.**
Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 454. Advanced Patient Care. 3 Units.**
Addresses patient care topics, such as trauma and medical emergencies, patient assessment, and pharmacology.

**RTAM 458. Advanced Imaging Procedures. 3 Units.**
Introduces students to various imaging procedures and modalities including: anatomy, patient positioning, geometric factors, and radiation protection beyond the level of a basic medical radiographer.

**RTAM 464. Pathology. 3 Units.**
Reviews pathologic processes most commonly found in imaging modalities.

**RTAM 468. Advanced Imaging Principles. 3 Units.**
Provides advanced instruction in the use of digital imaging technology in radiology modalities, including new and emerging technologies and other radiology-related applications.

**RTAM 474. Patient Education and Evidence-Based Medicine. 3 Units.**
Introduces clinical pathways, multidisciplinary clinical practice, and a focus on quality and coordination of care. Includes relationship-centered patient care, effective communication, and patient education.

**RTAM 478. Introduction to Computed Tomography. 3 Units.**
Introduces basic concepts related to computed tomography (CT), including: patient care, communication, principles, and procedures.

# Radiation Technology Education (RTED)

## Courses

**RTED 415. Teaching Practicum in the Radiation Sciences. 3 Units.**
A project-based course in which B.S. degree radiation science students have the opportunity to demonstrate curriculum-related knowledge and skills in applicable settings.

**RTED 474. Instructional Techniques for the Radiation Sciences. 3 Units.**
Prepares B.S. degree students in the Radiation Science Program to create learning environments in medical imaging-related courses and clinical education. Students learn to create course content, develop presentations, design lessons, and evaluate learning.

**RTED 475. Curriculum Development for the Radiation Sciences. 3 Units.**
Prepares B.S. degree students in the Radiation Sciences Program to develop curricula in medical imaging-related programs and clinical environments. Includes curriculum development approaches, implementation, and evaluation for effectiveness in the clinical environment.

**RTED 476. Adult Learning Theory for the Radiation Science Student. 3 Units.**
Examines teaching and learning from theoretical perspectives as B.S. degree students in the Radiation Sciences Program relate to employment within the radiation science education and clinical education fields.

**RTED 477. Learning Activities and Assessment for the Radiation Sciences. 3 Units.**
Investigates active learning techniques, integration, and assessment approaches in imaging-related programs and clinical environments.

**RTED 478. Online Instructional Design. 3 Units.**
Explores the design of online or hybrid courses to incorporate active learning approaches and create community in the online environment.

**RTED 484. Learning Environments for Radiation Science Students. 3 Units.**
Prepares B.S. degree students in the Radiation Science Program in topics related to models, learning environments, and measures of success in medical imaging educational contexts.

**RTED 485. Digital Design for the Radiation Sciences. 3 Units.**
Utilizing a variety of platforms, introduces available digital technologies and explains key elements necessary to engage medical imaging students.

**RTED 487. Issues in Radiation Sciences. 3 Units.**
Prepares B.S. degree students in the radiation sciences to focus primarily on scholarly journal publications as they explore prevailing issues related to classroom and clinical education in the radiation sciences.

# Radiation Technology/Imaging Informatics (RTII)

## Courses

**RTII 354. Introduction to Informatics. 3 Units.**
Overview of computer fundamentals. Provides in-depth insight into a picture-archiving and communication system (PACS). Includes, basic terminology, computed radiography, digital radiography, hospital information systems, radiology information systems, DICOM, and HL-7.

**RTII 356. Information Technology in Radiology. 3 Units.**
Principles of developing and maintaining a radiology health care network. Addresses network design, critical problem-solving, and troubleshooting. Includes basic terminology, network components, network design and implementation, storage and archive assessment, hardware and software implementation databases, IT standards, and IT replacement schedules.

**RTII 358. PACS Planning and Implementation. 3 Units.**
Presents steps needed to procure a picture-archiving and communications system (PACS) in a radiology department of any size. Focuses on organizational readiness, proposal requests, vendor selection, contracts, and cost strategies. Develops critical thinking for planning, team-building, and project management.

**RTII 364. Administrative Issues in Informatics. 3 Units.**
Focuses on issues in informatics faced by a picture-archiving and communications system (PACS) administrator. Facilitates understanding of the architecture of a PACS and the details of running the business aspects of such a system. Topics include, but are not limited to; project management, operations management, relationships in health care, quality-improvement procedures, emergency protocols, and compliance with federal regulations.

**RTII 368. Communication and Education in Imaging Informatics. 3 Units.**
Focuses on the basic communication skills a picture-archiving and communications systems (PACS) administrator should possess. Topics include, but are not limited to: relationships in health care, medical terminology, educational concerns, feedback mechanisms, evaluation processes, effective communication, and quality education and training programs. Online instruction utilizes Blackboard, text, video, PowerPoint, and other interactive online resources.

**RTII 374. Image Management in Informatics. 3 Units.**
Focuses on basic image-management tasks that a picture-archiving and communications system (PACS) administrator must complete on a daily basis. Topics include but are not limited to: environmental design, human-computer interface evaluation, database retrieval, and problem solving. Online instruction using Blackboard incorporates text, video, PowerPoint, and other interactive resources.

**RTII 378. Systems Management in Informatics. 3 Units.**
Focuses on basic systems management tasks that a picture-archiving and communications system (PACS) administrator must complete on a daily basis. Topics include but are not limited to: capacity and throughput. disaster recovery and continuity, problem management, data migration, and data security. Online instruction using Blackboard incorporates text, video, PowerPoint, and other interactive resources.

**RTII 384. Advanced Imaging Informatics. 1 Unit.**
An in-depth study of advanced imaging informatics integration standards and informatics architecture designs required of a picture archiving and communications system (PACS) administrator.

**RTII 386. Certification Exam Review. 2 Units.**
Reviews major content areas emphasized on the American Board of Imaging Informatics (ABII) board exam. Provides student evaluation and performance analysis using simulated board exams.

# Radiation Technology/Medical Dosimetry (RTMD)

## Courses

**RTMD 301. Treatment Planning I. 2 Units.**
Studies in-depth the planning of isodose distributions and dose calculations within different target volumes. Topics covered include IMRT, conformal therapy, and stereotactic radiosurgery.

**RTMD 302. Treatment Planning II. 2 Units.**
Develops the student's ability to construct treatment plans using 3D/IMRT planning techniques. Integrates theory with practice. Students required to complete a number of plans that utilize all the major treatment techniques, based on anatomical tumor sites. Lecture includes discussion and plans related to specific tumors, after which students are expected to produce similar plans, compile a notebook of plans, and present plans to the class as a midterm and final examination.

**RTMD 305. Special Topics. 2 Units.**
Studies cutting-edge techniques in depth as they apply to therapy—including radiation oncology and the diagnostic modalities that support them. Topics include IMRT, TBI, USGI, IORT, MLC, dynamic wedging, virtual simulation (CT simulation), stereotactic radiosurgery, HDR, proton therapy, MRI, US, and NRM. Students make a weekly presentation from a peer-reviewed journal or discuss a research paper on one of the studied topics. Class paper on a specific area of study due at the end of the quarter.

**RTMD 307. Principles of Brachytherapy. 2 Units.**
Includes a two-week rotation at Long Beach Memorial Hospital to observe brachytherapy. Principles of radiation protection as they relate to brachytherapy.

**RTMD 309. Radiation Therapy Core—Concept Review. 1 Unit.**
Conducted in the seminar/review format. Students research and present information on weekly schedule of core topics and concepts relating to radiation therapy techniques, oncology, radiobiology, and patient care. Students complete assigned readings and answer general review questions.

**RTMD 310. Applied Mathematics for Medical Dosimetry. 1 Unit.**
A review of the higher mathematics skills required for dosimetric calculations. Course conducted in a tutorial format in which students meet regularly with faculty to review problems from an assigned mathematics workbook.

**RTMD 314. Quality Assurance, with Laboratory. 2 Units.**
General overview of quality-assurance management within a radiation oncology department, with specific emphasis on continuous quality assurance (CQI). Examines the theoretical and practical application of quality-assurance techniques as they relate to treatment planning and other dosimetry functions.

**RTMD 355. Physical Principles of Radiation Therapy I. 3 Units.**
Nature and description of the structure of matter and energy. Radioactive decay schemes and interaction of photons and gamma radiation. Instrumentation involved in measurement of ionizing radiation, beam quality, and dose. Laboratory. Cross-listing: RTTH 355.

**RTMD 356. Physical Principles of Radiation Therapy II. 3 Units.**
Discusses the following areas: calibration techniques of photon, particulate, and electron beams; percentage depth dose, tissue-air ratios, treatment planning, scatter functions, field flatness, and symmetry; field shaping, arc therapy, and tissue inhomogeneities; clinical dosimetric considerations. Includes laboratory. Cross-listing: RTTH 356.

**RTMD 960. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in B.S. mathematics/physics track.

**RTMD 961. Practicum. 8 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: twenty-eight hours.

**RTMD 962. Practicum. 10 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-four hours.

**RTMD 963. Practicum. 9 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-one hours.

**RTMD 964. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in B.S. mathematics/physics track.

**RTMD 965. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in B.S. mathematics/physics track.

**RTMD 970. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in radiation therapy track.

**RTMD 971. Practicum. 10 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-three hours.

**RTMD 972. Practicum. 9 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty hours.

**RTMD 973. Practicum. 10 Units.**
Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-four hours.

**RTMD 974. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in radiation therapy track.

**RTMD 975. Practicum. 11 Units.**
Applies theoretical knowledge of dosimetry in practical ways. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Integrates students into the dosimetry and physics team, with opportunities to work with various kinds of treatments and treatment beams. Per week: thirty-six hours. Prerequisite: Enrollment in radiation therapy track.

# Radiation Technology/Medical Radiography (RTMR)

## Courses

**RTMR 095. Survey of Radiation Sciences. 1 Unit.**
Develops students' interest in and knowledge of the radiation sciences by exploring each of the specialties in the field, such as radiography, CT, MRI, nuclear medicine, diagnostic medical sonography, cardiac sonography, radiation therapy, dosimetry, cardiovascular imaging, imaging informatics, radiologist assistant, mammography, radiology education, and radiology administration. Students develop n career and an education plan.

**RTMR 202. Clinical Orientaton. 3 Units.**
Clinical orientation to the functions of radiologic technologists. Clinical environment orientation conducted at affiliated clinical sites.

**RTMR 221. Radiologic Patient Care. 2 Units.**
Addresses patent care during radiographic procedures. Emphasizes patient care in the ER and OR, and during contrast procedures. Topics include radiographic professional organizations, ARRT code of ethics, personal balance and health, critical thinking and problem solving, pharmacology, medical abbreviations, spirituality in health care, challenging patient situations, and immobilization techniques.

**RTMR 224. Legal Issues in Medical Radiography. 1 Unit.**
Presents an overview of legal issues in radiologic technology. Topics include: standards of care, patient rights, informed consent, civil liability, legal doctrines, documentation, confidentiality, scope of practice, and ethical theories.

**RTMR 246. Professional Communication & Presentation. 2 Units.**
Provides an understanding of the professional communication and presentation skills needed to succeed as an entry-level radiographer. Topics include personality assessments, interpersonal communication, conflict resolution, moral courage, patient communication, and professionalism. Addresses radiologic technology accreditation and University-required student learning outcomes in oral, written, and health-care team communication.

**RTMR 247. Languages for Radiographers. 1 Unit.**
Introduces radiography students to the words, phrases, and medical terminology most often used in radiographic patient care situations for the common languages of patients.

**RTMR 253. Medical Radiography Procedures I. 3 Units.**
Introduces various radiographic procedures, including anatomy, patient positioning, geometric factors, exposure techniques, image evaluation and patient shielding.

**RTMR 253L. Medical Radiography Procedures Laboratory I. 1 Unit.**
Applies principles of patient positioning in a laboratory setting. Students practice optimum positioning practices on classmates. Anatomy covered includes: chest, upper extremity, lower extremity, bony thorax, and shoulder girdle.

**RTMR 254. Medical Radiography Procedures II. 3 Units.**
Introduces students to various radiographic procedures, which include anatomy, patient positioning, geometric factors, exposure techniques, image evaluation and patient shielding. Prerequisite: RTMR 253.

**RTMR 254L. Medical Radiography Procedures Laboratory II. 1 Unit.**
Applies principles of patient positioning in a laboratory setting. Students practice optimum positioning practices on classmates and volunteers. Anatomy covered includes: abdomen, spine, skull, and pelvis.

**RTMR 255. Medical Radiography Procedures III. 2 Units.**
Introduces students to various radiographic procedures, which include anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 255L. Medical Radiography Procedures Laboratory III. 1 Unit.**
Applies principles of patient positioning and radiographic exposure to the laboratory setting. Uses clinical patient simulation and radiographic phantoms to determine optimal radiographic techniques.

**RTMR 283. Radiologic Physics. 3 Units.**
Provides a background for understanding the physics of man-made radiation production. Addresses the interaction of radiation with matter for both radiation protection and the creation of radiographic images. Covers the electrical circuitry of diagnostic x-ray equipment.

**RTMR 284. Radiation Protection and Biology. 2 Units.**
Addresses the fundamental concepts of radiation protection and biological effects of radiation on patients and occupationally exposed personnel. Topics include: radiation safety procedures, radiation quantities and units, legal exposure standards, and radiation monitoring.

**RTMR 285. Principles of Radiography I. 3 Units.**
Introduces the principles of radiographic theory and technique. Covers the physical factors involved in image exposure and processing, auxiliary equipment used in producing the radiographic exposure, and techniques for obtaining the optimum image under any situation. Weekly laboratory sessions required.

**RTMR 286. Principles of Radiography II. 3 Units.**
Provides advanced instruction in the principles of radiographic theory and technique. Examines the role of image-intensified fluoroscopy in radiology. Weekly laboratory sessions required.

**RTMR 305. Introduction to Computed Tomography I. 2 Units.**
Introduces an overview of cross-sectional anatomy. Identifies normal anatomy in two- and three-dimensional planes. Addresses the structural and physiological functions of body systems.

**RTMR 306. Introduction to Computed Tomography II. 2 Units.**
Introduces basic principles, physics, imaging parameters, radiological effects, management, and patient protocol of computed tomography (CT).

**RTMR 324. Radiographic Image Evaluation and Pathology. 3 Units.**
Expands upon the fundamental image evaluation knowledge acquired in RTMR 253, 254, and 255. Advances understanding of image evaluation with reference to pathology, radiographic anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 325. Radiologic Pathology. 1 Unit.**
Reviews the pathologic processes most commonly viewed by radiographers using radiologic imaging methods. Prerequisite: RTMR 253, RTMR 254, RTMR 255.

**RTMR 344. Professional Development and Service Learning. 3 Units.**
Overview of radiologic specialties. Examines state and national radiography organizations and continuing education requirements. Reviews professional values and codes of ethics.

**RTMR 363. Comprehensive Review I. 2 Units.**
Reviews major content areas emphasized on certification examinations. Student evaluation and performance analysis. Time provided to make class presentations, organize study materials, and take simulated registry examinations.

**RTMR 365. Comprehensive Review II. 2 Units.**
Continues review of major content areas emphasized on certification examinations. Student evaluation and performance analysis. Time provided to make class presentations, organize study materials, and take simulated registry examinations.

**RTMR 371. Medical Radiography Affiliation I. 5 Units.**
The first of six affiliation courses that total eighteen months of clinical experience. Students gain hands-on experience in basic patient care, radiographic procedures and positioning, radiation protection, radiographic exposure and techniques, critical thinking and problem solving, and patient and health care team communication. The combined six-part affiliation sequence fulfills state requirements for clinical hours in medical radiography.

**RTMR 372. Medical Radiography Affiliation II. 7 Units.**
Continues RTMR 371.

**RTMR 373. Medical Radiography Affiliation III. 12 Units.**
Continues RTMR 371 and 372.

**RTMR 374. Medical Radiography Affiliation IV. 10 Units.**
Continues RTMR 371, 372, and 373.

**RTMR 375. Medical Radiography Affiliation V. 10 Units.**
Continues RTMR 371, 372, 373, and 374.

**RTMR 384. Topics in Medical Radiography. 1-3 Units.**
Lecture and discussion of a current topic in medical radiography bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter.

**RTMR 386. Medical Radiography Affiliation VI. 10 Units.**
Continues RTMR 371, 372, 373, 374, and 375.

# Radiation Technology/Medical Sonography (RTMS)

## Courses

**RTMS 339. Echocardiography I. 4 Units.**
Focuses on normal anatomy, scan techniques, cardiac measurement, and new dynamics. Case study presentations.

**RTMS 344. Introduction to Medical Sonography. 5 Units.**
Introduction to sonography—including ob-gyn, abdomen, vascular, neurosonography, cardiac, and pediatric. Covers terminology and scan techniques for all areas.

**RTMS 345. Ob-Gyn Sonography. 5 Units.**
Ob-Gyn scan techniques, fetal anatomy and pathologies, gynecological anatomy and pathologies. Student case presentations and case studies.

**RTMS 346. Vascular Technology/Doppler/Scan Techniques. 5 Units.**
Covers vascular technology, Doppler, abdomen, and small parts. Continues case studies and case presentations.

**RTMS 347. Echocardiography II. 4 Units.**
Echocardiography, adult and pediatric. Further focuses on anatomy, pathology, hemodynamics, and Doppler. Includes case studies and presentations.

**RTMS 348. Abdomen/Neurosonography. 5 Units.**
Sonography of the abdomen and neonatal neurosonography specialties and scan techniques. Visualizes sonography of the abdomen, cross-section scan techniques, and pathologies on ultrasound. Includes neonatal neurosonography; anatomy and pathologies also included.

**RTMS 361. Cardiac Sonography Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams.

**RTMS 362. Cardiac Sonography Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams. Prerequisite: RTMS 361.

**RTMS 363. Cardiac Sonography Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams. Prerequisite: RTMS 362.

**RTMS 364. Cardiac Sonography Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams. Prerequisite: RTMS 363.

**RTMS 371. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience.

**RTMS 372. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 371.

**RTMS 373. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 372.

**RTMS 379. Ultrasound Physics and Instrumentation I. 2 Units.**
Studies the basic physical principles and instrumentation of ultrasound production and imaging. Selected case study presentations, as assigned.

**RTMS 384. Topics in Medical Sonography. 1 Unit.**
Surveys selected topics in medical sonography. Procedure summaries, projects, literature reviews.

**RTMS 385. Board Review Echocardiography. 2 Units.**
Case presentations by faculty and students reviewing vast variety of pathologies, as well as normal anatomy. Prerequisite: RTMS 339, RTMS 347.

**RTMS 386. Echocardiographic Case Studies Adult and Pediatrics. 2 Units.**
Case presentations by faculty and students reviewing normal anatomy and variety of pathologies in adult and pediatric cases. Prerequisite: RTMS 339, RTMS 347.

**RTMS 387. Ultrasound Physics and Instrumentation II. 2 Units.**
Study and review of the basic physical principles and instrumentation of ultrasound, with additional emphasis on Doppler and artifacts. Prerequisite: RTMS 379.

**RTMS 421. Board Review OB-GYN Sonography. 1 Unit.**
Board review presented in case study format; normal and pathologies involved in ultrasound evaluation of the OB-GYN specialty. Prerequisite: Completion of the first year of the medical sonography program.

**RTMS 422. Board Review Abdomen. 2 Units.**
Board review presented in case study format. Normal scans and pathologies involved in a wide variety of abdominal and small part ultrasound examinations. Prerequisite: RTMS 421.

**RTMS 423. Board Review Vascular. 1 Unit.**
Board review presented in case study format; normal and pathologies involved in a wide range of vascular ultrasound examinations. Prerequisite: RTMS 422.

**RTMS 424. Professionalism in Medical Sonography. 1 Unit.**
Presents a variety of topics to develop professionalism and prepare graduates for the work force. Topics include writing a resume/CV, interviewing, and communication. Prerequisite: RTMS 421, 422, 423.

**RTMS 471. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 373.

**RTMS 472. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 471.

**RTMS 473. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 472.

**RTMS 474. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 473.

**RTMS 475. General Vascular Clinical Affiliation. 8 Units.**
General vascular affiliate includes 320 clock hours of observation and hands-on experience, and a variety of patient exams including general abdomen, ob-gyn and vascular. Includes identification of a variety of normal and pathological cases throughout the training experience. Prerequisite: RTMS 474.

**RTMS 965. Cardiac Ultrasound Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams.

**RTMS 966. Cardiac Ultrasound Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams.

**RTMS 967. Cardiac Ultrasound Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams.

**RTMS 968. Cardiac Ultrasound Clinical Affiliation. 8 Units.**
Cardiac clinical affiliate includes 320 clock hours of observation and hands-on experience, and a variety of cardiac echocardiograms. Includes adult, pediatric and fetal cardiac exams.

**RTMS 978. Medical Sonography Clinical Affiliation. 11 Units.**
Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 977.

# Radiation Technology/Nuclear Medicine (RTNM)

## Courses

**RTNM 351. Principles of Nuclear Medicine I. 4 Units.**
Covers the historical developments that led to the field of nuclear medicine. Describes the structure of the atom and the factors that make an atom radioactive. Reviews the laws of physics; periodic chart of the elements; and the trilinear chart of the nuclides, radioactive decay, radionuclide production, and quality control of radiopharmaceuticals.

**RTNM 351L. Principles of Nuclear Medicine I Laboratory. 1 Unit.**
A laboratory course that emphasizes the material presented in RTNM 351. Structure of the atom, radioactive decay, radionuclide production.

**RTNM 352. Principles of Nuclear Medicine II. 4 Units.**
Includes the model of the atom, as well as electromagnetic and particle radiation. Lists the types of radioactive decay, along with the radiation interactions with matter. Defines terms that are specific to radioactive decay and performs calculations used in nuclear medicine for pre- and postcalibration of radionuclides.

**RTNM 352L. Principles of Nuclear Medicine II Laboratory. 1 Unit.**
A laboratory course that emphasizes the material presented in RTNM 352. Electromagnetic and particle radiations, radioactive decay interactions, and calculations.

**RTNM 353. Nuclear Medicine Procedures I. 2 Units.**
Addresses nuclear medicine procedures used to image, diagnose, and treat disease with radiopharmaceuticals. Identifies use of radionuclides to image the endocrine, cardiovascular, respiratory, and skeletal systems. Includes patient preparation for scans, routes of administration of radiopharmaceuticals, methods of localization for organ imaging, radiopharmacy, and quality control.

**RTNM 353L. Nuclear Medicine Procedures Laboratory. 1 Unit.**
A laboratory course that emphasizes the material presented in RTNM 353.

**RTNM 354. Nuclear Medicine Procedures II. 2 Units.**
Addresses nuclear medicine procedures used to image, diagnose, and treat disease with radiopharmaceuticals. Identifies use of radionuclides to image the endocrine, cardiovascular, respiratory, and skeletal systems. Includes patient preparation for scans, routes of administration of radiopharmaceuticals, methods of localization for organ imaging, radiopharmacy, and quality control.

**RTNM 354L. Nuclear Medicine Procedures II Laboratory. 1 Unit.**
A laboratory course that emphasizes the material presented in RTNM 354.

**RTNM 355. PET/CT. 2 Units.**
Covers the radionuclides, radiopharmaceuticals, and contrast agents used for PET/CT imaging. Topics include: localization, indications, method of administration, standard dose range, quality control, contraindications, patient history, patient preparation, equipment, technical considerations.

**RTNM 356. Positron Emission Tomography. 2 Units.**
Student learns the fundamental physics, instrumentation, and radionuclide requirements of positron emission tomography (PET).

**RTNM 357. Instrumentation I. 4 Units.**
Covers the auger/gamma scintillation camera, collimators and crystals used in nuclear medicine. Topics include: photomultiplier tubes, pulse height analyzer, resolution, count rate, field uniformity, Geiger-Mueller counter, ionization chambers, sodium iodide well counter, dose calibrator, image acquisition, matrix size, and filters.

**RTNM 357L. Instrumentation I Laboratory. 1 Unit.**
A laboratory course that emphasizes material presented in RTNM 357. Gamma camera components, dose calibrator, ionization chambers, and sodium iodide well counter.

**RTNM 358. Instrumentation II. 4 Units.**
Covers quality control of gamma cameras and dose calibrators. Topics include: data acquisition of single-photon emission computed tomography, image filtering, field uniformity assessment and correlation, X and Y gain calibration, and positron emission tomography.

**RTNM 358L. Instrumentation II Laboratory. 1 Unit.**
A laboratory course that emphasizes material presented in RTNM 358. Gamma camera quality control protocols, SPECT and CT images, and data acquisition.

**RTNM 361. Radiopharmacy I. 3 Units.**
Covers nuclear stability and decay, radionuclide production, radioactive decay, radionuclide generator systems, radionuclides, quality control, and legal requirements.

**RTNM 362. Radiopharmacy II. 3 Units.**
Covers the standard dose ranges, radioactive isotopes, decay tables, distribution, preparing kits, adverse reactions, and new radiopharmaceuticals.

**RTNM 363. Nuclear Cardiology. 3 Units.**
Covers the principles and clinical application of cardiac imaging. Topics include: patient preparation, radiopharmaceutical, localization of radiopharmaceutical, standard dose range, pharmaceutical stress protocol, exercise stress protocol, clinical applications of myocardial perfusion imaging, and image interpretation.

**RTNM 364. Nuclear Medicine Statistics. 3 Units.**
Covers the percent error or percent difference, counting rate determination, effects of background on counts, counting rates, standard deviation, and propagation of error.

**RTNM 366. Medical Informatics. 1 Unit.**
Covers information technology systems used in the health care setting. Reviews the importance of accurate documentation. Discusses the relevance of checking patient history and laboratory results using electronic medical/health record systems.

**RTNM 421. Comprehensive Review of Nuclear Medicine I. 3 Units.**
Reviews physics, instrumentation, procedures, imaging, and radiopharmaceutical theories in preparation for national registries.

**RTNM 422. Comprehensive Review of Nuclear Medicine II. 3 Units.**
Surveys selected topics in nuclear medicine. Procedure summaries, projects, literature reviews.

**RTNM 430. Clinical Affiliation Introduction. 1 Unit.**
First in a series of seven consecutive courses completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist and the nuclear medicine procedures involved in patient care. Clinical assignments one day per week, eight hours per day.

**RTNM 431. Clinical Affiliation I. 2 Units.**
Second in a series of seven consecutive courses completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist and the nuclear medicine procedures involved in patient care. Clinical assignments two days per week, eight hours per day. Prerequisite: RTNM 430.

**RTNM 432. Clinical Affiliation II. 3 Units.**
Third in a series of seven consecutive courses completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist and the nuclear medicine procedures involved in patient care. Clinical assignments three days per week, eight hours per day. Prerequisite: RTNM 430, RTNM 431.

**RTNM 433. Clinical Affiliation III. 4 Units.**
Fourth in a series of seven consecutive courses completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist, as well as the nuclear medicine procedures involved in patient care. Clinical assignments four days per week, eight hours per day. Prerequisite: RTNM 430, RTNM 431, RTNM 432.

**RTNM 434. Clinical Affiliation IV. 4 Units.**
Fifth in a series of seven consecutive courses completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist, as well as the nuclear medicine procedures involved in patient care. Clinical assignments four days per week, eight hours per day. Prerequisite: RTNM 430, RTNM 431, RTNM 432, RTNM 433.

**RTNM 435. Clinical Affiliation V. 4 Units.**
Sixth of seven courses providing clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist and nuclear medicine procedures involved in patient care. Clinical assignments four days per week, eight hours per day. Prerequisite: RTNM 430, RTNM 431, RTNM 432, RTNM 433, RTNM 434.

**RTNM 436. Clinical Affiliation VI. 4 Units.**
Seventh of seven courses providing clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist, and nuclear medicine procedures involved in patient care. Clinical assignments four days per week, eight hours per day. Prerequisite: RTNM 430, RTNM 431, RTNM 432, RTNM 433, RTNM 434, RTNM 435.

# Radiation Technology/Radiation Sciences (RTRS)

## Courses

**RTRS 578. Health-Care Financial Management. 3 Units.**
Investigates methods of applying financial management strategies from a radiology perspective. Demonstrates the fundamentals of finance, generating revenue, controlling costs, planning for the future, and financial organizational issues.

**RTRS 584. Management of Imaging Informatics. 3 Units.**
Study of operational and managerial issues essential to radiology information, and picture archiving and communication systems as related to electronic health records. Includes basic architecture concepts, needs assessment and procurement strategies, vendor selection and contract negotiation, workflow assessment and design, implementation and education, and quality assurance strategies in a filmless environment.

**RTRS 589. Communication and Strategic Planning. 3 Units.**
Discusses how effective communication and strategic planning are central to leading people, organizations, and change. Emphasis on communication principles, strategic planning, and leadership.

**RTRS 621. Capstone Project I. 3 Units.**
The first of a two-course, online sequence. Students explore a relevant topic of interest, develop a literature review of publishable quality, and examine professional publication avenues.

**RTRS 622. Capstone Project II. 3 Units.**
The second course in a two-course, online sequence. Students explore aspects of professional presentation delivery and incorporate their Capstone I project to develop a presentation of professional quality.

# Radiation Technology/Radiation Therapy (RTTH)

## Courses

**RTTH 332. Radiation Biology. 2 Units.**
The effects of radiation on living systems.

**RTTH 342. Patient-Care Practices in Radiation Therapy. 2 Units.**
Aspects of radiation therapy patient care. Emphasizes equipment, treatment, and psychological support of the patient. Transmission and prevention of AIDS and other communicable diseases, with specific application to radiation therapy.

**RTTH 344. Radiation Therapy Procedures. 2 Units.**
Study and/or practical applications of patient support and immobilization devices. Principles of choosing patient-treatment modalities. Methods of tumor localization. Purposes and utilization of beam direction and modification equipment.

**RTTH 348. Radiation Therapy Review. 2 Units.**
Comprehensively reviews radiation physics, protection, and dosimetry. Applies radioactive materials. Radiobiology. Technical aspects of radiation oncology.

**RTTH 354. Quality Assurance in Radiation Therapy. 2 Units.**
Focuses on quality improvement in radiation oncology. Emphasizes development of a culture of safety through continuous quality improvement (CQI) for clinical and technical aspects of patient care, including treatment delivery and localization equipment, treatment planning equipment, and electronic medical records. Discusses the role of various radiation therapy team members in CQI, and legal and regulatory implications for provision of services.

**RTTH 355. Physical Principles of Radiation Therapy I. 3 Units.**
Nature and description of the structure of matter and energy. Radioactive decay schemes and interaction of photons and gamma radiation. Instrumentation involved in measurement of ionizing radiation, beam quality, and dose. Laboratory. Cross-listing: RTMD 355.

**RTTH 356. Physical Principles of Radiation Therapy II. 3 Units.**
Discusses the following areas: calibration techniques of photon, particulate, and electron beams; percentage depth dose, tissue-air ratios, treatment planning, scatter functions, field flatness, and symmetry; field shaping, arc therapy, and tissue inhomogeneities; and clinical dosimetric considerations. Includes laboratory. Prerequisite: RTTH 364, RTTH 365. Cross-listing: RTMD 356.

**RTTH 357. Applied Dosimetry. 2 Units.**
Brachytherapy sources, isotope calibration, protection, and implantation techniques. Teletherapy equipment and protection. Quality assurance for external and brachytherapy procedures. Laboratory.

**RTTH 364. Radiation Oncology I. 2 Units.**
A three-term course covering pathology, etiology, epidemiology, histopathology, metastasis, staging, and treatment of major types of malignant neoplasms. Includes technique/simulation laboratory.

**RTTH 365. Radiation Oncology II. 2 Units.**
A three-term course covering pathology, etiology, epidemiology, histopathology, metastasis staging, and treatment of major types of malignant neoplasms. Prerequisite: RTTH 364.

**RTTH 366. Radiation Oncology III. 2 Units.**
The third in a three-quarter course covering pathology, etiology, epidemiology, histopathology, metastasis, staging, and treatment of major types of malignant neoplasms.

**RTTH 371. Radiation Therapy Affiliation I. 2 Units.**
First of seven clinical affiliations.

**RTTH 372. Radiation Therapy Affiliation II. 3 Units.**
Continues RTTH 371.

**RTTH 373. Radiation Therapy Affiliation III. 3 Units.**
Continues RTTH 371, 372.

**RTTH 474. Radiation Therapy Affiliation IV. 5 Units.**
Continues RTTH 371-373.

**RTTH 475. Radiation Therapy Affiliation V. 5 Units.**
Continues RTTH 371-373, 474.

**RTTH 476. Radiation Therapy Affiliation VI. 4 Units.**
Continues RTTH 371-373, 474-475.

**RTTH 477. Radiation Therapy Affiliation VII. 4 Units.**
Continues RTTH 371-373, 474-476.

# Radiation Technology/Radiologist Assistant (RTRA)

## Courses

**RTRA 510. Cross-Sectional Anatomy I. 1 Unit.**
Identifies normal and abnormal anatomy in two-dimensional as well as three-dimensional planes. Relates cross-sectional view of anatomy and pathology to radiology procedures.

**RTRA 511. Cross-sectional Anatomy II. 1 Unit.**
Identifies normal and abnormal anatomy in two-dimensional as well as three-dimensional planes. Relates cross-sectional view of anatomy and pathology to radiology procedures.

**RTRA 518. Radiobiology and Health Physics. 2 Units.**
Reviews the effects of ionizing and nonionizing radiation and fundamental concepts of radiation protection. Promotes the conscientious operation of radiologic and fluoroscopic devices. Provides a complement to guided practice in operating the fluoroscopic device during clinical mentoring. Procedures and techniques to optimize image quality while reducing radiation exposure to patients, operator, and ancillary personnel.

**RTRA 519. Medical-Legal Issues in Radiology. 1 Unit.**
Introduction to the legal system as it pertains to radiation sciences. Concepts such as malpractice, litigation, informed consent, assault, and battery.

**RTRA 521. Radiology Procedures and Image Evaluation I. 3 Units.**
Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 522. Radiology Procedures and Image Evaluation II. 3 Units.**
Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 523. Radiology Procedures and Image Evaluation III. 3 Units.**
Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 524. Radiology Procedures and Image Evaluation IV. 3 Units.**
Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 525. Fluoroscopy and Radiation Protection. 1 Unit.**
Focuses on the quality assurance and management aspects of fluoroscopy. Includes the following topics: fluoroscopic radiation exposure and protection techniques, technical management, operation of fluoroscopic equipment, and quality control.

**RTRA 526. Radiology Reporting. 1 Unit.**
Student develops and organizes an imaging report for procedures performed under the supervision of a radiologist. Topics include learning to report, style guidelines, and the American College of Radiology guidelines for communication.

**RTRA 531. Pharmacology for RAs I. 2 Units.**
Surveys pharmacological agents currently used in medicine, including their kinetics, dynamics, and therapeutics. Places special emphasis on pharmaceuticals commonly used by and given to radiology patients, including contrast media, antineoplastic agents, and radioactive isotopes.

**RTRA 532. Pharmacology for RAs II. 2 Units.**
Surveys pharmacological agents currently used in medicine, including their kinetics, dynamics, and therapeutics. Places special emphasis on pharmaceuticals commonly used by and given to radiology patients, including contrast media, antineoplastic agents, and radioactive isotopes.

**RTRA 534. Pathophysiology. 2 Units.**
Covers the structures and function of human biology. Assists with developing skills of interpreting laboratory data and increasing understanding of the pathophysiology behind patient care.

**RTRA 541. Patient Assessment I. 2 Units.**
Assists with skills in interviewing, physical examination, and interpreting laboratory data. Increases understanding of the pathophysiology behind patient care. Emphasizes analysis and interpretation of physiological data to assist in patient assessment and management.

**RTRA 542. Patient Assessment II. 2 Units.**
Assists with developing skills in interviewing, physical examination, and interpreting laboratory data. Increases understanding of the pathophysiology behind patient care. Emphasizes analysis and interpretation of physiological data to assist in patient assessment and management.

**RTRA 543. Clinical Management and Education. 2 Units.**
Focuses on analyzing and interpreting physiological data to assist in patient assessment and management. Utilizes critical thinking, action plans, and protocols. Includes relationship-centered patient care, effective communication, and patient education. Introduces clinical pathways, multidisciplinary clinical practice, and a focus on quality and coordination of care.

**RTRA 546. Topics for the Radiologist Assistant. 2 Units.**
Surveys selected topics in the radiologist assistant scope of practice for credit toward the master's degree in radiologist assistant. Topics may include procedures, projects, or literature reviews.

**RTRA 588. Comprehensive Review I. 1 Unit.**
Review of the major content areas covered in the radiologist assistant program. Student evaluation and performance analysis.

**RTRA 589. Comprehensive Review II. 1 Unit.**
Reviews major content areas covered in the radiologist assistant program. Includes student evaluation and performance analysis.

**RTRA 614. Professional Portfolio. 1 Unit.**
Student develops a portfolio that demonstrates progression toward the student learning outcomes established by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**RTRA 771. Clinical Internship I. 2 Units.**
A twelve-week, one day/week rotation for a total of ninety-six hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 772. Clinical Internship II. 5 Units.**
An eleven-week, two-days/week rotation totaling 168 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 773. Clinical Internship III. 6 Units.**
An eleven-week, three days/week rotation totaling 248 hours. A mentored clinical experience during which students complete a wide variety of competencies that prepare them to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 774. Clinical Internship IV. 6 Units.**
An eleven-week, three days/week rotation totaling 248 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 775. Clinical Internship V. 6 Units.**
A twelve-week, three days/week rotation totaling 272 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 776. Clinical Internship VI. 6 Units.**
An eleven-week, three days/week rotation totaling 248 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 777. Clinical Internship VII. 6 Units.**
An eleven-week, three days/week rotation totaling 248 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

# Radiation Technology/Special Imaging (RTSI)

## Courses

**RTSI 307. Introduction to Computed Tomography. 2 Units.**
Provides an overview of patient care in CT imaging, general aspects of patient care, pharamacology and drug administration, and radiation safety as a final requirement of the CT certificate. Examines some areas of radiology management. Prepares students for the additional areas required in the National Registry for the specialty area of CT. Prerequisite: Completion of the LLU Medical Radiography Program. Prerequisite: RTMR 305, RTMR 306.

**RTSI 344. Interventional Pharmacology. 4 Units.**
Studies the various pharmacological agents currently used in diagnosis and treatment during interventional studies of the cardiovascular system. Emphasizes laboratory values relevant to interventional studies.

**RTSI 345. Cardiac/Interventional Procedures. 3 Units.**
Examines the principles of cardiac interventional imaging to students who wish to become registered CI technologists. Includes the concepts of cardiac interventional procedures and how to operate safely in an operating room environment.

**RTSI 351. Angio/Interventional Procedures I. 3 Units.**
Analyzes the principles of vascular radiology, including proper patient care, the fundamentals of properly setting up a sterile table, and evaluation of the equipment most commonly used in the interventional suite. Examines the functions of a pressure injector and explores the procedures performed in vascular intervention.

**RTSI 352. Angio/Interventional Procedures II. 3 Units.**
Continues RTSI 351. Focuses on the procedures performed in the interventional laboratory. Analyzes the different types of pathologies observed in patients in order to determine the appropriate diagnostic and interventional examinations to be performed.

**RTSI 356. Vascular Anatomy and Physiology. 3 Units.**
Explores normal and pathological vascular anatomy and physiology. Emphasizes intracranial, extracranial, spinal, aorta, pulmonary, abdominal, pelvic, and extremity vascular structures; as well as abnormalities of the vascular system.

**RTSI 359. Vascular Imaging Review. 1 Unit.**
A comprehensive review for the ARRT examination in vascular interventional radiography (VI). Prerequisite: RTSI 351, RTSI 356.

**RTSI 360. Cardiac Imaging Review. 1 Unit.**
A comprehensive review for the ARRT examination in cardiac interventional radiography (CI). Prerequisite: RTSI 345.

**RTSI 361. MRI Physics I. 2 Units.**
Two-part course dealing with basic principles, physics, imaging parameters, biological effects, management, and patient protocol of magnetic resonance imaging (MRI).

**RTSI 362. MRI Physics II. 2 Units.**
Basic principles, physics, imaging parameters, biological effects, management, and patient protocol of magnetic resonance imaging (MRI). Prerequisite: RTSI 361.

**RTSI 364. CT Patient Care and Procedures. 2 Units.**
Overview of patient care in CT imaging. General aspects of patient care, pharmacology and drug administration, radiation safety. Examines some areas of radiology management. Prepares students for the additional areas required in the national registry for the specialty areas of CT.

**RTSI 365. MRI Patient Care and Procedures. 2 Units.**
Includes patient care, safety, pharmacology, quality control, and procedures involved with magnetic resonance imaging (MRI) for MRI technologists.

**RTSI 367. Cross-sectional Radiographic Anatomy. 2 Units.**
Overview of gross anatomy. Identifies normal anatomy in two-dimensional as well as three-dimensional planes. Relation of the structural as well as the physiological functions of the different body systems.

**RTSI 369. CT Physics. 2 Units.**
Basic principles, physics, imaging parameters, radiological effects, management, and patient protocol of computed tomography (CT).

**RTSI 384. Topics in Special Imaging. 1-3 Units.**
Lecture and discussion of a current topic in special imaging bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter.

**RTSI 455. Directed Study in Special Imaging. 1 Unit.**
Each student will be assigned three specialized imaging topics for the quarter. Requires submission of an Independent Study Proposal (ISP) and weekly meeting with instructor to review progress toward meeting the commitments within the ISP.

**RTSI 970. Special Imaging (CT/MRI) Affiliation. 2,3 Units.**
A two- or four-days/week clinical rotation totaling 160-240 hours of clinical experience in CT (computerized tomography) and/or MRI (magnetic resonance imaging) covering a wide variety of technical procedures.

**RTSI 975. Cardiac/Interventional (CVI) Affiliation. 3 Units.**
Provides a four-day-per-week clinical rotation totaling 320 hours of clinical experience in cardiac and/or interventional radiology. Covers a wide variety of technical procedures.

# Radiology (RADS)

## Courses

**RADS 791. Integrated Clinical Radiology. 2 Units.**
Case-based, online, virtual-patient curriculum that is integrated with the required third-year clerkships. Introduces students to the American College of Radiology Appropriateness Criteria, as well as to the principles and applications of medical imaging.

**RADS 891. Radiology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of radiology, including but not limited to angio/interventional radiology, pediatric radiology, body CT, neuroradiology, and research.

# Rehabilitation Science (RESC)

## Courses

**RESC 517. Profession Advocacy in Allied Health Professions. 4 Units.**
Examines legislative and regulatory bodies that define and regulate health-care practice in California. Identifies techniques to advance the profession's advocacy. Field training experience includes district and state capitol meetings with legislators and policymakers.

**RESC 519. Rehabilitation Theories and Applications in Health Care. 3 Units.**
History of and current trends in health care theory and applications, emphasizing successful approaches to integration of the rehabilitation professions.

**RESC 697. Research. 1-12 Units.**
Must be repeated to complete the total required units.

# Religion/Ethical Studies (RELE)

## Courses

**RELE 155. Introduction to Christian Bioethics. 3 Units.**
Introduces students to ethical issues in health care from the perspective of Christian tradition.

**RELE 257. Health Care Ethics. 2 Units.**
Introduces practical ethics for health-care professionals. Draws on the Bible and other religious and philosophical writings.

**RELE 455. Christian Understanding of Sexuality. 2 Units.**
Interpretations of human sexuality in ancient, medieval, and modern Christian thought, with emphasis on contemporary issues such as marriage, divorce, homosexuality, and artificial human procreation.

**RELE 456. Personal and Professional Ethics. 3 Units.**
The foundations, norms, and patterns of personal integrity and professional responsibility.

**RELE 457. Christian Ethics and Health Care. 2 Units.**
Ethical issues in modern medicine and related fields from the perspective of Christian thought and practice.

**RELE 499. Directed Study. 1-3 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of thirty hours required for each unit of credit.

**RELE 500. Current Issues in Religion and Society. 3,4 Units.**
Lecture series addresses a particular topic in bioethics from a variety of theological and religious perspectives. Focuses on current controversial topics in society and health-care settings. May be repeated, depending on topic.

**RELE 505. Clinical Ethics. 3 Units.**
Case-based analysis of bioethics, with emphasis on clinical applications. Conceptual and historical readings in bioethics.

**RELE 515. Faith and Flourishing. 3 Units.**
Focuses on major Christian perspectives that have been offered and debated, ranging from models of cultural withdrawal to cultural engagement and transformation. Gives attention to contemporary articulations of various positions and their philosophical and theological assumptions, beginning with a critical examination of the typology made popular by H. Richard Niebuhr in his classic study, Christ and Culture. Cross-listing: RELT 515.

**RELE 522. Bioethical Issues in Social Work. 3 Units.**
Theoretical and practical dilemmas in bioethics. Contributions of social workers to these issues.

**RELE 524. Bioethics and Society. 3 Units.**
Explores—from Christian and philosophical perspectives—issues confronting both society and patients. Uses case studies to illustrate such themes as health disparities, AIDS policy, end-of-life care, and organ transplantation.

**RELE 525. Ethics for Scientists. 3 Units.**
Ethical aspects of scientific research, with emphasis on Christian contributions.

**RELE 534. Ethical Issues in Public Health. 3 Units.**
Explores the ethical issues relevant to the diverse professions involved in advancing the public's health. Topics of inquiry include: community-based research, professional practices and responsibilities, cultural and socioeconomic issues, distributive justice, vulnerable populations, local and international mission, development, and research projects.

**RELE 535. Ethical Issues in Health-Care Management. 3 Units.**
Considers business ethics within health-care institutions. Seeks to find ways that business professionals and health-care professionals can work well together for the benefit of the patients. Topics of inquiry include: corporate culture and self-interest, health-care culture and altruism, unique setting of American health care as industry, and how Christian virtues can encourage moral leadership.

**RELE 542. Bioethics Integration I. 1 Unit.**
Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates their integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 543. Bioethics Integration II. 1 Unit.**
Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates their integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 544. Bioethics Integration III. 1 Unit.**
Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 545. Bioethics Case Conference I. 1 Unit.**
Engages students in discussion of real-life cases in bioethics.

**RELE 546. Bioethics Case Conference II. 1 Unit.**
Engages students in discussion of real-life cases in bioethics.

**RELE 547. Bioethics Case Conference III. 1 Unit.**
Engages students in discussion of real-life cases in bioethics.

**RELE 548. Christian Social Ethics. 3 Units.**
Relationships between Christian beliefs and social theory and practice.

**RELE 554. Clinical Ethics Practicum I. 3 Units.**
First in a series of three graduate-level seminars in the master's degree program in bioethics..Theories and applications of ethics in the clinical setting. Introduces students to key concerns in clinical ethics. Provides for practical reasoning skills needed to solve the dilemmas and communication problems in and develop leadership skills in high-quality ethical health care. Prerequisite: Acceptance into the master's program in bioethics.

**RELE 555. Clinical Ethics Practicum II. 3 Units.**
The second in a series of three clinical ethics graduate-level seminars in the master's degree program in bioethics. Theories and applications of ethics in the clinical setting. Introduces students to key concerns in clinical ethics, and provides for practical reasoning skills needed to solve the dilemmas and communication problems in clinical settings and develop leadership skills in high-quality ethical health care. Prerequisite: RELE 554.

**RELE 556. Clinical Practicum III. 3 Units.**
The third in a series of three clinical ethics graduate-level seminars in the master's degree program in bioethics. Advanced theories and applications of ethics in the clinical setting. Introduces students to key concerns in clinical ethics, and provides practical reasoning skills needed to solve the dilemmas and communication problems in clinical settings and develop leadership skills in high-quality, ethical health care. Prerequisite: RELE 554.

**RELE 564. Ethics and Health Disparities. 3 Units.**
Focuses on causes of health disparities and responses to reduce these causes. Gives attention to key health disparities based on race, ethnicity, gender, sexual orientation, and disability. Provides a context for analyzing and understanding health disparities and for ethically evaluating inequalities in health status and responses to them.

**RELE 565. Aesthetics and Ethics. 3 Units.**
Explores health, illness, and the human body through the mediums of art, photography, personal drawings, sculpture, and visual medical tests such as X-rays, MRIs, and other scans. Uses visual representations of the body, exploring various views of health and illness as they relate to concepts of the good, the bad, and the ugly.

**RELE 566. History of Health-Care Ethics. 3 Units.**
Focuses on the lives of noteworthy figures in the health-care professions. Uses biographies, diaries, literature, and film to identify and analyze the moral virtues and vision of heroic physicians, nurses, and public health advocates from the ancient to the present.

**RELE 567. World Religions and Bioethics. 3 Units.**
Asks questions pertaining to the relationship between beliefs and ethical decisions, with the aim of clarifying ethical principles that guide decision making within the context of religious diversity. Explores ethical issues related to sickness, health, birth, and death among various religions of the world, such as Christianity, Judaism, Buddhism, Hinduism, Sikhism, Confucianism, and Islam.

**RELE 568. Bioethics and the Law. 3 Units.**
Introduces legal and regulatory issues relevant to the heavily regulated field of health care. Explores the relationship between health care and basic bioethical principles. Topics include negligence, malpractice, child/elder abuse, HIPAA, forced treatment, and professional license/discipline. Discusses classic cases and current biolaw events. Utilizes mock depositions, presentations by visiting lecturers, and visits to selected live hearings.

**RELE 577. Theological Ethics. 3 Units.**
Ethical implications of the primary theological legacies of Western culture.

**RELE 588. Philosophical Ethics. 3 Units.**
Critically assesses various theoretical approaches to ethics in Western culture. Applies theoretical constructs to cases illustrating poverty and health, health-care justice, and informed consent.

**RELE 589. Biblical Ethics. 3 Units.**
Explores ways—old and new—that the Bible and theology inform moral thought and action. Uses contemporary cases to illustrate the assigned reading and class discussion.

**RELE 598. Master's Seminar I. 3 Units.**
Integrates theological/philosophical presuppositions, ethical themes, and accepted ethical principles. Student demonstrates mastery of a comprehensive knowledge of the field through an examination to be assessed by ethics faculty. Restricted to bioethics graduate students who have completed 36 units of their program.

**RELE 599. Master's Seminar II. 2 Units.**
Requires refinement of a previously submitted class paper for submission to a peer-review journal. Student demonstrates the ability to identify an issue, analyze it, appropriately use literature, and creatively conceptualize or even advance the discussion. Involves effective oral presentation of research results. Restricted to bioethics graduate students who have completed 36 units of their program.

**RELE 624. Seminar in Christian Ethics. 3 Units.**
Advanced study of selected topics in Christian ethics.

**RELE 699. Directed Study. 1-6 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of forty hours required for each unit of credit.

**RELE 705. Ethics in Pharmacy Practice. 3 Units.**
Ethical issues and principles in the contemporary practice of pharmacy. Christian resources and professional expectations for the ethical decisions of pharmacists.

**RELE 706. Advanced Ethics in Pharmacy Practice. 2 Units.**
Creates an atmosphere of in-depth analysis and discussion of ethics in pharmacy practice. Students bring their own cases to discuss, in addition to course readings, guest lectures, and moral decision-making models.

**RELE 707. Ethics for Allied Health Professionals. 2 Units.**
Ethical issues, cases, and principles in the contemporary practice of allied health professionals. Christian and philosophical resources for ethical decision making.

**RELE 708. Medicine and Ethics. 1 Unit.**
Introduces the study of Christian medical ethics, emphasizing the personal integrity of the physician, the process of moral decision-making, and ethical problems facing contemporary medicine. Provides historical overview of developments in bioethics in the last century relating to topics such as abortion and euthanasia.

**RELE 714. Advanced Medical Ethics. 2 Units.**
Advanced study of issues and cases in contemporary medical ethics.

**RELE 734. Christian Ethics for Dentists. 2 Units.**
Ethical issues in contemporary dentistry. Christian resources for ethical decision making.

# Religion/General Studies (RELG)

## Courses

**RELG 504. Research Methods in Religious Studies. 4 Units.**
Studies presuppositions and procedures for scholarship in religion and ethics, with an introduction to research in the natural and behavioral sciences. Practical themes include writing, library and Internet resources, and forms of scholarly papers and articles.

**RELG 505. Qualitative Research in Religious Studies. 3 Units.**
Considers the various qualitative methods used in examining the relationships between religion and the health of individuals and populations. Provides an overview of methods while focusing primarily on grounded theory methods. Students required to conduct their own research and/or be involved in a research project as a component of this course.

**RELG 510. Christian Service. 1,2 Unit.**
Student participates in approved service learning, with written reflection on Christian reasons for service. Additional service project and reflection required for second unit.

**RELG 596. Dissertation Proposal. 1 Unit.**
Development of the dissertation proposal. Research advisor works with students in developing the proposal in accord with the School of Religion and Faculty of Graduate Studies guidelines. Students must successfully defend the proposal relating to religion and health.

**RELG 674. Reading Tutorial. 3,4 Units.**
Reading course for graduate students in religious studies. Topics vary depending on student and instructor interests.

**RELG 696. Project. 3,4 Units.**
Arranges for advanced students to complete individualized study under the guidance of a program faculty member. May include preparation of publishable papers or other special projects.

**RELG 697. Independent Research. 1-8 Units.**
Individual arrangements for students to do research under the guidance of faculty member(s). Written report required. Minimum of forty hours required for each unit of credit. Prerequisite: Consent of instructor and of student's advisor.

**RELG 698. Thesis. 1-4 Units.**
Student prepares report of individual guided research in religion-related topic under direct faculty supervision. Minimum of forty hours required for each unit of credit. Limited to graduate students whose thesis projects have been approved by their research committee.

**RELG 699. Dissertation Research. 1-6 Units.**
Independent research contributing to the field of religion and health. Repeat registrations as needed until unit requirement has been met and/or dissertation has been defended, whichever is later.

**RELG 795. Clinical Internship. 12 Units.**
Supervised clinical internship. Minimum of one hour of individual supervision per week, and a final evaluation from the supervisor at the completion of 400 hours of clinical internship.

**RELG 796. Religion and Health Practicum. 8 Units.**
Theories and applications of religion and health in the clinical and/or research setting.

# Religion/Relational Studies (RELR)

## Courses

**RELR 105. Introduction to Whole-Person Care. 1 Unit.**
Introduces the integration of psychosocial and spiritual care within the clinical setting.

**RELR 275. Whole Person Care. 2 Units.**
Integrates psychosocial and spiritual care in the clinical setting.

**RELR 404. Christian Service. 1,2 Unit.**
Student participates in approved service learning, with written reflection on the Christian reasons for service. Additional project required for second unit.

**RELR 408. Christian Perspectives on Marriage and the Family. 2 Units.**
From a Christian perspective, overviews the family life cycle.

**RELR 409. Christian Perspectives on Death and Dying. 3 Units.**
From a Christian perspective, considers the meaning of death—including the process of dying, cultural issues regarding death and dying, grief and mourning, suicide, and other related issues.

**RELR 410. Compassion. 3 Units.**
Practical study of the art and science of compassionate living for health-care professionals.

**RELR 427. Crisis Counseling. 2 Units.**
Crisis phenomena, current crisis theory, a Christian model of crisis care, and the dynamics and practices of crisis care.

**RELR 429. Cultural Issues in Religion. 2 Units.**
Studies similarities and differences between European-American culture and 'minority' cultures in America, and the differences pertaining to the way religion is perceived and practiced.

**RELR 445. Wholeness and Health. 3 Units.**
Aids in formulation of a portfolio that incorporates a variety of activities related to biblical concepts of wholeness. Addresses the integration of mind/body/spirit, strengthening relationships, environmental care, and national healing from personal and professional perspectives.

**RELR 447. Cross-cultural Ministry. 2 Units.**
Studies the challenges of serving in cross-cultural situations from a Christian mission perspective, using the insights of missiology and cultural anthropology as they relate to personal and professional growth, social change, and effective intercultural communication and service.

**RELR 447A. Service Learning Practicum—International Project. 1 Unit.**
Loma Linda University-sponsored international mission trip, facilitated by SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite: RELR 447.

**RELR 455. Body, Intimacy and Sexuality in Whole Person Care. 2 Units.**
Focuses primarily on whole person patient care in the context of dealing with changes to body image, intimate relationships, and sexuality in the face of illness and injury. Explores a variety of issues relating to body and body image, intimate relations, gender, and sexuality for relevant patient populations; and the role of the health-care professional in bringing wholeness and healing in the face of sensitive and personal issues.

**RELR 475. Whole Person Care. 2 Units.**
Integrates psychosocial and spiritual care in the clinical setting.

**RELR 499. Directed Study. 1-3 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of 30 hours required for each unit of credit.

**RELR 500. Religion and Global Health. 4 Units.**
Focuses on an international perspective of the interconnections between religion and health, with special attention to how faith (theological ideas) of a community play a role in how people seek treatment and relate to health and disease.

**RELR 508. Religion, Health-Care Policy, and Advocacy. 3,4 Units.**
Explores how Christian ethical visions shape definitions of health, concepts of just health-care policies, and faithful motivation for taking action to improve the health of communities. Encourages students to be participant-observers in programs of effective health-care advocacy. Students taking the course for 4 units will meet for an additional hour each week to learn more about theory and practice of advocacy for health policy change.

**RELR 520. Clinical Training in Spiritual Care I. 4 Units.**
Combines theoretical and clinical aspects of spiritual care in the exploration of a theological understanding of health and illness. Students examine cases and learn the theoretical foundations and practical skills needed to provide spiritual care. Designed for students pursuing a career in chaplaincy, mental health, and/or any discipline that benefits from clinical experience related to health care as understood through a theological lens.

**RELR 521. Clinical Training in Spiritual Care II. 4 Units.**
Combines theoretical and clinical aspects of spiritual care in the exploration of a theological understanding of health and illness. Students examine cases and learn the theoretical foundations and practical skills needed to provide spiritual care. Designed for students pursuing a career in chaplaincy, mental health, and/or any discipline that benefits from clinical experience related to health care as understood through a theological lens.

**RELR 525. Health Care and the Dynamics of Christian Leadership. 3 Units.**
Christian principles of leadership in the community and in the practice of health care.

**RELR 526. Pastoral and Professional Formation. 4 Units.**
Introduces students to the professional requirements of working as a chaplain in a health-care setting. Involves learning to function pastorally within boundaries of authority, integrate theology with the practice of spiritual care, and make appropriate ethical decisions as part of an interdisciplinary spiritual care team.

**RELR 527. Crisis Care and Counseling. 3 Units.**
Crisis phenomena, current crisis theory, a Christian model of crisis care, and the dynamics and practices of crisis care.

**RELR 530. Spirituality and Clinical Psychology. 3 Units.**
Examines the positive resources of both religion and spirituality in the lives of clients, as well as the ways in which they can become linked to psychopathology. Outlines the spiritual aspects of the therapeutic relationship, including the use of spiritual interventions as an aspect of psychotherapy. Cross-listing: RELT 530.

**RELR 535. Spirituality and Mental Health. 3 Units.**
Explores the interrelationship between spirituality and mental health. Seeks to enhance understanding of the term 'spirituality' in the context of religious traditions; considers the therapeutic effects both of spirituality and of religious traditions. Prerequisite: PSYC 721.

**RELR 536. Spirituality and Everyday Life. 3 Units.**
Explores the place of spirituality in everyday life through assimilation of information drawn from religious theorists, theology, spiritual and religious practices, and occupation.

**RELR 540. Wholeness and Health. 3 Units.**
Aids student in formulation of a portfolio that incorporates a variety of activities related to biblical concepts of wholeness. Addresses 1) the integration of mind/body/spirit, 2) strengthening relationships, 3) care of the environment, and 4) the healing of the nations from personal and professional perspectives.

**RELR 541. History of Seventh-day Adventist Chaplaincy and Healthcare Policy Making. 4 Units.**
Focuses on the history of chaplaincy, Adventist chaplaincy, and the Adventist approach to critical cases and positions in world church documents.

**RELR 564. Religion, Marriage, and the Family. 3 Units.**
The family in theological, historical, and ethical perspectives—with a Christian assessment of contemporary theories regarding the family.

**RELR 565. Practical Theology and Methodology. 3 Units.**
Informs and enriches the practice of pastoral professionals through the study of practical and pastoral theologies. Designed especially to serve as a foundations course in which fundamental questions about the relationship between religious tradition, theology, and contemporary practice are explored.

**RELR 567. Pastoral Counseling. 4 Units.**
Provides overview of theology, history, theory, and practice of pastoral counseling.

**RELR 568. Care of the Dying and Bereaved. 3 Units.**
Studies the biblical, theological, cultural, religious, relational, and psychological aspects of dying and death.

**RELR 574. Preaching. 3 Units.**
Examines the biblical and theological foundations for liturgy and preaching, with special attention given to the healing context. Considers liturgical ministry in diverse settings and with diverse faith perspectives. Focuses on the process of study, construction, and delivery of sermons.

**RELR 575. Whole Person Care. 3 Units.**
Integrates psychosocial and spiritual care in the clinical setting.

**RELR 584. Culture, Psychology, and Religion. 3 Units.**
Introduces the major contours of Western culture as they relate to various schools of psychological thought and the influence of religious beliefs.

**RELR 587. Religion and the Social Sciences. 3 Units.**
Introduces classic and contemporary dialogues between religion and the social sciences.

**RELR 588. Personal and Family Wholeness. 3 Units.**
Studies personal spiritual development as the center for individual and family life and professional practice, with special attention to balancing healthy family relationships and professional obligations.

**RELR 590. Quantitative Research in Religious Studies. 3 Units.**
Introduces students to quantitative methods and data used to study the topic of religion and health, and discusses how quantitative methods are used to answer research questions related to the discipline. Students discuss published quantitative studies and explore how to use software programs (Excel, SPSS) to analyze quantitative data. Students analyze quantitative data as a component of the course.

**RELR 591. Qualitative Research in Religious Studies. 3 Units.**
Provides an overview of a variety of qualitative methods that can be utilized to examine relationships between religion and the health of individuals and populations. Focuses primarily on grounded theory methods. Students required to conduct their own research and/or to be involved in a research project.

**RELR 592. Doctoral Portfolio in Religion and Health. 1 Unit.**
Lays the groundwork for the doctoral program by exploring the connections between faith and health and the genres specific to each. Acquaints students with the principal theoretical and practical skills necessary for discussing the two fields of religion and health. To be completed in the first quarter of doctoral work.

**RELR 595. Independent Study in Chaplaincy. 1 Unit.**
Students study the processes of various chaplaincy specializations, formulate a personal chaplaincy mission statement, and submit paperwork for endorsement and certification with the Adventist Chaplaincy Ministry of the General Conference of Seventh-day Adventists.

**RELR 692. Seminar in Religion and Health Care Leadership: Current Trends. 4 Units.**
Explores current trends in faith and health-care leadership, such as working with faith communities, developing a values-based health-care system, and understanding current research and hiring mission; as well as other topics. Course taught in seminar fashion, exposing students to various health-care leaders and allowing students to focus on their area(s) of interest.

**RELR 699. Directed Study. 1-6 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of forty hours required for each unit of credit.

**RELR 704. Orientation to Christian Physician Formation. 2 Units.**
Introduces the teaching and healing ministry of Jesus and its continuing relevance for medical professionals. Engages students through reflective reading, writing, and conversation with other classmates, guided by faculty and physician mentors.

**RELR 709. Christian Perspectives on Death and Dying. 2 Units.**
From a Christian perspective, considers the meaning of death, including: the process of dying, cultural issues regarding death and dying, grief and mourning, suicide, and other related issues.

**RELR 710. Compassion. 2 Units.**
Practical study of the art and science of compassion in practice for health-care professionals.

**RELR 715. Christian Dentist in Community. 2 Units.**
Studies Christian leadership in the local church, surrounding community, and the larger society—emphasizing the practical development of leadership skills.

**RELR 717. Diversity and the Christian Health Professional. 2 Units.**
Facilitates the development of personal and professional understanding and appreciation for the diversity in a multicultural society from a Judeo-Christian perspective.

**RELR 725. Wholeness for Physicians. 2 Units.**
Knowledge, values, attitudes, and skills contributing to the physician's goal of personal wholeness.

**RELR 749. Marriage and Family Wholeness. 2 Units.**
Studies personal spiritual development as the center for individual and family life and professional practice, with special attention to balancing healthy family relationships and professional obligations.

**RELR 774. Whole-Person Care for Physicians. 1 Unit.**
Integrates psychosocial and spiritual care in the clinical setting, focusing on the patient-physician relationship.

**RELR 775. Whole Person Care. 2 Units.**
Integrates psychosocial and spiritual care in the clinical setting.

**RELR 776. Spirituality and the Christian Health Professional. 2 Units.**
Explores the meaning of spirituality in the light of Scripture and Christian thought. Studies practices and disciplines that form and mature an individual's spiritual life.

# Religion/Theological Studies (RELT)

## Courses

**RELT 107. Introduction to World Religions. 1 Unit.**
Introduces the history, beliefs, and practices of some major world religions, with an eye toward skills that are relevant to the practice of culturally competent health care.

**RELT 108. Jesus, Health, and Wholeness. 1 Unit.**
Examines Jesus' teaching and healing ministry and how this has impacted the history and philosophy of Loma Linda University as a Seventh-day Adventist health sciences institution. Acquaints students with the concepts of wholeness and whole-person care.

**RELT 199. Topics in Theological Studies. 1-3 Units.**
Selected topics in theological studies. May be repeated for a maximum of 3 units when a different topic is offered.

**RELT 404. New Testament Writings. 2 Units.**
Interprets selected letters and passages of the New Testament, with a view to their theological and practical significance for today.

**RELT 406. Adventist Beliefs and Life. 3 Units.**
Fundamental tenets of Seventh-day Adventist faith and the lifestyle that such faith engenders.

**RELT 415. Christian Theology and Popular Culture. 2 Units.**
Examines concepts and practices in popular culture from a Christian perspective.

**RELT 416. God and Human Suffering. 2 Units.**
Suffering and evil in relation to the creative and redemptive purposes of God for this world.

**RELT 423. Loma Linda Perspectives. 2 Units.**
History and philosophy of Loma Linda University as a Christian health-sciences institution that fosters human wholeness.

**RELT 436. Adventist Heritage and Health. 2 Units.**
Origin and development of Seventh-day Adventist interest in health, from the background of nineteenth-century medicine and health reform to the present.

**RELT 437. Current Issues in Adventism. 2 Units.**
Selected theological, ethical, and organizational questions of current interest in Adventism, with the goal of preparation for active involvement in the life of the Seventh-day Adventist Church. Recommended for students with a Seventh-day Adventist background.

**RELT 440. World Religions. 2 Units.**
Surveys the origins, beliefs, and contemporary practices of the world's major religious systems. Gives attention to the interaction between specific religions and their cultures; and to similarities, differences, and potential for understanding among the religions.

**RELT 464. Paul's Message in Romans. 2 Units.**
Chapter-by-chapter interpretation of Paul's most influential letter, in which the good news of God's salvation is applied to the issues of Christian life and community.

**RELT 470. Visions of Healing in Biblical Prophecy. 2 Units.**
Exploration of the visionary accounts of biblical books such as Isaiah, Jeremiah, Daniel, and Revelation. Content may vary from quarter to quarter.

**RELT 477. Biblical Thought and Today's World. 2 Units.**
Integration of various aspects of biblical thought with the issues and world views faced by those in a health care environment. Content may vary from quarter to quarter. May be repeated for additional credit when content is different.

**RELT 499. Directed Study. 1-3 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of thirty hours required for each unit of credit.

**RELT 500. Biblical Hermeneutics. 3 Units.**
Explores the principles of interpreting the Bible in relationship to real-life situations.

**RELT 501. Religion and Society. 3 Units.**
The impact of religion on society. Definitions, theories, and typologies of "religion." The role of religion in biblical times. Christianity's relationship with other religions throughout the centuries. Controversial cases.

**RELT 502. Religion and Society. 3 Units.**
The impact of society on religion. Definitions, theories, and typologies of "society." Social constructions of meaning. The significance of societies in shaping Christianity. Premodern, modern, and postmodern worldviews. Globalization and religion.

**RELT 503. Religion and Society. 3 Units.**
The interactions of religion and society. Theories and typologies of the interactions of religion and society. Personal devotion and social change. Influential leaders and transforming movements. Controversial cases.

**RELT 504. Daniel and the Prophetic Tradition. 3 Units.**
Examines the message from the Book of Daniel and the Old Testament prophetic tradition of which Daniel is a part.

**RELT 505. Seventh-day Adventist History. 3 Units.**
Explores the values and practices that shape the Seventh-day Adventist community, with special attention to the life and ministry of Ellen G. White.

**RELT 506. Seventh-day Adventist Beliefs. 3 Units.**
Studies the fundamental tenets of Seventh-day Adventist faith and the lifestyle that such faith engenders.

**RELT 507. The Saga of Adventists and Healthcare: Cornflakes, Baby Fae, and the Healing of the Nations. 3 Units.**
Examines how a biblically based, apocalyptic-believing, countercultural religion changed America's breakfasts, established Protestantism's largest international network of hospitals, and challenged the grip of multinational tobacco companies.

**RELT 508. Contemporary Christian Theology. 3 Units.**
Presents principal issues, figures, and movements in Christian thought during the past century. Includes: relationships between history and biblical interpretation, theology and philosophy, and religion and science. Considers the growing prominence of Evangelical, Eastern orthodox, postmodern, and "contextual" theologies. Illuminates the characteristic ways in which the central elements of Christian faith provide lasting continuity and continually stimulate reflection.

**RELT 509. Biblical Perspectives in Religion and Health. 4 Units.**
Explores issues related to health, illness, and suffering from theological and biblical perspectives.

**RELT 510. Global Theology. 3 Units.**
Offers critical reflections of dominant Western theological discourse and explores other theological voices from African American, womanist, Asian, African, and South American perspectives.

**RELT 515. Faith and Flourishing. 3 Units.**
Focuses on major Christian perspectives that have been offered and debated, ranging from models of cultural withdrawal to cultural engagement and transformation. Gives attention to contemporary articulations of various positions and their philosophical and theological assumptions, beginning with a critical examination of the typology made popular by H. Richard Niebuhr in his classic study, Christ and Culture. Cross-listing: RELE 515.

**RELT 518. Adventist Heritage and Health. 1 Unit.**
Studies the fundamental beliefs and values that led Seventh-day Adventists to become involved in health care, with particular emphasis on the spiritual story and principles leading to the founding of Loma Linda University.

**RELT 520. Church History. 3 Units.**
Traces Christianity's inception with the birth, ministry, death, and resurrection of Jesus Christ; through the first critical 300 years of Christianity; evolving into the pre-Reformation and Reformation; and culminating in the Christian Church of the twenty-first century.

**RELT 524. Religion and Society. 3 Units.**
The impact of society on religion. Definitions, theories, and typologies of "society." Social constructions of meaning. The significance of societies in shaping Christianity. Premodern, modern, and postmodern worldviews. Globalization and religion. No required prerequisites.

**RELT 526. Creation and Cosmology. 3 Units.**
Explores the similarities and contrasts between biblical and scientific views of the world, with special attention to biblical Creation accounts in their historical context.

**RELT 527. The Bible and Ecology. 3 Units.**
Explores the ecology crisis, factory farming, and the extinction of countless species within the context of the Bible's message of promise and hope for nonhuman creation.

**RELT 530. Spirituality and Clinical Psychology. 3 Units.**
Examines the positive resources of both religion and spirituality in the lives of clients, as well as the ways in which they can become linked to psychopathology. Outlines the spiritual aspects of the therapeutic relationship, including the use of spiritual interventions as an aspect of psychotherapy. Cross-listing: RELR 530.

**RELT 534. Anthropology of Mission. 3 Units.**
Studies Christian mission, applying the findings of anthropology as they relate to cultural change. Processes of religious development, means of diffusion, factors affecting religious acculturation, and analysis of programs intended to effect changes in religion.

**RELT 534A. Service Learning Practicum—International Project. 1 Unit.**
Loma Linda University-sponsored international mission trip, facilitated by the SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite: RELT 534.

**RELT 534B. Service Learning Practicum—USA Project. 1 Unit.**
Loma Linda University-sponsored national mission trip, facilitated by SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite or concurrent: RELT 534.

**RELT 539. Christian Understanding of God and Humanity. 3 Units.**
Studies the nature and attributes of God, with special emphasis on God's relation to the world; and the essential dynamics of human existence in light of the central biblical motifs of creature, image of God, and sin.

**RELT 540. World Religions and Human Health. 3 Units.**
Studies the history, beliefs, and practices of major religions of the world, with an emphasis on theological and ethical issues in the practice of health care ministry.

**RELT 555. The Adventist Experience. 3 Units.**
Introduces the beliefs and values that shape the Seventh-day Adventist community.

**RELT 557. Theology of Human Suffering. 3 Units.**
Suffering and evil in relation to the creative and redemptive purposes of God for this world. Focus on formation of student's theology of human suffering.

**RELT 558. Old Testament Thought. 3 Units.**
Introduces the literature and key theological themes of the Old Testament. Content may vary from quarter to quarter.

**RELT 559. New Testament Thought. 3 Units.**
Introduces the literature and key theological themes of the New Testament. Content may vary from quarter to quarter.

**RELT 560. Jesus the Revealer: The Message of the Gospel of John. 3 Units.**
A study of Jesus as revealer and healer, the basis for the Loma Linda mission, 'To make man whole.'.

**RELT 563. Health Care, Humanity, and God. 3 Units.**
Focuses on the centrality of the health professions to the mission of the church, and the ways in which these professions manifest God's saving work and exemplify the ministry of Christ.

**RELT 564. Apostle of Hope: The Life, Letters, and Legacy of Paul. 3 Units.**
A study of the legacy of "the second most influential" person in human history.

**RELT 565. Vision of Healing: The Message of the Book of Revelation. 3 Units.**
A study of Revelation's description of the end of suffering and God's vision for healing a broken world.

**RELT 570. Philosophy of Mind: Bodies, Minds, Souls. 3 Units.**
Explores the following questions: What is a mind? How does the mind relate to the brain and to the world? Are minds free or casually determined? How do minds affect bodies? Could minds exist in different kinds of bodies? Do minds survive death? Discusses answers and arguments that have been offered by philosophers, theologians, and cognitive scientists; as well as the implications of these answers for ethics and theology.

**RELT 574. Love and Sex in the Bible. 3 Units.**
Studies Scripture on the reality, nature, and challenges of love—both divine and human; and key biblical passages on the goodness, meaning, and distortions of human sexuality.

**RELT 615. Seminar in Philosophy of Religion. 3 Units.**
Examines the concept of God, arguments for the existence of God, the relationship of faith and reason, and the nature of religious language.

**RELT 617. Seminar in Religion and the Sciences. 3 Units.**
Explores the interface between religion and the sciences—with attention to the religious origins of modern science, the similarities and contrasts between scientific and religious inquiry, and the particular challenges that the sciences pose for religious belief.

**RELT 699. Directed Study. 1-6 Units.**
Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of 40 hours required for each unit of credit.

**RELT 706. Adventist Beliefs and Life. 2 Units.**
Fundamental tenets of Seventh-day Adventist faith, and the lifestyle that such faith engenders.

**RELT 707. Medicine, Humanity, and God. 2 Units.**
Role of the practitioner of medicine as a co-worker with God in the healing of humankind.

**RELT 716. God and Human Suffering. 2 Units.**
Suffering and evil in relation to the creative and redemptive purposes of God for this world.

**RELT 717. Christian Beliefs and Life. 2 Units.**
Introduces basic Christian beliefs and life.

**RELT 718. Adventist Heritage and Health. 2 Units.**
Studies the fundamental beliefs and values that led Seventh-day Adventists to become involved in health care, with particular emphasis on the spiritual story and principles leading to the founding of Loma Linda University.

**RELT 726. Jesus. 2 Units.**
Studies Jesus as healer and teacher, prophet and reformer, Son of God and Savior.

**RELT 734. Foundations for International Health-Care Missions. 2 Units.**
Discusses approaches to meeting health-care needs of international community both short-term and in career medical ministry. Examines historical, biblical, theological, and practical foundations of mission service from school of religion and global-health physician faculty perspectives.

**RELT 740. World Religions and Human Health. 2,3 Units.**
Studies of the history, beliefs, and practices of eight major world religions, with an emphasis on theological and ethical issues that are relevant to the practice of culturally competent health care. Gives attention to the interaction between specific religions and their cultures and to similarities, differences, and potential for understanding among religions. Third unit covers two additional world religions.

**RELT 764. Paul's Message in Romans. 2 Units.**
Chapter-by-chapter interpretation of Paul's most influential letter, in which the good news of God's salvation is applied to the issues of Christian life and community.

**RELT 767. Apostle of Hope: The Life, Letters, and Legacy of Paul. 2 Units.**
A study of the legacy of "the second most influential" person in human history.

# Respiratory Therapy (RSTH)

## Courses

**RSTH 301. Advanced Respiratory Therapy Science I. 3 Units.**
Comprehensive review of patient-care techniques. Presents and discusses clinical application of respiratory therapy devices in-depth, and their influences on patient care. Reports and discussions of current and advanced developments. Integrates experience with current concepts and develops logical courses for proper equipment and technique application for specific patient care. (Not taught every year.).

**RSTH 304. Cardiopulmonary Anatomy and Physiology. 4 Units.**
Investigates anatomic and physiologic components of cardiovascular and respiratory systems. Emphasizes histology, embryology, diffusion, gases transported in the blood, acid-base balance, lung volumes and capacities, mechanics of ventilation, ventilation perfusion relationships, regulation of respiration, cardiac cell-membrane action potentials, and excitation-contraction coupling.

**RSTH 314. ECG Interpretation and Analysis. 2 Units.**
Develops basic ECG interpretation skills. Focuses on anatomy and physiology, underlying pathophysiology, and basic rhythm recognition. Overview of related treatments. Emphasizes skills needed by bedside practitioner to differentiate between benign and life-threatening dysrhythmias.

**RSTH 315. Pediatric Perinatal Respiratory Care. 2 Units.**
Pathophysiology of the newborn, prenatal risk factors, pediatric cardiopulmonary diseases, diagnostics, monitoring of clinical indices, and treatments used in perinatal/pediatric respiratory care. Advanced information on surfactant administration, high-frequency ventilation, and ECMO. May be used toward postprofessional B.S. degree in respiratory care in place of RSTH 422.

**RSTH 316. 12-Lead ECG Interpretation. 2 Units.**
Application and interpretation of the 12-lead system. Emphasizes recognition of the acute myocardial infarction. Includes identifying axis deviation, acute ischemic conditions, electrolyte imbalances, bundle-branch block, and infarct impostors. Attention to care of cardiac patients, emphasizing patient assessment, data collection, and use of the 12-lead to guide rapid intervention. Certificate issued upon successful course completion.

**RSTH 318. Cardiology. 3 Units.**
Development of assessment skills and medical management of patients with acute and chronic cardiovascular disorders. Focuses on anatomy and physiology, underlying pathophysiology, advanced history taking and physical assessment, cardiovascular pharmacology, electrical modalities, cardiac diagnostic testing, and current research. Emergency care of patients with myocardial infarction and cardiovascular trauma. Interaction with cardiac patients and clinical observation of diagnostic studies.

**RSTH 323. Pulmonary Function Methodology. 3 Units.**
Evaluates pulmonary function in health and disease through spirometry, plethysmography, helium dilution, nitrogen washout, single-breath nitrogen, volume of isoflow, and diffusing capacity studies—including blood-gas instrumentation, quality control, quality assurance, and current ATS standards. Lecture and laboratory.

**RSTH 331. Pharmacology I. 2 Units.**
Surveys pharamacologic agents currently used in medicine—including their kinetics, dynamics, and therapeutics. Emphasizes drugs and their effects on the respiratory, cardiovascular, and autonomic nervous systems. Topics include the bronchodilators, anti-inflammatory agents, mucokinetic agents, cardiovascular agents, diuretics, antimicrobials, neuromuscular agents, and agents used to treat nicotine dependence.

**RSTH 332. Pharmacology II. 2 Units.**
Surveys pharamacologic agents currently used in medicine—including their kinetics, dynamics, and therapeutics. Emphasizes drugs and their effects on the respiratory, cardiovascular, and autonomic nervous systems. Topics include the bronchodilators, anti-inflammatory agents, mucokinetic agents, cardiovascular agents, diuretics, antimicrobials, neuromuscular agents, and agents used to treat nicotine dependence.

**RSTH 334. Patient Assessment. 2 Units.**
General introduction to the clinical setting. Assesses and evaluates patients with respiratory disease. Develops clinical practice habits and patient-care techniques. Student must obtain current cardiopulmonary resuscitation (CPR) certification from the American Heart Association before the end of the term.

**RSTH 341. Respiratory Therapy Science I. 5 Units.**
Basic principles of respiratory therapy, as related to gas physics; medical-gas storage and therapy; and administration of humidity, aerosol and airway-pressure therapies, artificial airways, and resuscitation devices. Emphasizes methods of administration of the therapy, with special attention placed on the equipment used, as well as applies this information to the clinical setting.

**RSTH 342. Respiratory Therapy Science II. 5 Units.**
Lecture and laboratory presentation of the principles of respiratory therapy related to lung-inflation therapy; use of artificial airways, and their care and complications. Introduces mechanical ventilatory support, including beginning ventilators, support systems, comparison of methods, and respiratory monitoring. Emphasizes application of this information to the clinical setting. Prerequisite: RSTH 341.

**RSTH 343. Respiratory Therapy Science III. 4 Units.**
Lecture and laboratory presentation of the principles of respiratory therapy related to mechanical ventilatory support, including patient management and ventilatory support systems. Emphasizes methods of ventilatory support, with special attention to the mechanical ventilators commonly used in the students' clinical sites. Applies this information to the clinical setting. Prerequisite: RSTH 341, RSTH 342.

**RSTH 354. Case Studies in Adult Respiratory Care. 2 Units.**
Adult critical-care concepts presented through a case-study approach. Respiratory care plan used to present diseases, treatment, and procedures relevant to respiratory care. Patient rounds further develop critical-thinking skills in a patient-care setting. Prerequisite: RSTH 381.

**RSTH 366. Diagnostic Techniques. 3 Units.**
Continues the clinical use of diagnostic tests and procedures. Emphasizes evaluation of chest radiographs, electrocardiography, and monitoring hemodynamics. Lecture and laboratory. Prerequisite: RSTH 304, RSTH 331.

**RSTH 381. Cardiopulmonary Diseases I. 2 Units.**
Comprehensively studies cardiopulmonary diseases and their adverse effects. Course content includes disease etiology, pathology, pathophysiology, clinical features, prognosis, treatment, and prevention. Prerequisite: RSTH 304, RSTH 331, RSTH 341.

**RSTH 382. Cardiopulmonary Diseases II. 2 Units.**
Comprehensively studies cardiopulmonary diseases and their adverse effects. Course content includes disease etiology, pathology, pathophysiology, clinical features, prognosis, treatment, and prevention. Prerequisite or concurrent*: RSTH 304, RSTH 381*, RSTH 342.

**RSTH 391. Respiratory Care Practicum I. 2 Units.**
General introduction to the clinical setting; assessment of patients with respiratory disease. Develops work habits and patient-care techniques. Students must obtain current cardiopulmonary resuscitation (CPR) certification from the American Heart Association before the end of the quarter. Prerequisite: RSTH 341; AHA CPR certification.

**RSTH 392. Respiratory Care Practicum II. 2 Units.**
Applies specific therapeutic techniques, including oxygen and humidity therapy, aerosol therapy, airway management, lung-inflation techniques, and chest physiotherapy. Prerequisite: RSTH 342, RSTH 391; AHA CPR certification.

**RSTH 393. Respiratory Care Practicum III. 5 Units.**
Applies therapeutic techniques in continuous mechanical ventilation; special procedures, operation and postanesthesia room, and arterial blood-gas laboratory. Prerequisite: RSTH 343, RSTH 382, RSTH 392.

**RSTH 401. Cardiopulmonary Intensive Care. 2-4 Units.**
Management of the patient with cardiopulmonary failure. Theory and capabilities of various life support and monitoring systems. Prerequisite: Postprofessional student, senior standing; or consent of instructor.

**RSTH 404. Critical Care. 4 Units.**
Continues the theory, practice, and knowledge of mechanical ventilation–providing an integrated approach to respiratory care in the critical-care arena. A systems-based approach used to incorporate respiratory care concepts, such as planning and implementing of protocols, best-practice guidelines, etc. Presentations, projects, and critical evaluation used to increase critical-thinking skills and patient-care skills.

**RSTH 411. Advanced Cardiac Life Support. 2 Units.**
Principles and techniques of advanced emergency cardiac care. Includes basic CPR, endotracheal intubation, use of airway adjuncts, monitoring and dysrhythmia recognition, drugs for cardiac life support, intravenous techniques, circulatory adjuncts, and devices for elective cardioversion or defibrillation, stabilization, and transportation. Follows American Heart Association criteria for acid-base balance, drug therapy, and therapeutic interventions.

**RSTH 421. Perinatal and Pediatric Respiratory Care. 2 Units.**
Fetal development and circulation. Prenatal risk factors. Newborn resuscitation; newborn and pediatric assessment. Etiology, pathophysiology, course, treatment, and outcome of respiratory diseases as they relate to problems in pediatrics and neonatology. Discusses ECMO, high-frequency ventilation, and nitric oxide. Prerequisite: RSTH 304, RSTH 331.

**RSTH 422. Advanced Perinatal and Pediatric Respiratory Care. 2 Units.**
Pathophysiology of newborn and pediatric diseases likely to be encountered by the respiratory care practitioner. Perinatal risk factors, resuscitation, and research on the transition to extrauterine life. Diagnostics, monitoring of clinical indices, and treatments used in perinatal/pediatric respiratory care. Advanced information on surfactant, high-frequency ventilation, and ECMO. Prerequisite: RSTH 421; or consent of instructor. Does not apply to postprofessional respiratory care students.

**RSTH 424. Exercise Physiology and Pulmonary Rehabilitation. 3 Units.**
Metabolism of carbohydrates, lipids, and proteins in energy production, oxygen consumption, carbon dioxide production, and respiratory quotient applied to oxygen uptake, carbon dioxide output, and respiratory exchange ratio at rest and during exercise. Reviews metabolic, body-fat composition, and exercise studies; and, malnutrition in chronic obstructive pulmonary disease as foundations for evaluation and implementation of pulmonary rehabilitation programs.

**RSTH 431. Senior Project I. 2 Units.**
Introduces the process of proposal development for a respiratory care project. Weekly assignments apply the steps in developing the selected topic. Cardiopulmonary project development incorporates the concepts of evidence-based medicine.

**RSTH 432. Senior Project II. 2 Units.**
Introduces the process of proposal development for a respiratory care project. Weekly application of the steps in project development. Cardiopulmonary project incorporates project design concepts and needs assessment. Prerequisite: RSTH 431.

**RSTH 433. Senior Project III. 2 Units.**
The process of developing a proposal for a respiratory care project. Weekly application of the steps in topic development. Cardiopulmonary project design incorporates the concepts of design implementation and outcome assessment. Prerequisite: RSTH 431, RSTH 432.

**RSTH 434. Advanced Patient Assessment. 2 Units.**
Advanced skills in interviewing, physical examination, and interpretation of laboratory data. Lecture, reading material, and physical examination procedures. Provides insight for better interview and examination of patients with cardiopulmonary disease. Increases understanding of the pathophysiology behind the symptoms. Prerequisite: RSTH 334; Does not apply to postprofessional respiratory care students.

**RSTH 441. Respiratory Therapy Science IV. 3 Units.**
Presents and discusses the clinical application of respiratory therapy devices in-depth, and their influences on patient care. Reports and discussions of current and advanced developments. Emphasizes application of this information to the clinical setting. (Not taught every year.) Prerequisite: RSTH 341, RSTH 342, RSTH 343; or consent of instructor.

**RSTH 444. Case Studies in Neonatal/Pediatric Respiratory Care. 2 Units.**
Develops respiratory care-management skills in caring for the neonatal and pediatric patient through the presentation of student case studies. Clinical staff and faculty review current management of the newborn, infant, and child. Student presents patients and explains implications of care. Develops presentation skills. Prerequisite: RSTH 421; Does not apply to postprofessional respiratory care students.

**RSTH 451. Respiratory Care Affiliation I. 2 Units.**
General care, basic critical care, and advanced critical care in the adult, pediatric, and neonatal setting as practiced at LLUMC. Open to students who are now, or have been recently, employed by LLUMC. Prerequisite: CA RCP licensure.

**RSTH 452. Respiratory Care Affiliation II. 4 Units.**
Specialty clinical assignments selected from adult critical care, cardiopulmonary specialties, trauma, neurology, surgery, postsurgery, research laboratory. Prerequisite: AHCJ 461; RSTH 315, RSTH 422.

**RSTH 453. Respiratory Care Affiliation III. 4 Units.**
Specialty clinical assignments selected from the following areas: cardiopulmonary specialties, pediatrics and neonates, research, and special procedures. Prerequisite: RSTH 315, RSTH 452.

**RSTH 454. Respiratory Care Affiliation IV. 5 Units.**
Specialty elective clinical assignments selected from the following areas: adult critical care, cardiopulmonary specialties, pediatrics and neonates, polysomnography, rehabilitation and patient education, research, and special procedures. Prerequisite: AHCJ 461; RSTH 315, RSTH 452; CA RCP licensure.

**RSTH 462. Management Practicum II. 3 Units.**
Experience in the management of respiratory or emergency medical care management. Clinical application of the theoretical management skills developed during the didactic portions of the training.

**RSTH 463. Management Practicum III. 3 Units.**
Experience in the management of respiratory or emergency medical care management. Clinical application of the theoretical management skills developed during the didactic portions of the training. Includes assisting clinical managers in supervision and management of RCP staff and students.

**RSTH 464. Case Management in Respiratory Care. 2 Units.**
Utilizes a case management approach to patient care in the management and evaluation of treatment and disease. Special emphasis on case management of the respiratory care patient includes discharge planning, utilization review, patient assessment, cost containment, patient education, and integration issues. Prerequisite: RSTH 334, RSTH 424, RSTH 434; Does not apply to postprofessional respiratory care students .

**RSTH 466. Advanced Diagnostic Techniques. 2 Units.**
Advanced diagnostic theory and practice in the following areas: Holter monitoring, echocardiography, bronchoscopy, sleep studies, and other relevant respiratory care diagnostics. Prerequisite: RSTH 366; Does not apply to postprofessional respiratory care students.

**RSTH 471. Instructional Techniques I. 2 Units.**
Develops units of instruction, instructional objectives, and evaluation procedures. Students observe and participate in classroom management; and apply teaching principles through experience in various teaching activities, such as community preventive health care programs, in-service and continuing education, and college classroom and clinical teaching. Conferences and individual guidance.

**RSTH 474. Cardiopulmonary Health Promotion and Disease Prevention. 2 Units.**
Selected topics dealing with aspects of disease prevention. Includes the relevance of statistics, epidemiology, research designs, and clinical trials; as well as selected disease trends, lifestyle modification, the role of physical activity, nutrition and immunization, and public health approaches to communicable diseases. Prerequisite: RSTH 424.

**RSTH 480. Lung Ultrasound Assessment. 2 Units.**
Presents the technology and evidenced-based application of lung ultrasound in the assessment of the critically ill. Student learn to identify twelve signatures (images) of lung ultrasound with application of the BLUE-Protocol, FALLS-Protocol, and SESAME-Protocol. Includes online lectures, assignments, and interactive lung ultrasound case simulations. Prerequisite: RSTH 404 or licensed RCP.

**RSTH 485. Evidenced-Based Medicine in Respiratory Care I. 2 Units.**
Provides basic knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research.

**RSTH 486. Evidenced-Based Medicine in Respiratory Care II. 2 Units.**
Provides advanced knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research. Emphasizes the neonatal and pediatric areas of respiratory care.

**RSTH 487. Evidenced-Based Medicine in Respiratory Care III. 2 Units.**
Provides advanced knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research. Emphasizes the adult areas of respiratory care.

**RSTH 491. Education Practicum I. 3 Units.**
Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in the general and adult critical care areas. Prerequisite: CA RCP licensure.

**RSTH 492. Education Practicum II. 3 Units.**
Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in the neonatal and pediatric intensive care units. Prerequisite: CA RCP licensure.

**RSTH 493. Education Practicum III. 3 Units.**
Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in specialty procedures and rehabilitation. Prerequisite: CA RCP licensure.

**RSTH 494. Respiratory Care Practicum IV. 3 Units.**
Students develop professional competence and maturity in the clinical setting. Comprehensive training in all aspects of respiratory care, including the pulmonary function laboratory and home care. Prerequisite: RSTH 343, RSTH 382, RSTH 393, RSTH 404.

**RSTH 495. Respiratory Care Practicum V. 2 Units.**
Specialty training in respiratory care practice. Addresses neonatal/pediatric and adult critical care, cardiopulmonary diagnostics, hyperbaric medicine, sleep disorders, and cardiopulmonary rehabilitation in general, critical-care and extended care settings. Prerequisite: RSTH 494, RSTH 404.

**RSTH 496. Respiratory Care Practicum VI. 3 Units.**
Continues specialty training in respiratory care practice. Addresses neonatal/pediatric and adult critical care, cardiopulmonary diagnostics, hyperbaric medicine, sleep disorders, and cardiopulmonary rehabilitation in general, critical-care and extended care settings. Prerequisite: RSTH 495.

**RSTH 499. Respiratory Therapy Independent Study. 0.5-4 Units.**
Under the direction of the program director, student submits a project or paper on a topic of current interest in an area of respiratory care. Regular meetings provide student with guidance and evaluation in the development of the project or paper. Elected on the basis of need or interest.

**RSTH 501. Advanced Cardiopulmonary Anatomy and Physiology I. 3 Units.**
Clinical approach and application of cardiopulmonary anatomy and physiology to the respiratory care and medical patient. Includes study of respiratory physiology and cardiac and circulatory function, with relevant clinical application. Provides in-depth study of cardiac and pulmonary anatomy and physiology beyond undergraduate gross anatomy and physiology coursework, particularly at the molecular mechanistic level.

**RSTH 502. Advanced Cardiopulmonary Anatomy and Physiology II. 3 Units.**
Continues RSTH 501. Clinical approach and application of cardiopulmonary anatomy and physiology to the respiratory care and medical patient. Studies respiratory physiology, cardiac, and circulatory function—with relevant clinical application. Provides an in-depth study of cardiac and pulmonary anatomy and physiology beyond undergraduate gross anatomy and physiology coursework, particularly at the molecular mechanistic level. Prerequisite: RSTH 501.

**RSTH 510. Seminar in Translational Cardiopulmonary Science I. 1 Unit.**
First of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 511. Seminar in Translational Cardiopulmonary Science II. 1 Unit.**
Second of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 512. Seminar in Translational Cardiopulmonary Science III. 1 Unit.**
Third of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 513. Seminar in Translational Cardiopulmonary Science IV. 1 Unit.**
Fourth of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 541. Advanced Concepts in Critical Care I. 2 Units.**
Explores relevant studies impacting cardiopulmonary science. Discusses physical principles and molecular mechanisms associated with phenotypic changes in compliance and resistance upon implementation of positive pressure ventilation (PPV). Addresses benefits and limitations of techniques offered by advanced, novel ventilation modes in regard to reduced physiological insult upon PPV. Encourages research questions, data interpretation, and revision of current protocols and modalities.

**RSTH 542. Advanced Concepts Critical Care II. 2 Units.**
Continues RSTH 541. Includes the systemic effects of the critical care patient, their impact on the cardiopulmonary system, and the role of the cardiopulmonary system in maintaining homeostasis. Encourages research questions, data interpretation, and revision of current protocols and modalities. Prerequisite: RSTH 542.

**RSTH 550. Advanced Procedures in Cardiopulmonary Science. 2 Units.**
Study and practice of invasive and noninvasive procedures and associated equipment—such as the management of artificial airways, fiberoptic bronchoscopy, thoracentesis, chest tubes, hyperbaric therapy, arterial blood gas sampling, line placements, ACLS procedures, medications, IVs—related to the critical care patient. Emphasizes application to patient situations, assessment of care, and principles of equipment use above that of the entry-level respiratory care practitioner.

**RSTH 560. Advanced Cardiopulmonary Assessment, Diagnostics, and Monitoring. 2 Units.**
Applies integrated theory, management, practice, and application approaches to general medicine, cardiopulmonary assessment, diagnostics, and monitoring for the cardiopulmonary patient. Includes total system assessment, interpretation of diagnostics, and implementation of planning for improved intensive cardiopulmonary care. Encourages research questions, data interpretation, and revision of current protocols and modalities.

**RSTH 571. Advanced Pathophysiology of Cardiopulmonary Diseases I. 3 Units.**
A case study approach of the pathophysiology, clinical signs and symptoms, diagnosis, management, practice, and prognosis of acute and chronic pulmonary and cardiac diseases—with emphasis on respiratory care and comorbidities. Studies cardiopulmonary function as it relates to understanding of the pathophysiology of disease states.

**RSTH 572. Advanced Pathophysiology of Cardiopulmonary Diseases II. 3 Units.**
Continues RSTH 571. A case study approach to explore pathophysiology, clinical signs and symptoms, diagnosis, management, practice, and prognosis of acute and chronic cardiopulmonary diseases and comorbidities. Studies cardiopulmonary function as it relates to understanding the pathophysiology and molecular mechanisms of disease states. Encourages research questions/exploration and protocol/policy modification. Prerequisite: RSTH 571.

**RSTH 574. Nutrigenomics and Cardiopulmonary Health and Disease. 4 Units.**
Discusses nutrition and its effects on epigenetic regulation of genes that determine cardiopulmonary health and disease. Offers a brief overview of epigenetics, with a focus on food as source stimuli for altering the expression of pathway components known to both induce and minimize disease progression of the cardiovascular and pulmonary systems.

**RSTH 580. Research Concepts in Respiratory Care Sciences. 3 Units.**
Basic concepts of drafting literature review and respiratory care research. Presents concepts of evidence-based medicine. Applies research specific to respiratory care science through evaluation and comparison of literature relevant to clinical practice.

**RSTH 585. Current Issues in Respiratory and Health Care Policy. 3 Units.**
Addresses emerging issues in medicine, cardiopulmonary science, and health-care policy. Reviews relevant research and new trends in respiratory care management, as well as practice that impacts patient care. Includes inpatient, outpatient, rehabilitation, prevention, and related topics.

**RSTH 587. R Programming for Health Care and Translational Science II. 4 Units.**
Second course in a four-part series. Introduction to programming in R. Acquiring and cleaning internet data, subsetting and graphing data, using statistics in R for data analysis, and generating interpretable reports that can be presented to professional and lay audiences. Introduces tools necessary to analyze large datasets to answer epidemiological questions.

**RSTH 591. Capstone Project in Respiratory Care I. 2 Units.**
Students address and present a substantial issue related to their professional area of interest, then design and implement scholarly results and presentation. Emphasizes design, literature review, and needs assessment. A thesis option available for students who require a directed research study.

**RSTH 592. Capstone Project in Respiratory Care II. 2 Units.**
Students present the findings of their completed project--emphasizing data collection, implementation, and evaluation. A thesis option available for students who require a directed research study. Prerequisite: RSTH 591.

**RSTH 593. Capstone Project in Respiratory Care III. 2 Units.**
A continuation of RSTH 592. Graduate student presents findings of the total project, emphasizing data collection, implementation, and evaluation of the project. MSRC faculty and students discuss need for revision or further validation studies. Prerequisite: RSTH 591, RSTH 592.

**RSTH 596. Advanced Clinical Practice in Respiratory Care I. 2 Units.**
Clinical practicum in medicine, pulmonary, and critical care under the direct supervision of a practicing/supervising pulmonologist or other preapproved physician. Emphasizes both inpatient and outpatient assessment, management, practice, and procedures. Requires prior approval of the program director and an approved signed preceptor agreement on file.

**RSTH 597. Advanced Clinical Practice in Respiratory Care II. 2 Units.**
Continues RSTH 596. Clinical practicum in medicine, pulmonary, and critical care--under the direct supervision of a practicing-supervising pulmonologist, or other preapproved physician. Emphasizes inpatient and outpatient assessment, diagnosis, management, practice, and procedures. Requires prior approval of the program director, as well as an approved signed preceptor agreement on file.

**RSTH 684. Management and Leadership in Respiratory Care Project. 1-3 Units.**
Application of management in respiratory or emergency medical care from staffing, equipment, policies, billing, scheduling, and protocols, as well as clinical application of theoretical management and leadership skills in respiratory care.

**RSTH 685. Respiratory Care Education Project. 1-3 Units.**
Provides experience in respiratory care education, curriculum development, assessment, evaluation, and clinical scheduling, as well as an understanding of hospital affiliation agreement challenges and accreditation issues.

**RSTH 698. Capstone Project in Respiratory Care. 1,2 Unit.**
Development of capstone project in respiratory care including topic selection, literature review, data collection and analysis. Includes project implementation or publication readiness and presentation to faculty. Prerequisite: RSTH 580.

# Restorative Dentistry (RESD)

## Courses

**RESD 765. Removable Prosthodontics II. 1 Unit.**
Focuses on the fundamentals of designing a removable partial denture for patients. Assists student in understanding treatment of patients with removable prosthesis through individual projects, group exercises, oral and power point presentations, and writing assignments.

**RESD 765L. Removable Prosthodontics II Laboratory. 1 Unit.**
Student applies concepts and fundamentals from RESD 765 to complete various projects/laboratory exercises to treat patients with removable partial dentures.

**RESD 773. Fixed Prosthodontics II Lecture. 2 Units.**
Continues RESD 772.

**RESD 773L. Fixed Prosthodontics II Laboratory. 2 Units.**
Continued laboratory experience in fixed prosthodontics.

**RESD 801. Fixed Prosthodontics and Occlusion. 1 Unit.**
Introduces additional techniques for fixed prosthodontics, treatment planning, and repair techniques for prosthetic failures.

**RESD 811. Dental Materials II. 1 Unit.**
Selection and uses of current dental materials.

**RESD 822. Operative Dentistry II Lecture. 1 Unit.**
Indications, preparations, and placement of direct core build-up procedures (including endodontically treated teeth), atypical case gold, and complex amalgam restorations. Covers implant overdenture procedures. Provides expanded teaching and hands-on laboratory practice of CAD/CAM procedures.

**RESD 822L. Operative Dentistry II Laboratory. 1 Unit.**
Laboratory experiences introduce students to the MARC simulator, CAD/CAM experience in tooth preparation and image capture, post and core build-up, and implant overdenture procedures; as well as further complex tooth restoration procedures.

**RESD 823. Aesthetic Dentistry. 1 Unit.**
Principles of dental aesthetics, adhesion to tooth tissues, preparation and placement of tooth-colored restorations in anterior and posterior teeth. Resin, gold, ceramic, and CAD/CAM restorations. Emphasizes diagnosis and treatment planning for aesthetic procedures.

**RESD 823L. Aesthetic Dentistry Laboratory. 1 Unit.**
Laboratory experiences focusing on dental photography, diastema closures, bleaching trays, resin restorations, and preparation of teeth for veneer restorations and temporization.

**RESD 844. Restorative Study Club Seminar. 0.5 Units.**

**RESD 854. Implant Dentistry. 2 Units.**
Focuses on diagnostic and treatment-planning procedures associated with implant dentistry, the benefits of implant dentistry, the scientific and technical foundations for implant surgery and associated advanced procedures, the peri-implant tissues, postplacement care, and clinical complications associated with dental implants.

**RESD 854L. Implant Dentistry Laboratory. 1 Unit.**
Laboratory experience that applies knowledge of diagnosis and treatment planning to the fabrication of radiographic and surgical templates, and provides experience with the analysis of cone-beam radiographic scans and the use of dental implant-planning software. Laboratory additionally provides an implant-placement experience using a manikin—followed by impression making, the fabrication of a working cast, and the formation of a wax pattern for a definitive restoration.

**RESD 861. Senior Topics in Removable Prosthodontics. 2 Units.**
Treatment planning and problem solving in removable prosthodontics and combination cases to prepare fourth-year dental students for dental practice and National Dental Board Examination Part II.

**RESD 875B. Patient Care Clinic II. 12 Units.**
Clinical practice in the restoration of teeth and the replacement of missing teeth—including attendant diagnostic procedures, planning and sequencing of treatment, disease control procedures, and appropriate continuing-care procedures following treatment. Prerequisite: RESD 875A.

**RESD 875C. Patient Care Clinic III. 15 Units.**
Clinical practice in the restoration of teeth and the replacement of missing teeth,including attendant diagnostic procedures, planning and sequencing of treatment, disease control procedures, and appropriate post-treatment continuing-care procedures. Prerequisite: RESD 875B.

# School of Behavioral Health Global (SBHG)

## Courses

**SBHG 700. Global Behavioral Health Service Learning. 2 Units.**
Short-term elective experience (approximately ten days) in international behavioral health offered during the summer quarter. LLU associated sites coordinated and assigned by the dean's office. Examines ethical and practice issues associated with global humanitarian service versus traditional Western behavioral health interventions. Requires pre- and concurrent seminars. Specific host site requirements may apply.

**SBHG 705. Global Behavioral Health Elective Practicum. 4 Units.**
Emphasizes recovery, resiliency, and empowerment as foundations of global behavioral health interventions through an elective experience in international behavioral health. Prerequisite: Good academic and behavioral standing; approval from student's program director, department chair, and dean; valid passport.

# School of Dentistry—Clinical (SDCL)

## Courses

**SDCL 696. Directed Study. 1-4 Units.**
A directed study (DS) course that can be used in any graduate program either to further study of a particular subject or subjects, or to remediate academic deficiencies without having to repeat an entire course. Program director or their designee develops the specific course content and assignments.

**SDCL 744. Clinical Training in Advanced Restorative Dentistry. 8 Units.**
Provides mission support and training for Seventh-day Adventist international dentists and other foreign dentists residing outside the United States who will return to their dental clinics/countries after program completion. Includes six months of study. Allows qualified dentists from other countries to study and treat patients at Loma Linda University School of Dentistry. Course generates no academic credit and cannot apply toward any other program in the School of Dentistry.

**SDCL 808. Clinical Patient Care. 2 Units.**
Continues SDCL 805, 806, 807.

**SDCL 896. Clinical Directed Study. 1-4 Units.**
A directed study (DS) course that can be used in any graduate program either for advanced clinical activity in selected areas, or to remediate clinical deficiencies without having to repeat an entire course. Program director or their designee determines the nature and scope of the clinical activity.

**SDCL 899. Clinic—Continuing Registration for Extended Professional. 4-8 Units.**
Continues registration that allows an extended professional to satisfy clinic requirements for degree completion.

# School of Dentistry—Conjoint (SDCJ)

## Courses

**SDCJ 744. Clinical Training in Advanced Restorative Dentistry. 8 Units.**
A six-month, full-time certificate program that is predominately clinical in nature. Provides mission support among Seventh-day Adventist international dentists, and provides training for other foreign dentists who reside outside the United States and will return to their own dental clinics/countries after completion of the program. Allows qualified dentists from other countries to study and treat patients at Loma Linda University School of Dentistry. Program generates no academic credit and cannot apply toward any other program in the School of Dentistry.

**SDCJ 759A. Clinical Experience. 3 Units.**
Provides opportunities for direct patient care, and study in biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Includes one month of study. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 759B. Clinical Experience. 6 Units.**
Provides opportunities for direct patient care, and study in biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Includes two months of study. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 759C. Clinical Experience. 9 Units.**
Provides opportunities for direct patient care, and study in biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Includes three months of study. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 799. Directed Study. 4-12 Units.**

# Social Policy (SPOL)

## Courses

**SPOL 588. Special Topics in Social Policy and Social Research. 1-5 Units.**
Reviews current knowledge and/or research methodologies in specified areas of social policy and social research.

**SPOL 599. Independent Study. 1-8 Units.**
Limited to Ph.D. degree students who wish to pursue independent investigations in social policy and/or social research under the direction of a department faculty member.

**SPOL 600. Colloquium. 1 Unit.**
Provides students with an academic seminar to explore and discuss relevant topics in the field of social policy and social research. Prerequisite: Program prerequisite in interviewing and counseling.

**SPOL 601. Integrative Seminar: Pro-seminar. 1 Unit.**
Provides an overview to social work academe, research, policy and teaching. Focuses on LLU's program and creates an environment to nurture student's research interest. Prerequisite: Matriculated in PhD in Social Welfare and Social Research.

**SPOL 602. Integrative Seminar: Global Perspective. 2 Units.**
Focuses on research and practice using a global perspective that locates differences and similarities of behavioral and other health inequities locally and internationally. Prerequisite: SPOL 601.

**SPOL 603. Integrative Seminar: Implementation Science. 1 Unit.**
Focuses on promoting, adopting, and integrating evidenced-based research and practices by identifying barriers that prevent successful integration in practice, policies, and programming. Explores transdisciplinary research, transprofessional practice, and effective leadership and advocacy. Prerequisite: SPOL 601, SPOL 602.

**SPOL 604A. Integrative Seminar: Academic Practice. 1 Unit.**
The first of three seminars focusing on the art and science of social work education, developing a teaching philosophy, instructional teaching methodologies, grading, educational ethics, and student assessment. Cross-listing: SWCL 604A.

**SPOL 604B. Integrative Seminar: Academic Practice. 1 Unit.**
The second of three seminars on careers in social work education. Focuses on course subject and curriculum development and participating in social work accreditation. Cross-listing: SWCL 604B.

**SPOL 604C. Integrative Seminar: Academic Practice. 1 Unit.**
Third of three seminars on careers in social work education. Examines preparation for career opportunities in social work education, and role of faculty in institutional, school, and program engagement and governance. Discusses scholarship expectations, student advising, and mentoring. Guidance on applying and interviewing for positions. Cross-listing: SWCL 604C.

**SPOL 610. Diversity Theory and Global Perspectives. 3 Units.**
Critical examination of contemporary theories of diversity as seen through the lens of a global perspective, including intersectionality. Opportunity to apply these theories using a cultural humility framework for engaging diverse populations in policy practice and research.

**SPOL 613. Social Science Concepts I. 3 Units.**
First of two courses reviewing key theories, writers, conceptual frameworks, and seminal ideas from classical social science theory that have laid the foundation for contemporary social welfare theory and social research.

**SPOL 614. Social Science Concepts II. 3 Units.**
Second of two courses reviewing key theories, writers, conceptual frameworks, and seminal ideas from the Post Modern era that have laid the foundation for contemporary social welfare theory and social research. Prerequisite: SPOL 613.

**SPOL 615. Economic Theory and Social Policy. 4 Units.**
Presents the basic ideas and concepts of macroeconomic theory and applies them to understanding current and recent developments in social policy. Students learn to evaluate macroeconomic conditions—such as unemployment, inflation, growth wages, and income distribution—and gain understanding of how such conditions impact the provision of health and human services.

**SPOL 616. History and Philosophy of Social Welfare Policy. 3 Units.**
Explores the history of social welfare from a multicultural perspective and relates these principles to current and evolving social needs.

**SPOL 654. Research Methods I. 4 Units.**
Advanced quantitative research methods. Emphasizes experimental and quasi-experimental designs, and examines specific methodologies used in conducting research in the area of social policy and social research. Topics include measurement issues, research design, sampling, and statistical interpretation. Addresses survey research, time-series designs, and more advanced techniques.

**SPOL 655. Research Methods II. 4 Units.**
Advanced course in qualitative and mixed research methods. Emphasizes selected qualitative and mixed research methodologies specific to social policy and clinical and health services research. Topics covered include theoretical bases for conducting qualitative research; research design; data gathering, including interviewing, observation, archival and historical research, and data analysis and writing. Introduces various methods for integrating qualitative and quantitative methodologies.

**SPOL 656. Organizational Theory and Policy. 3 Units.**
Explores the complexities of large organizations; how organizations are born, evolve, and survive. Examines bureaucratic systems, formal and informal structures, communication patterns, and philosophical approaches that influence effectiveness and efficiency of services delivery. Implications of these on the development and implementation of social policies explored.

**SPOL 658. Advanced Policy Analysis and Research. 3 Units.**
Presents conceptual and analytical requirements of policy analysis and research. Examines integration of behavioral, political, economic, and sociometric frameworks for understanding human conditions that support the development of formal policy arguments and policy research for sustained change.

**SPOL 664. Applied Research for Social Policy. 2 Units.**
Provides students with a series of formal exercises simulating primary applied social research strategies used in the development of social policy. Explores the contributions of social research to social policy through studies of public records and data bases; clinical contexts; social experimentation; program planning, development, and evaluation; and action research.

**SPOL 665. Statistical Practicum Seminar. 2 Units.**
Students collectively conceptualize and analyze a research question from a data set. Requires a scholarly product outcome.

**SPOL 667. Research Methods Practicum Seminar. 2 Units.**
Development of methodology section and submission of draft dissertation proposal. Prerequisite: SPOL 665.

**SPOL 671. Applied/Structured Research I. 2-4 Units.**
Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objective(s).

**SPOL 672. Applied/Structured Research II. 2-4 Units.**
Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objectives.

**SPOL 673. Applied/Structured Research III. 2-4 Units.**
Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objectives.

**SPOL 681. Dissertation Proposal I. 3 Units.**
Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives.

**SPOL 682. Dissertation Proposal II. 3 Units.**
Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives. Prerequisite: SPOL 681.

**SPOL 683. Dissertation Proposal III. 3 Units.**
Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives. In addition, student must successfully defend a dissertation proposal according to program and Faculty of Graduate Studies guidelines. Prerequisite: SPOL 681, SPOL 682.

**SPOL 697. Research. 1-6 Units.**
Credit for dissertation research. Total of 18 units required. May be repeated for credit.

**SPOL 699. Dissertation. 4-12 Units.**
Should be taken during the last quarter of registration prior to completion and defense.

# Social Work (SOWK)

## Courses

**SOWK 510. Diversity Theory in Practice and Research. 3 Units.**
Examines and applies contemporary theories of diversity from a critical perspective. Includes intersectionality and use of a cultural humility framework for engaging diverse populations at all levels of practice.

**SOWK 513. Human Behavior in a Culturally Diverse Environment. 5 Units.**
Provides the basis for understanding human development and life transitions throughout the life span within an ecological perspective. Orients the student to the generalist social work approach to understanding human behavior in a cross-cultural context, with a focus on normal behavior from birth through senescence. Provides a theoretical foundation on which to build social work-practice skills.

**SOWK 514. Social Welfare History and Policy. 5 Units.**
Provides students with an understanding of the historical foundations of the social work profession, including its influence in the development of the U.S. system of social welfare. Examines the societal perspectives and contradictions that have affected the development and evolution of contemporary social policies and services in the U.S. Emphasizes understanding of the role of race, gender, and perception of human needs in shaping social policy.

**SOWK 517. Practice I: Individuals. 3,4 Units.**
Requires conducting a biopsychosocial-spiritual assessment and developing a full range of beginning intervention strategies for working with individuals. Emphasizes special problems experienced in micro-systems and at-risk populations, such as women and minorities. Focuses on goal-setting, assessment, and successful interventions with attention to cultural values that influence development and resolution of psychosocial problems. Four units required beginning with 2021-2022 catalog. Prerequisite or concurrent: Social work practicum.

**SOWK 518. Practice II: Groups. 3 Units.**
Provides students with an understanding of generalist social work practice with groups. Includes a survey of small-group constructs, research, and principles of ethical application. Emphasizes differentiation among the types of individuals, situations, and presenting problems best served through group processes and intervention methods.

**SOWK 519. Practice III: Organizations and Communities. 3 Units.**
Utilizes an ecological systems framework and an empowerment practice model within the macro context. Includes: population outcomes, community organization, interagency relationships, leadership skills, and cultural sensitivity.

**SOWK 520. Practice IV: Families. 3 Units.**
Introduces family interventions. Examines views and issues regarding contemporary family structure and function, and focuses on concepts and techniques used to promote change in family functioning. Course meets state requirement for content in family violence.

**SOWK 548. Research Methods. 5 Units.**
Reviews quantitative and qualitative research methodologies in order to provide students with an understanding of the scientific and ethical approaches to building knowledge. Emphasis on critically evaluating research to facilitate use of evidence-based practices. Experiential learning supports development of knowledge and skills in computer assisted data analysis to conduct and interpret t-tests, ANOVAs, and regressions.

**SOWK 550. Clinical Interventions with Service Members, Veterans, and Families. 2 Units.**
Provides multi-disciplinary understanding of military culture and skills and application of evidence-based clinical treatments that foster resilience and provide relief to service members, veterans and their families. Attention to issues of diversity, ethics, and use of self are included throughout clinical case discussion. Clinical issues specific to this population are discussed along with individual, family, and community interventions. Prerequisite: PSYC 721 or SOWK 757C. Cross-listing: COUN 550, PSYC 550.

**SOWK 574. Practice V: Social Work Administration. 3 Units.**
Provides macropractice knowledge, skills, and perspectives of administrative practices needed to develop, support, and maintain effective service delivery. Topics include role identification and development, professional and organizational ethics, situational leadership, strategic planning, levels and types of decision making, management of organizational behavior, use of information systems, budgeting, documentation and reporting, resource development and utilization, and community networking.

**SOWK 578. Field Orientation. 0 Units.**
Provides students with the policies and procedures for completing the program's practicum requirements. Begins the process of examining social work values and ethics as students are introduced to the NASW code of ethics and fundamental principles of professional behavior prior to beginning their field practicum.

**SOWK 584. Special Topics in Social Work. 1-4 Units.**
Lecture and discussion, under the direction of a faculty member, on a current topic in social work. May be repeated for a maximum of 4 units applicable to degree program.

**SOWK 585. Legal and Ethical Aspects in Health and Behavioral Health Services. 3 Units.**
Focuses on legal mandates or concerns that interact with and affect the practice of social work. Includes: sources of legal authority, the judicial system, and legal standards applicable to particular proceedings; legal implications of the social worker/client relationship; consent to treatment; and, confidentiality.

**SOWK 595. Professional Development. 2 Units.**
Tutorial coursework aimed at ameliorating difficulties associated with meeting the professional performance competencies of the M.S.W. degree program (see M.S.W. Student Handbook). Students enrolled in the course as a result of a corrective action plan developed with the Department of Social Work's Academic Standards Committee.

**SOWK 599. Directed Study. 1-4 Units.**
Limited to matriculating master's degree students in social work who wish to pursue independent investigations in social work practice or policy under the direction of a department faculty member.

**SOWK 613. DSM: Diagnosis Within the Context of Diversity and Difference. 4 Units.**
Provides hands-on experience using the DSM-5 and Mental Status Examination (MSE) from a person-in-the-environment perspective. Integrates recovery and a review of psychopharmacology into diagnostic process while enhancing awareness of sociocultural needs and at-risk population issues. Prerequisite: SOWK 757C.

**SOWK 617. Global Practice. 3 Units.**
Deepens students' appreciation and understanding of professional social work in a global context. Emphasizes analysis and application of social work strategies and practice methods to address catastrophic events (natural or man made), as well as the related social, economic, environmental, and human rights injustices that compromise the ecological well-being of individuals, families, groups, organizations, and communities. Prerequisite: SOWK 757A, SOWK 757B, SOWK 757C.

**SOWK 647. Integrated Behavioral Health. 2 Units.**
Focuses on the wholistic (bio-psychosocial-spiritual) approach to integrating behavioral health within primary care settings. Emphasizes the fundamental interrelationship between health and behavioral health, including the physical and emotional impact of discrimination, economic and social oppression, and trauma and violence on health and disease across the life span.

**SOWK 648. Co-occurring Processes and Interventions. 3 Units.**
Addresses assessment, diagnosis, and treatment of individuals experiencing mental, emotional, and behavioral disturbances with co-occurring chemical dependency. Presents behavioral health treatment strategies and substance abuse counseling techniques from within a biopsychosocial-spiritual paradigm. Prerequisite: SOWK 757A, SOWK 757B, SOWK 757C.

**SOWK 651. Medical Social Work. 2 Units.**
Orients students to medical social work in hospitals and other health care environments. Gives attention to the ecological practice perspective, biopsychosocial-spiritual assessment, brief interventions, and the roles and responsibilities of membership in an interdisciplinary health-care team, including the requirements of follow-up care and engagement in the development of community health-care systems as an aspect of accountable health-care environments.

**SOWK 653. Child Welfare Practice. 2 Units.**
Connects children and families in relationship to environmental stability. Focuses on associations among the physical and mental health of children, families, and environmental permanency. Emphasizes development of parental and social support capacities, and requisite knowledge and skills to help children deal with identity issues and concerns of joining a new family. Addresses impacts of race, ethnicity, gender, economic deprivation, physical illness, and disability.

**SOWK 658. Children's Psychotherapy. 2 Units.**
Considers treatment techniques appropriate for young children with a wide range of diagnoses and behavior problems. Emphasizes the integration of theory and practice of psychotherapy with the ecological perspective of social work practice. Discusses diagnosis, phases of treatment, and special communication issues. Research, ethical, and value issues addressed.

**SOWK 659. Recovery in Behavioral Health. 2 Units.**
Provides students with an understanding of philosophies, theories, models, and techniques used in psychosocial rehabilitation for individuals with severe mental illness. Emphasizes understanding the recovery paradigm and the process of reclaiming the individual's social interactions and life. Focuses on concepts/techniques for establishing and maintaining therapeutic alliances with the family and strengthening family's coping and participation in treatment.

**SOWK 661. Psychodynamic Therapies. 4 Units.**
Basis for understanding theoretical aspects of psychodynamic therapy, concepts and techniques of various types of psychodynamic interventions (e.g. interpersonal therapy and short-term dynamic therapy), and empirical data regarding efficacy of treatment orientation. Engagement in practice simulations, observing, and/or demonstration of psychodynamic therapy techniques required. Prerequisite: SOWK 757C.

**SOWK 662. Behavioral and Cognitive Therapies. 4,5 Units.**
Provides understanding and practice of cognitive-behavioral therapies (CBT). Reviews CBT theories and interventions, including a range of cognitive-behavioral strategies such as systematic desensitization, cognitive restructuring, and contingency management. Emphasizes progressive models, including ACT and DBT. Requires engagement in practice simulations, observation, and/or demonstration of CBT techniques. Five units required for students enrolled prior to 2021-2022 catalog. Prerequisite: SOWK 757C.

**SOWK 663. Crisis and Trauma Interventions. 3 Units.**
Examines the nature, characteristics, and neurobiology of crisis and trauma in addition to long-term effects on psychosocial functioning. Presents crisis theories and interventions for children and adults exposed to trauma with emphasis on suicidology, school violence, domestic violence, and child, dependent adult, and elder abuse. Includes ethical, legal, and cultural factors of crisis intervention along with strategies for responding to individuals, families, and communities. Prerequisite: SOWK 757B.

**SOWK 673. Program Planning and Implementation. 5 Units.**
Orients students to the range of issues, knowledge, and skills required in designing, planning, implementing, monitoring, and evaluating programs. Students build on knowledge obtained in other concentration courses. Integrates the course focus through the development of a comprehensive program proposal for the students' practicum agency or other identified community group. Prerequisite: Qualifying Review or permission of the Academic Standards Committee.

**SOWK 675. Supervision. 3 Units.**
Examines administrative, educational (clinical), and supportive supervisory functions combined with an ethical decision-making model. Emphasizes supervisory skills necessary for the development of staff capable of functioning creatively and independently. Discusses principles and techniques of staff development and explores and a variety of approaches. Prerequisite: SOWK 757A, SOWK 757B, SOWK 757C.

**SOWK 678. Integrative Generalist Practice and Seminar. 3 Units.**
Provides a bridge quarter to integrate the B.S.W. degree experience with the second year of the M.S.W. degree program. Reviews generalist social work practice and defines additional competencies required for advanced practice. Addresses individualized needs for further development, including application of professional ethics and judgment, use of self as a therapeutic tool, and self-awareness. Prerequisite or concurrent: SOWK 578.

**SOWK 679. Advanced Professional Projects. 2 Units.**
Preparation for lifelong learning through continuing professional development and targeted collegial networking as essential aspects of transitioning into roles as professional social workers. Includes planning and commitment to recognizing, assessing, and formulating intentional plans for continuing professional knowledge and skill development, professional networking and mentoring, and licensure and certifications.

**SOWK 680. Children and Families Policies and Services. 2 Units.**
Provides students with an understanding of the major social-policy issues affecting the current organization and delivery of human services for children and families. Analyzes current debates about the tensions between social policy and the doctrine of family privacy, with attention to the legal basis of state interventions and judicial decisions affecting family relationships, including parent to parent and child to parent.

**SOWK 681. Behavioral Health Policies and Systems. 2 Units.**
Addresses federal, state, and county policies and systems that affect the delivery of public and contracted behavioral health services. Addresses how differences between political perspectives, treatment philosophies, and consumer preferences can result in conflicting views that influence service options and choices. Promotes the clinical benefits of advocating for, developing, and delivering culturally relevant, recovery-oriented therapeutic partnerships. Prerequisite: SOWK 757A, SOWK 757B, SOWK 757C.

**SOWK 684. Advanced Policy Projects. 2 Units.**
Enhances understanding of the interconnections between politics, policy making, and policy analysis through first-hand participation in a political action campaign. Choices for projects may focus on local initiatives or those coordinated annually through the California chapter of NASW.

**SOWK 695. Advanced Research. 6 Units.**
Supports students in advancing their research knowledge through examination and application of a broad spectrum of quantitative and qualitative research methods—including rapid assessment, single-subject design, quality assurance, and program evaluation. Didactic and laboratory experiences draw on students' advanced practice and develops their capacity to differentiate and apply the most appropriate and widely used research designs and methods used in practice settings.

**SOWK 695A. Advanced Research Methods. 2 Units.**
First in a three-course sequence addressing quantitative and qualitative research methods used in professional practice settings. Addresses research designs and methods of practice evaluation and renewal with attention to federal and state requirements for assessing intervention effectiveness. Emphasizes self-evaluation and evaluation of practice effectiveness with individuals and families.

**SOWK 695B. Advanced Research Methods. 2 Units.**
Second in a three-course sequence addressing quantitative and qualitative research methods used in professional practice settings. Addresses research designs and methods of practice evaluation and renewal with attention to federal and state requirements for assessing intervention effectiveness. Emphasizes practice evaluation groups as well as design and implementation of quality assurance studies for monitoring work with specific populations.

**SOWK 695C. Advanced Research Methods. 2 Units.**
Third in a three-course sequence addressing quantitative and qualitative research methods used in professional practice settings. Addresses research designs and methods of practice evaluation and renewal with attention to federal and state requirements for assessing intervention effectiveness. Emphasizes evaluation at program, organizational, and community levels.

**SOWK 697. Applied Research. 2 Units.**
Supports students choosing to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units. Prerequisite: SOWK 548.

**SOWK 698. Thesis. 2 Units.**
The culminating work of the student's independent research, under the direction of the research advisor. Registration during the quarter in which student defends research and submits the final document to the department and School of Behavioral Health.

**SOWK 704. Older Adult Interventions and Services. 1 Unit.**
Provides subject content in the laws related to older adult interventions and services, as required by the state of California for licensure as a licensed clinical social worker (LCSW). Does not count toward the M.S.W. degree or the Case Management Program certificate.

**SOWK 757A. Generalist Practicum and Seminar. 3 Units.**
Provides student with experiential learning opportunities in generalist social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option is available to qualified students. Prerequisite or concurrent: SOWK 578.

**SOWK 757B. Generalist Practicum and Seminar. 3 Units.**
Provides student with experiential learning opportunities in generalist social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option available to qualified students. Prerequisite: SOWK 578.

**SOWK 757C. Generalist Practicum and Seminar. 3 Units.**
Provides student with experiential learning opportunities in generalist social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option available to qualified students. Prerequisite: SOWK 578.

**SOWK 787A. Advanced Clinical Case Consultation. 4 Units.**
Provides student with experiential learning opportunities in clinical social work practice through practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite or concurrent: SOWK 678 or SOWK 757C.

**SOWK 787B. Advanced Clinical Case Consultation. 4 Units.**
Provides student with experiential learning opportunities in clinical social work practice through practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite: SOWK 678 or SOWK 757C.

**SOWK 787C. Advanced Clinical Case Consultation. 4 Units.**
Provides student with experiential learning opportunities in clinical social work practice through practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite: SOWK 678 or SOWK 757C.

# Social Work Clinical Leadership (SWCL)

## Courses

**SWCL 604A. Integrative Seminar: Academic Practice. 1 Unit.**
The first of three seminars focusing on the art and science of social work education, developing a teaching philosophy, instructional teaching methodologies, grading, educational ethics, and student assessment. Cross-listing: SPOL 604A.

**SWCL 604B. Integrative Seminar: Academic Practice. 1 Unit.**
The second of three seminars on careers in social work education. Focuses on course subject and curriculum development and participating in social work accreditation. Cross-listing: SPOL 604B.

**SWCL 604C. Integrative Seminar: Academic Practice. 1 Unit.**
Third of three seminars on careers in social work education. Examines preparation for career opportunities in social work education, and role of faculty in institutional, school, and program engagement and governance. Discusses scholarship expectations, student advising, and mentoring. Guidance on applying and interviewing for positions. Cross-listing: SPOL 604C.

**SWCL 605. Digital Design: Curriculum and Course Development. 2 Units.**
Digital education pedagogy and assessment for designing and implementing effective clinical social work curriculum and courses. Techniques for leading discussions, constructing successful group assignments, and dealing with difficult subjects addressed.

**SWCL 615. Comparative Social Work Practice, Evidence-based Practice and Social Justice. 3 Units.**
Comparative approach to examining philosophical and historical practice perspectives to address social justice and ecological well-being. Examination of evidence-based, research-informed and promising practices.

**SWCL 620. Clinical Interventions I: Advanced Theories and Cognitive Behavioral Therapy Interventions. 3 Units.**
Examine advanced clinical theories that guide predominate interventions used in behavioral health. Emphasis on understanding foundational underpinnings of cognitive behavioral therapy as basis for interventions related to specific diagnosis and conditions.

**SWCL 630. Clinical Interventions II: Emergent Methods for Complex Conditions. 3 Units.**
A review and exploration of emergent and cutting-edge clinical intervention methods that address the needs of persons with complex diagnoses, including comorbidity of addictions and/or life-threatening acute and chronic diseases.

**SWCL 640. Clinical Interventions III: Trans-modular Methods for Complex Systems. 3 Units.**
Innovative trans-modal evidence-based practice applications supporting services for populations with compound needs in hard to service communities and systems. Impact on consumer outcomes and health disparities addressed.

**SWCL 650. Neuroscience, Resiliency and Trauma-Focused Global Practice. 3 Units.**
Examines neuroscience framework and bio-ecological research that underpin resiliency and trauma-informed methods. Emphasis on identifying intervention models that are ethno-racial adaptive and provide evidence of transformative sustainable results.

**SWCL 660. Translational Research, Design and Testing. 2 Units.**
Introduces methods used in designing, testing and implementing practice innovation in complex and fast-moving interdisciplinary clinical settings. Emphasizes identifying interdisciplinary champions and sustaining clinical, administrative and research team engagement. Prerequisite or concurrent*: SPOL 654, SPOL 655; MFTH 601; MFTH 602*.

**SWCL 670. Clinical Leadership I. 3 Units.**
Knowledge and skills for effective management of clinical systems, supervision, management and evaluation of clinical teams, and educational andragogy.

**SWCL 680. Clinical Leadership II. 3 Units.**
Examines principles of executive leadership in highly charged and large-scale outcome environments, including role and methods of guiding strategic planning, financial management and judgement, cost/benefit analysis, resource development; and informatics.

**SWCL 690. Applied Project I. 1 Unit.**
Orientation to the requirements of the applied DSW project. Development of applied project topic and objectives. Prerequisite or concurrent*: SPOL 654, SPOL 655; MFTH 601*.

**SWCL 691. Applied Project II. 2 Units.**
Development of the literature review and methodology sections of the project proposal. Prerequisites: SWCL 690.

**SWCL 692. Applied Project III. 2 Units.**
Completion and successful defense of the Applied DSW Project proposal.

**SWCL 693. DSW Project I. 2 Units.**
Collect data. Conduct program evaluation, or implement program design as determined by applied DSW project objectives. Prerequisite: SWCL 690, SWCL 691, SWCL 692.

**SWCL 694. DSW Project II. 2 Units.**
Analysis of data collected as determined by applied DSW project objectives. Requires draft of publishable paper following standards set forth by relevant refereed journal. Prerequisite: SWCL 693.

**SWCL 695. DSW Project III. 2 Units.**
Finalize publishable paper, revise applied DSW project proposal document as needed, and successfully defend applied DSW project. Prerequisite: SWCL 694.

**SWCL 785. Externship I. 2 Units.**
Experiential learning designed to advance knowledge and skills in clinical leadership, applied research, social work education, and/or mission-focused learning. Prerequisite: Completion of Year 1 of DSW Program.

**SWCL 786. Externship II. 2 Units.**
Experiential learning designed to advance knowledge and skills in clinical leadership, applied research, social work education, and/or mission-focused learning. Prerequisite: SWCL 785.

# Speech-Language Pathology Doctorate (SLPD)

## Courses

**SLPD 550. Advanced Seminar in Neuroanatomy and Neuroscience. 3 Units.**
Provides in-depth information on the role played by the brain in speech and language. Reviews functional neuroanatomy as an introduction to the following topics: functional commitment, neuroplasticity, long-term potentiation, etc. Informs clinical best practice by focusing on the complexity of the brain with regard to cognitive and motor function, and by providing background on functional brain imaging research.

**SLPD 570. Special Topics in Speech-Language Pathology. 3 Units.**
Provides an in-depth look at a variety of topics in the field. Topics selected by faculty with input from students may include dysphagia, autism, dysfluency, bilingualism, etc. Students critically examine current research in the topic area in order to determine best practice. May be repeated for additional credit.

**SLPD 580. Clinical Issues in Speech-Language Pathology. 3 Units.**
Topics covered include clinical supervision, administration, and starting/managing an independent clinic; as well as ethics and counseling. Focuses on interprofessional collaboration both within the allied health professions (e.g., occupational or physical therapy) and beyond (for either education or medical contexts). Students comment in online discussions on case studies.

**SLPD 600. Components of Clinical Inquiry. 3 Units.**
Focuses on skills fundamental to critical evaluation of the strength of scientific research. Covers elements of research design important to the validity of a study and identification of flaws in design and conclusions.

**SLPD 610. Capstone IRB Proposal. 4 Units.**
Provides instruction in developing an individual research proposal, completing Institutional Review Board (IRB) training, and successfully submitting a proposal to the IRB. Emphasizes reflective discussions of research interests and experiences, planning, conceptual framework, proposed methodology, and data analysis. Includes interprofessional peer reviews throughout the course.

**SLPD 621. Capstone Planning. 3 Units.**
Instructs students in how to design their capstone project with guidance from the primary course instructor. Emphasizes identification of a focus area, objectives, goals, outcomes, on-site mentor, faculty mentor, and time frame.

**SLPD 622. Capstone Proposal. 2 Units.**
Provides framework for developing and submitting a proposal to the student's research advisor(s) for final approval. Prerequisite: SLPD 621.

**SLPD 623. Capstone II. 3 Units.**
Continues the capstone project, requiring students to complete a needs assessment and program development. Provides information in data collection, data management techniques, and introduction to various data analysis strategies. Prerequisite: SLPD 622.

**SLPD 624. Capstone III. 3 Units.**
Continues with remaining data collection and beginning data analyses for capstone project. Prerequisite: SLPD 600, 610, 621 622, and 623.

**SLPD 625. Capstone IV. 3 Units.**
Requires final implementation of aspects of the capstone. Requires student to prepare a manuscript and participate in online critical discussions with classmates. Prerequisite: SLPD 623.

**SLPD 626. Dissemination of Research. 3 Units.**
A culmination course in which students complete their manuscript and perform an oral presentation for their completed research project. Prerequisites: SLPD 600, 610, 621, 622, 623, 624, and 625.

# Statistics (STAT)

## Courses

**STAT 509. General Statistics. 4 Units.**
Introduces statistical methods of summarizing, analyzing, presenting, and interpreting data, with emphasis on health-related data. Includes: normal and binomial distributions; probability; central limit theorem; confidence intervals; and, hypothesis testing using t-tests, ANOVA, correlation, linear regression, and chi square. Introduces multivariate analysis. Includes extensive laboratory exercises using SPSS.

**STAT 515. Grant- and Contract-Proposal Writing. 3 Units.**
Overview of research and program-based grantsmanship. Provides a comprehensive review of relevant core structures, stakeholders, processes, factors, and essential skills. Demonstrates in a "real world"-type practice environment, key steps in identification of funding resources, proposal development, submission, and review process. Includes: developing specific aims or objectives, determining appropriate research or program design, evaluation, budgets, and sustainability plans.

**STAT 521. Biostatistics I. 4 Units.**
Fundamental concepts in data analysis and statistical inference. Descriptive statistics, probability rules, discrete/continuous probability distributions, sampling distributions, central limit theorem, point/interval estimation for means/proportions, hypothesis testing, one-/two-sample tests, power analysis, ANOVA and multiple comparison procedures, simple regression/correlation, and chi-square tests. Prerequisite or concurrent: STAT 548 or STAT 549; or consent of instructor.

**STAT 522. Biostatistics II. 4 Units.**
Simple and multiple regression, analysis of the residual, and model building. Multiple and partial correlation. Analysis of variance (fixed-effects model S) with multiple comparisons, including orthogonal contrasts, factorial designs, and analysis of covariance. Power analysis and sample size determination for these models. Prerequisite: STAT 521.

**STAT 523. Biostatistics III. 3 Units.**
Acquaints public health graduate students with methods for analyzing correlated data using a regression point of view. Includes longitudinal data analysis and cluster/nested data. Covers the use of random effects models and generalized estimation equations (GEE) and more. Emphasis is on how the data should be analyzed rather than on theory. Prerequisite: STAT 522.

**STAT 545. Survival Analysis. 3 Units.**
Statistical methods for analysis of survival data. Censoring mechanisms. Concepts of failure rates and different classes of life distributions under parametric and nonparametric settings. Statistical properties of competing survival functions estimators. Kaplan-Meyer estimator, piecewise exponential estimator, and other equivalent estimators. Cox proportional hazard model and associated statistical inferences. Prerequisite: STAT 522.

**STAT 548. Analytical Applications of SAS and R. 2 Units.**
Introduces learning the SAS and R statistical programming languages. Includes basic data manipulation, graphics, and introductory statistical analysis. Also emphasizes decision making regarding choice of statistical procedures and interpretation of computer output. Prerequisite or concurrent: STAT 509 or STAT 521; or passing score on the computer-competency examination.

**STAT 549. Analytical Applications of SPSS. 2 Units.**
Features of SPSS computer package for analysis of statistical data. Includes decisions regarding choice of statistical procedures and interpretation of computer output to answer specific research questions. Prerequisite or concurrent: STAT 509 or STAT 521.

**STAT 557. Research Data Management. 3 Units.**
Addresses basic data and file manipulation using database-management systems for health research. Includes: importing, exporting, merging, and linking files for a variety of applications; creating, updating, and querying databases; and, basic programming, application development, and data entry. Prerequisite: STAT 509 or STAT 521; STAT 548 or STAT 549.

**STAT 568. Data Analysis. 3 Units.**
Concepts and applications of the most common data analysis methods: correlation and regression, t-tests, analysis-of-variance, nonparametric methods, and multivariate analyses. Student selects appropriate method of analysis and reporting results. Emphasizes individual analysis of real-data sets. All data analysis assignments to be completed in SPSS. Prerequisite: STAT 514.

**STAT 569. Advanced Data Analysis. 3 Units.**
Brings together other biostatistics courses in a unified, applied approach. Specifically provides practical experience with real-world biostatistical data, using a wide variety of statistical procedures—including general linear models, generalized linear models, and nonparametric alternatives. Includes guidelines for choosing statistical procedures, model building, validation, and written presentation of results. Prerequisite: STAT 522.

**STAT 594. Statistical Consulting. 1-4 Units.**
Advanced students participate in statistical consultation with senior staff members. Statement of the problem, design of the experiment, definition of response variables, appropriate analysis of data, statistical inferences, and interpretation of data. Prerequisite: EPDM 509, STAT 521; or consent of instructor.

# Surgery (SURG)

## Courses

**SURG 599. Surgery Directed Study. 1.5-18 Units.**

**SURG 701. Surgery Clerkship. 1.5-12 Units.**
Management of acute, subacute, and nonacute surgical pathologies in general surgery, anesthesia, and surgical specialty services. Distinguishes among emergent and nonemergent presentations in the following patient categories: trauma, oncology, surgical infections, acute presentation of abdominal pain and its differential; and, chronic conditions commonly seen in a general surgery or surgical specialty clinic.

**SURG 821. Surgery Subinternship. 1.5-6 Units.**
Introduction to the surgical internship. Provides in-depth, hands-on experience in the management of acute, subacute, and nonacute surgical pathologies during service in the emergency department, inpatient settings, outpatient clinics, and the operating room. Addresses emergent and nonemergent presentations. Includes experience in acute care surgery, surgical oncology, or general surgery.

**SURG 822. Surgery Intensive Care. 1.5-6 Units.**
A four-week, surgical ICU course. Focuses on care of the critically ill patient who is under the care of the surgical intensivist. Exposes students primarily to patients in the surgical ICU; while also providing experience in evaluating/assessing patients on the emergency ward and in the operating room, as well as those encountered when responding to acute calls for intensive care on the ward (CODE BLUE and rapid response). Involves patients from all surgical services.

**SURG 891. Surgery Elective. 1.5-27 Units.**
May include pediatric surgery, vascular surgery, trauma surgery, general surgery, cardiothoracic surgery, plastic surgery, neurosurgery, otolaryngology, surgical intensive care, and urology.

# Urology (UROL)

## Courses

**UROL 891. Urology Elective. 1.5-27 Units.**
Offers fourth-year medical students the opportunity to explore various areas of urology, including research.

# OCICU COURSES

Loma Linda University offers the following general education courses online through LLU's membership in the Online Consortium of Independent Colleges and Universities (OCICU), a virtual academic consortium in which member institutions collaborate in sharing online, credit-bearing courses. All consortium members are regionally accredited, independent, and not-for-profit institutions. OCICU is managed by Higher Learning Partners of Regis University in Denver, Colorado.

Students register through LLU. Courses and grades earned are posted on the LLU transcript. Upon registration, students are provided information for accessing the online learning management system of the provider institution (colleges/university teaching the course).

**ARTA 205 The Language of Art (4)**
General introduction to art. Looks at works of art through the study of theory, terminology, themes, design principles, media, and techniques, with an introduction to the visual arts across time and diverse cultures.

**COMM 244 Interpersonal Communication (4)**
Principles of verbal and nonverbal transactions that occur in relationships. Study of theory and research findings as well as their application to communication in interpersonal relationships in personal and professional contexts.

**COMM 246 Intercultural Communication (4)**
Introduction to intercultural communication in domestic and/or global contexts. Influence of cultures, languages, and social patterns on how members of groups relate among themselves and with members of different ethnic and cultural groups. Theory and knowledge of effective communication within and between cultures. Appreciation and comparison of communication among diverse groups within the larger context of American culture.

**ECON 254 Principles of Macroeconomics**
Introductory course focusing on aggregate economic analysis. Topics include: market systems, aggregate measures of economic activity, macroeconomic equilibrium, money and financial institutions, monetary and fiscal policy, international economics, and economic growth.

**ECON 255 Principles of Microeconomics (4)**
Introductory course focusing on choices of individual economic decision-makers. Topics include scarcity, specialization and trade, market equilibrium, elasticity, production and cost theory, market structures, factor markets, and market failure.

**ENGL 107 English Composition II (4)**
Instruction in argumentation and critical writing, critical thinking, analytical evaluation of primarily non-fiction texts, research strategies, information literacy, and proper documentation.
Prerequisite: English Composition I

**ENGL 208 Survey of World Literature (4)**
Comparative study of selected works, in translation and in English, of literature from around the world, including Europe, the Middle East, Asia, and other areas.

**HIST 111 World Civilization I (4)**
Survey of the development of world civilizations from their emergence to the eighteenth century.

**HIST 112 World Civilization II (4)**
Survey of the development of world civilizations from the eighteenth century to the present.

**HIST 156 Survey of American History to 1865 (4)**
Historical survey of the European colonization of North America and of the United States through Reconstruction.

**HIST 157 Survey of American History since 1865 (4)**
Historical survey of the United States from the end of the Civil War to the present.

**MATH 121 College Algebra (4)**
College-level course in algebra for majors in the Liberal Arts: polynomial, rational, radical, exponential, absolute value, and logarithmic functions; systems of equations; theory of polynomial equations; analytic geometry.
Prerequisite: Grade of C or better in Intermediate Algebra.

**MATH 122 Trigonometry (4)**
Study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors.
Prerequisite: Grade of C or better in MATH 121.

**MATH 124 Precalculus (6)**
Preparation for calculus: polynomial, absolute value, radical, rational, exponential, logarithmic, and trigonometric functions and their graphs; analytic geometry; and polar coordinates.

**MUHL 205 Music Appreciation (4)**
Survey of art music in Western civilization. Topics studied include but are not limited to elements of music, basic musical forms, music periods, styles, and the role of music and musicians in the Western world.

**PHIL 204 Introduction to Philosophy**
Introduces philosophical ideas and methods concerning knowledge, reality, and values. Topics include the sources and limits of knowledge as well as the nature of reality. Other topics that may be examined from a philosophical perspective include the nature of the self, truth, ethics, religion, science, language, beauty and art, political theory, or mind.

**SOCI 104 Introduction to Sociology (4)**
Introductory study of the basic concepts, theoretical approaches, and methods of sociology. Topics typically include the analysis and explanation of social structure, group dynamics, socialization and the self, social stratification, culture and diversity, social change, global dynamics, and application of sociological ideas to everyday life.

**SPAN 101 Elementary Spanish I (4)**
Introductory course in beginning language acquisition in a cultural context through listening, speaking, reading, and writing. Students interact with authentic language in cultural context.

**SPAN 102 Elementary Spanish II (4)**
Continues to teach language acquisition in a cultural context through listening, speaking, reading, and writing at the second semester level. Students continue to interact with authentic language in cultural context.
Prerequisite: SPAN 101 or equivalent.

# FACULTY

## Key to Codes

In the alphabetical listing below, the two- or three-letter code following the department name indicates the school or faculty in which the faculty member holds academic appointment. The codes are:

| | |
|---|---|
| AH | School of Allied Health Professions |
| BH | School of Behavioral Health |
| SD | School of Dentistry |
| SM | School of Medicine |
| SN | School of Nursing |
| SP | School of Pharmacy |
| PH | School of Public Health |
| SR | School of Religion |
| FGS | Faculty of Graduate Studies |

## The Faculty

AAEN, GREGORY S. Assistant Professor, Department of Pediatrics SM and Department of Neurology SM
M.D. Loma Linda University SM 2003

ABBASI, CAROLIN. Assistant Professor, Department of Anesthesiology SM
M.D. Rosalind Franklin University of Medicine and Science 2011

ABBOY, RAMADAS. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. Stanley Medical College, India 1967

ABD-ALLAH, SHAMEL A. Professor, Department of Pediatrics SM
M.D. Loyola Stritch Medical School, Chicago, Illinois 1989

ABDELHALIM, FOUAD M. Adjunct Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Ain Shams University, Egypt 1980

ABDEL-SAYED, SHELLEY F. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2004

ABDIPOUR, AMIR. Assistant Professor, Department of Medicine SM
M.D. Shahid Beheshti University of Medical Science, Tehran, Iran 1996

ABDRABOU, RASHA. Assistant Professor, Department of Physician Assistant Sciences AH
Dr.P.H. Loma Linda University PH 2009

ABOU-ZAMZAM, AHMED MOHAMMED, JR. Professor, Department of Surgery SM
M.D. Yale University School of Medicine 1992

ABROMOV, DMITRY. Assistant Professor, Department of Medicine SM
M.D. Albany Medical College, New York 2007

ABRAMS, KRISTEN K. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University 2004

ABROLAT, MARIA. Assistant Clinical Professor, Department of Pediatrics SM
M.D. University of California, Los Angeles 1996

ABUDAYYEH, ISLAM. Associate Professor, Department of Medicine SM
M.D. Medical College of Wisconsin 2000
M.P.H. Loma Linda University PH 2000

ACHARYA, PATRICIA T. Adjunct Assistant Professor, Department of Radiology SM; and Assistant Professor, Department of Pediatrics SM
M.D. Rosalind Franklin University of Medicine and Science 2008

ACHIRILOAIE, ADINA F. Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 2005

ACOSTA, OSCAR. Assistant Professor, Department of Dental Education Services SD
D.D.S. University DeLaSalle, Bajio, Mexico 2010

ADEOYE, OLAYEMI O. Assistant Professor, Department of Pharmaceutical and Administrative Sciences SP and Department of Basic Sciences SM
M.B.B.S. University of Lagos, Nigeria 2004
M.P.H. Loma Linda University PH 2008
Ph.D. Loma Linda University, SM 2013

ADEOYE, OLUKEMI GRACE. Instructor, School of Public Health PH
M.P.H. Loma Linda University PH 2009

AFFELDT, JOHN C. Associate Professor, Department of Ophthalmology SM
M.D. University of Southern California 1977

AFIFI, GHADA YOUSSEF. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Albany Medical College, New York 1990

AFKAMI, KAIVAN K. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Baylor University 2001

AGAPIAN, JOHN V. Assistant Professor, Department of Surgery SM
M.D. The Chicago Medical School 2000

AGOSTON, ENDRE. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2014

AHAMBRA, DAVID C. Assistant Professor, Department of Family Medicine SM
M.B.B.S. Abia State University, Nigeria 2006
M.P.H. University of North Texas 2012

AHMAD, BORHAAN S. Assistant Professor, Department of Pediatrics SM
M.D. Kabul University, Afghanistan 1981

AHMED, ZULFIQAR. Assistant Professor, Department of Anesthesiology SM
M.B.B.S. King Edward Medical University, Pakistan 1988

AJA, GODWIN N. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2008

AKA, PAUL KOJI. Assistant Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1986

AKAMINE-DAVIDSON, SANDRA M. Assistant Clinical Professor, Department of Ophthalmology SM
O.D. Southern California College of Optometry 1989

AKELE, ZEBAYEL. Assistant Professor, Department of Medicine SM
M.D. Jimma University, Ethiopia 1991

AL FAGIH, MOHAMMED RASHID. Professor, Department of Cardiopulmonary Sciences AH
M.B.Ch.B. Baghdad Medical College, Iraq 1971

AL-ARDAH, ALADDIN JAMAL. Associate Professor, Department of Restorative Dentistry SD
B.D.S. Jordan University of Science and Technology, Jordan 1999

ALBERT, MATTHEW R. Assostant Professor of Medicine SM
M.D. Tufts University, Massachusetts 1998

ALBRECHT, EDWARD G. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1980

ALDOVINO, SHADRACH F. Instructor, Clinical Laboratory Science AH
B.S. Adventist University of the Philippines 2016

ALEMI, QAIS. Associate Professor, Department of Social Work and Social Ecology BH; and Member FGS
M. P. H., M.B.A. Loma Linda University PH 2013

AL HEZAIMI, KHALID. Professor, Department of Endodontics SD
B.D.S., M.Sc. King Saud University, Saudi Arabia 1999

ALIPOON, ALAN. Instructor, Department of Cardiopulmonary Sciences AH
B.S. California State University, San Bernardino 2000

ALIPOON, LAURA LYNN. Professor, Department of Radiation Technology AH
Ed.D. La Sierra University 2001

ALISMAIL, ABDULLAH K. Assistant Professor, Department of Cardiopulmonary Sciences AH and Department of Medicine SM; and Member FGS
M.S. Loma Linda University AH 2012

ALLARD, MARTIN W. Emeritus Professor, Department of Anesthesiology SM
M.B.Ch.B. University of Capetown, South Africa 1971

ALLEN, JONATHAN. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 2007

ALVAREZ, JESSICA J. Instructor, Department of Emergency Medicine SM
M.P.A. Loma Linda University AH 2019

AMAAR, YOUSEF G. Associate Research Professor, Department of Surgery SM
Ph.D. Simon Fraser University, British Columbia, Canada 1997

AMBS, NATESHA M. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2010

AMIN, NIRAV. Associate Professor, Department of Orthopedic Surgery SM
M.D. Drexel University 2008

AMINI, FARHAD. Assistant Professor, Department of Periodontics SD
D.D.S. University of Detroit Mercy 2011

AMINI, M. REZA. Assistant Professor, Department Medicine SM
M.D. Tehran University, Iran 1999

AMINI, SANAZ. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Tehran University of Medical Science, Iran 2002

AMINIKHARRAZI, TAHER. Assistant Clinical Professor, Department of Restorative Dentistry SD
D.M.D. Boston University 2001

AMR, MAHA M. Assistant Professor, Department of Pediatrics SM
M.B.Ch.B. Cairo University, Egypt 1983

ANDAYA, MICHAEL A. Instructor, Department of Pediatrics SM
M.D. Loma Linda University SM 2017

ANDERSEN, SHARILYN M. Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2008

ANDERSON, DENNIS K. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Loma Linda University SM 1966

ANDERSON, DONALD LEE. Adjunct Associate Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1971

ANDERSON, DONALD LYNN. Associate Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1973

ANDERSON, DUANE R. Assistant Professor, Department of Orthopaedic Surgery SM
M.D. University of Minnesota 1979

ANDERSON, MARQUELLE. Associate Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1977

ANDERSON, NANCY J. Professor, Department of Dermatology SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1976

ANDREASEN, TROY J. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. University of Utah Medical School 1995

ANG, YEN. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2009

ANGELES, DANILYN MAG-AKAT. Professor, Department of Basic Sciences SM, Department of Pediatrics SM, School of Nursing SN; and Member FGS
Ph.D. Loma Linda University GS 2000

ANGHESOM-NEGUSSE, DEBORAH. Assistant Professor, Department of Medicine SM
M.D. University of Southern California 2004
M.P.H. Harvard University 2003

ANHOLM, JAMES D. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1976

ANSPIKIAN, ARA M. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2005

ANUGERAH, BUKARIS. Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1990

APPEL, JAMES ERIC. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2000

APPEL, ROSE K. Assistant Professor, Department of Family Medicine SM
D.O. Lake Erie College of Osteopathic Medicine, Pennsylvania 2011

APPLEGATE, PATRICIA JEAN. Associate Professor, Department of Medicine SM
M.D. University of Southern California 1980

APPLING, HEATHER N. Assistant Professor, Department of Orthotics and Prosthetics AH
M.S. Loma Linda University 2010

ARA, SHETA. Assistant Clinical Professor, Department of Practice SP
Pharm.D. University of Southern California 2001

ARAKAWA, TIMOTHY. Assistant Professor, Department of Medicine SM
Ph.D., M.D. Loma Linda University SM 2008, 2009

ARBABI, ZARSHID. Assistant Professor, Department of Medicine SM
M.D. Iran University 1990

ARCERITO, KIM N. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1993

ARCOBELLO, JONATHAN T. Assistant Professor, Department of Medicine SM
M.D. Wayne State University, Michigan 2015

ARDESHIRPOUR, FARHAD. Adjunct Assistant Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. University of North Carolina, Chapel Hill 2008

ARDILES, YONA R. Assistant Professor, Department of Medicine
D.O. Lake Erie College of Osteopathic Medicine 2010

ARECHIGA, ADAM L. Associate Professor, Department of Psychology BH and School of Public Health PH
Psy.D., Dr.P.H. Loma Linda University ST, PH 2006

ARENE, TAGBO E. Assistant Clinical Professor, Department of Psychiatry SM
M.B.B.S. University of Port Harcourt, Nigeria 2003
M.P.H. California State University, Northridge 2009

ARIUE, BARBARA K. Assistant Professor, Department of Pediatrics SM
M.D. University of Vermont 1993

ARMIJO, JAVIER ALONSO. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of California, Irvine 1991

ARMSTRONG, DANIEL REID. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1972

ARMSTRONG, DARLENE A. Associate Professor, Department of Dental Hygiene SD
M.A. Azusa Pacific University 2005

ARNETT, G. WILLIAM. Adjunct Assistant Professor, Department of Orthodontics SD
D.D.S. University of Southern California 1972

ARNETT, R. LESLIE, JR. Emeritus Professor, Department of Periodontics SD
D.D.S. University of Southern California 1959
M.S. Loma Linda University SD 1968

ARTEAGA-HERNANDEZ, EDNA S. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of Montemorelos, Mexico 1984

ASHBURN, ANGELIKA. Instructor, School of Nursing SN
B.S. Loma Linda University SN 2002

ASHWAL, STEPHEN. Distinguished Professor, Department of Pediatrics SM and Department of Neurology SM
M.D. New York University 1970

ASI, ADLEIT F. Clinical Instructor, Department of Nutrition and Dietetics AH
M.B.A. University of Phoenix 2008

ASK, MIHRAN N. Assistant Professor, Department of Medicine SM, Department of Preventive Medicine SM, and School of Public Health PH
M.D. Loma Linda University SM 1979

ASSADI AZARBAIJANI, RAMIN. Assistant Clinical Professor, Department of Medicine SM
M.D. Tehran University of Medical Sciences 2000

ASSAI, MARIAN. Assistant Clinical Professor, Department of Medicine SM
M.B.Ch.B. University of Alexandria, Egypt 2005

ATHAR, SYED. Assistant Professor, Department of Medicine SM
M.D. Indiana University 2005

ATIGA, ROLANDO A., JR. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.D. Ross University, Dominica, West Indies 1999

AU, HUY D. Assistant Professor, Department of Pediatrics SM
M.D. Finch University of Medical Sciences/The Chicago Medical School 2005

AUNE-NELSON, BETH. Clinical Instructor, Department of Occupational Therapy AH
B.S. Loma Linda University AH 1998

AUNG, GREGORY L. Assistant Clinical Professor, Department Pharmacy Practice SP
Pharm.D. University of the Pacific 2010

AUSTIN, CRAIG EUGENE. Instructor, Department of Clinical Laboratory Science AH
M.S.P. The University of Florida 2017

ALVALOS, JONATHAN D. Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. University of Texas Health Sciences, Houston 2014

AVANTS, TERESA PFIEFLE. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1984

AVELING, D. LEIGH. Associate Professor, School of Religion SR
D.Min. Claremont School of Theology 1996

AWRAMIK, STANLEY M. Adjunct Professor, Department of Earth and Biological Sciences SM
Ph.D. Harvard University 1973

AYE, LYDIA L. Assistant Clinical Professor, Department of Medicine
D.O. Western University of Health Science 2006

AZER, SHERIF A. Associate Professor, Department of Anesthesiology SM
M.D. Assiut University Faculty of Medicine, Egypt 1972

AZIM, MANSOOR. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles 2012

BABA, NADIM. Professor, Department of Restorative Dentistry SD; and member FGS
D.M.D. University of Montreal, Quebec, Canada 1996
M.S. Boston University 1999

BABA DJARA, MONITA. Assistant Professor, School of Public Health PH
Dr.P.H. Boston University 2014

BACHELLER, CATHERINE A. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1979

BACKSTROM-GONZALES, MELISSA K. Instructor, Department of Communication Sciences and Disorders AH
M.S. University of Redlands, Californa 1987

BADALAMENTI, CONO P. Adjunct Assistant Professor, Department of Preventive Medicine SM
M.D. University of Massachusetts Medical School, Worchester 2010

BADAUT, JEROME. Adjunct Associate Professor, Department of Basic Sciences SM
Ph.D. Universite Pierre et Marie Curie, France 1999

BADHWAR, PRADEEP. Assistant Professor, Department of Radiology SM
M.B.B.S. Universityof Delhi, India 1973

BAE, WON-CHUL. Assistant Professor, Department of Radiology SM
M.D. Medical College, Busan National University, Republic of Korea 1963

BAEK, CAROLINE. Assistant Professor, School of Nursing SN
M.S.N. University of California, Los Angeles 2011

BAEK, HESUK H. Assistant Professor, Department of Medicine SM
M.D. Medical College of Georgia 2000

BAEK, KELLY E. Assistant Professor, Department of Social Work and Social Ecology BH
Ph.D. Loma Linda University BH 2018

BAERG, JOANNE E. Professor, Department of Surgery SM and Associate Professor, Department of Pediatrics SM
M.D. University of British Columbia, Canada 1990

BAEZ, LAMITRA M. Assistant Professor, Department of Communication Sciences and Disorders AH
M.S. San Francisco State University 2003

BAHJRI, KHALED A. Associate Professor, Department of Pharmaceutical and Administrative Sciences SP; Assistant Clinical Professor, School of Public Health PH
M.D. Fatima College of Medicine, Manila, Philippines 1999
Dr.P.H. Loma Linda University PH 2014

BAHK, THOMAS. Assistant Professor, Department of Pediatrics SM
M.D. University of California, Los Angeles 1997

BAINS, GURINDER. Associate Professor, Department of Allied Health Studies AH: and Member FGS
Ph.D. Loma Linda University AH 2014

BAKER, GRACE T. Instructor, Department of Clinical Laboratory Science AH
B.S. University of California, Riverside 1991

BAKER, RYAN B. Assistant Professor, Department of Pediatric Dentistry SD
D.M.D., M.P.H. A.T. Still University of Health Sciences 2014
M.S. Loma Linda University SD 2016

BAKLAND, LEIF KRISTIAN. Distinguished Emeritus Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1963

BAKLAND, THOR. Emeritus Professor, Department of Restorative Dentistry SD
D.D.S. Loma Linda University SD 1962

BALAGOPALAN, MOHAN. Clinical Instructor, School of Public Health PH
M.B.A. Azusa Pacific University 1984

BALAN, GABRIELLE. Assistant Professor, Department of Pediatrics SM
D.O. Touro University Nevada 2014

BALAREZO, CARLOS A. Associate Clinical Professor of Surgery SM
M.D. Universidad Nacional de Tucumán 1964

BALDWIN, DALTON D. Professor, Department of Urology SM
M.D. Loma Linda University SM 1991

BALL, LAUREN R. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University ST 1995

BALLI, KEVIN C. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1998

BALLI, MEAGHAN A. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1998

BALLINGER, REBECCA E. Assistant Clinical Professor, Department of Psychology BH
Psy.D. Loma Linda University BH 2013

BALLOU, MICHELLE M. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 1992

BANDY, ALEXANDRA J. Instructor, Department of Anesthesiology SM
M.S.N. University of Virginia 2014

BANDY, KRISTEN R. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2005

BANERJEE, SANJOY. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. Imperial College London 1999

BANERJI, ANAMIKA. Assistant Professor, Department of Pediatrics SM

M.D. Vanderbilt University 2008

BANGARU, BABU S. Associate Professor, Department of Pediatrics SM
M.B.B.S. Andhra University, India 1979

BANKS, AIESHEA L. Assistant Professor, Department of Communication Sciences and Disorders AH
M.A. California State University, Fullerton 2003

BANKS, JOHN C., JR. Associate Professor, Department of Pathology and Human Anatomy SM
Ph.D. Loma Linda University GS 1984

BANNOUT, FIRAS. Assistant Professor, Department of Neurology SM
M.D. University of Damascus 2001

BANSAL, RAMESH C. Professor, Department of Medicine SM
M.B.B.S. All India Institute of Medical Sciences, India 1972

BANTA, JIMMIE E., JR. Professor, School of Public Health PH and member FGS
Ph.D. University of California, Los Angeles 2004

BARCEGA, BESH R. Assistant Professor, Department of Emergency Medicine SM, Department of Pediatrics SM, and Department of Basic Sciences SM
M.D. Loma Linda University SM 1990

BARDIN, RICHARD L. Associate Professor, Department of Medicine SM
M.D. Texas Tech University 1980

BAREH, GIHAN M. Asssociate Professor, Department of Gynecology and Obstetrics SM
M.B.B.S., Ph.D. Suez Canal University, Egypt 1999, 2011

BARILLA, DORA J. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2008

BARKER, BRENT J. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2010

BARKER, GARY R. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 1980

BARNES, SAMUEL R. Assistant Professor, Department of Radiology SM and Department of Basic Sciences SM
Ph.D. Wayne State University, Michigan 2010

BARR, STEVEN J. Assistant Clinical Professor, Department of Anesthesiology SM
M.D. Creighton University, Nebraska 2007

BARRERA, ADOLFO J. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Universidad Cayetano Heredia, Peru 1984
M.S. Loma Linda University 1996

BARRERA, KYRSTLE D. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
Ph.D. Loma Linda University SM 2013

BARRETT, DWIGHT. Assistant Professor, School of Public Health PH
Ed.D. La Sierra University 2010

BARRETT, EMILY C. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Illinois at Chicago 2014

BARRIO, JUAN. Assistant Professor, Department of Medicine SM
M.D. University of California, San Diego 1997

BARTLETT, CHELSEA K. Assistant Professor, School of Nursing SN
B.S. Loma Linda University 2013
B.A. Pacific Union College 2010

BARTLEY, JAMES A. Associate Professor, Department of Pediatrics SM
Ph.D. University of Iowa 1972
M.D. University of Kansas 1974

BARTLEY, YESSENIA T. Adjunct Assistant Professor, School of Public Health PH
M.D. Major National University of San Marcos School of Medicine 2003
Dr.P.H. Loma Linda University PH 2010

BARTNIK-OLSON, BRENDA L. Associate Professor, Department of Radiology SM; Assistant Professor, Department of Basic Sciences SM
Ph.D. University of Saskatchewan, Canada 2002

BARTON, LORAYNE. Adjunct Associate Professor, School of Public Health PH
M.D. University of California, Irvine 1966
M.P.H. Loma Linda University PH 2000

BARTOS SPECHT, REBEKAH. Assistant Professor, Department of Medical Education SM and Department of Medicine SM
M.S.N. Azusa Pacific University 2001

BASHKIROV, VLADIMIR. Associate Research Professor, Department of Basic Sciences SM
Ph.D. Moscow Institute of Physics and Technology, Russia 1997

BASICAL, SOFRONIO A. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1992

BASICAL-OLIVER, NOVE A. Instructor, Department of Clinical Laboratory Science AH
B.S. Loma Linda University AH 1986

BASRAI, IMTIAZ. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University of Bombay 1975

BASSLER, ROBERT. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1999

BASTA, SAEDA H. Assistant Professor, Division of General Dentistry SD
D.D.S. Damascus University Dental School, Syria 1994
M.S. Loma Linda University SD 2008

BATES, BRIAN E. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1986

BATESOLE, MARK KENNETH. Assistant Professor, Department of Orthodontics SD
D.D.S. University of Southern California 1998
M.S. Loma Linda University GS 2000

BATIN, FRANCES P. Assistant Professor, Department of Medicine SM

M.D. Loma Linda University SM 1988

BATLA, KRISTEN L. Assistant Professor, Department of Physician Assistant Sciences AH
M.S. Walden University, Minnesota 2017

BATT, JOSHUA. Clinical Instructor, Department of Emergency Medicine SM
D.O. Touro University Nevada 2012

BAUGH, WILSON B., JR. Assistant Clinical Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of Southern California 1981

BAUM, MARTI F. Assistant Professor, Department of Pediatrics SM and School of Public Health PH
M.D. Loma Linda University SM 1979

BAYDALA, LARYSA O. Assistant Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2007

BAYLINK, DAVID J. Distinguished Professor, Department of Medicine SM, Department of Basic Sciences SM; and Professor Dental Education Services SD
M.D. Loma Linda University SM 1957

BAZ, SAMUEL. Assistant Professor, Department of Medicine SM
M.D. University of Southern California School of Medicine 1997

BEARDSLEY-HARDY, LISA M. Adjunct Professor, School of Public Health PH; Adjunct Assistant Professor, School of Religion SR
Ph.D. University of Hawaii, Manoa 1989

BECERRA, BENJAMIN J. Adjunct Associate Professor, Department of Cardiopulmonary Sciences AH
Dr.P.H. Loma Linda University PH 2015

BECKER, DONNA J. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2016

BECKER, RYAN J. Assistant Professor, Division of General Dentistry SD; Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2015

BECKWITH, J. BRUCE. Emeritus Professor, Department of Pathology and Human Anatomy SM
M.D. University of Washington School of Medicine 1958

BEDDOE, RANDY A. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1984

BEDFORD, ANNETTE. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1990

BEELER, LAUREN M. Clinical Instructor, Department of Physical Therapy AH
B.S. Indiana University 1979

BEEM, ASHLEY B. Instructor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2014

BEESON, W. LAWRENCE. Clinical Professor, School of Public Health
Dr.P.H. Loma Linda University PH 2002

BEHRENS, B. LYN. Emerita Professor, Department of Pediatrics SM
M.B.B.S. Sydney University, Australia 1963

BEHRINGER, ERIK J. Assistant Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University SM 2009

BEKENDAM, PAMELA Y. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1994

BEKENDAM, PETER D. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2004

BELIN, LYNNA SUE. Adjunct Assistant Professor, School of Public Health PH
Ph.D. Claremont Graduate School 1994

BELL, ALISON. Assistant Professor, School of Nursing SN
D.N.P. Duke University 2014

BELLIARD, JUAN C. Professor, School of Public Health PH
Ph.D. Claremont Graduate University 2002

BELLINGER, DENISE L. Associate Research Professor, Department of Pathology and Human Anatomy SM
Ph.D. Indiana State University 1985

BENCITO ACAAC, NORIE. Assistant Professor, School of Nursing SN
M.S.N., M.B.A. University of Phoenix 2208, 2009

BENGGON, MICHAEL A. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2009

BENGIAMIN, DEENA I. Asssociate Professor, Department of Emergency Medicine SM
M.D. University of California, Irvine 2010

BENGIAMIN, RIMON N. Associate Professor, Department of Emergency Medicine SM
University of North Dakota, Grand Forks 2004

BENITEZ, ABIGAIL. Assistant Research Professor, Department of Surgery SM and Department of Medicine SM, and Department of Basic Sciences SM
Ph.D. Loma Linda University SM 2014

BENNER, JANINE G. Assistant Professor, Department of Communication Sciences and Disorders AH
M.A. California State University, Long Beach 1991

BENNETT, DELLA C. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Pennsylvania State College of Medicine 2000

BERGER, CHRISTOPHER E. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2008

BERK, LEE S. Professor, Department of Allied Health Studies AH; Associate Professor, Department of Physical Therapy AH; Associate

Research Professor, Department of Pathology and Human Anatomy SM; and Member FGS
Dr.P.H. Loma Linda University PH 1981

BERNSTEIN, BASIL G. Clinical Professor, Department of Psychiatry SM
M.D. New York Medical College 1967

BERRIMAN, DIANE J. Assistant Professor, Department of Medicine SM
M.D. Oral Roberts University School of Medicine, Oklahoma 1988

BERRY, FREDERICK A. Adjuct Professor, School of Dentistry SD
D.D.S. University of Pennsylvania 1962

BETANCOURT, HECTOR M. Distinguished Professor, Department of Psychology BH; and Member FGS
Ph.D. University of California, Los Angeles 1983

BEVERLY, DAVID T. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Uniformed Services, University of Health Sciences, Bethesda, Maryland 1998

BHARADWAJ, ADITYA. Assistant Professor, Department of Medicine SM
M.B.B.S. Rajiv Gandhi University of Health Sciences 2007

BHARDWAJ, RAHUL. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles 2008

BHAT, PRASHANTH. Assistant Professor, Department of Family Medicine SM
M.B.B.S. Manipal University 2000
M.P.H. University of North Texas Health Science Center 2006

BHAT, VENKATESH G. Associate Professor, Department of Psychiatry SM
M.B.B.S. University of Mysore, India 1979

BIAGGI, ROBERTO E. Adjunct Associate Professor, Department of Earth and Biological Sciences SM
Ph.D. Loma Linda University FGS 2002

BIANCHI, CHRISTIAN. Associate Professor, Department of Surgery SM
M.D. University of Buenos Aires School of Medicine, Argentina 1993

BIGELOW-PRICE, SHAYNE MICHELINE. Assistant Professor, School of Nursing SN
M.S.N. University of Phoenix 1998

BILLE, JOSEF. Adjunct Professor, Department of Ophthalmology SM
Ph.D. Universität Fredericiana Karlsruhe, Germany 1970

BILLIMORIA, PHIROZE E. Emeritus Professor, Department of Radiology SM
M.B.B.S. Grant Medical College, Bombay University, India 1951

BILLETT, JEFFREY N. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University of California, Davis 1988

BINUS, DANIEL L. Adjunct Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2006

BITOK, EDWARD K. Assistant Professor, Department of Nutrition and Dietetics AH
Dr.P.H. Loma Linda University PH 20016

BLACKBURN, ALLIE K. Assistant Professor, Department of Radiology and Department of Orthopedic Surgery SM
M.D. University of Chicago, Pritzker 2001

BLAINE, ANDREW C. Assistant Clinical Professor, Department of Psychiatry SM
M.D. New York University School of Medicine 1989

BLAKELY, ELEANOR A. Adjunct Research Professor, Department of Radiation Medicine SM
Ph.D. University of Illinois, Urbana-Champaign 1975

BLANCO TOPPING, RICHARD. Adjunct Instructor, School of Public Health PH
M.B.A. University of Montemorelos, Mexico 2004

BLAND, DAVID. Emeritus Associate Professor, Department of Medicine SM
M.B.B.S. University of New South Wales, Australia 1976

BLAZEN, IVAN T. Emeritus Professor, School of Religion SR
Ph.D. Princeton Theological Seminary 1979

BLETHEN, ELISA J. Adjunct Assistant Professor, School of Public Health PH
M.B.A. University of Central Florida 2006
D.I.S. Fuller Theological Seminary 2018

BLEWS, EDWARD O III. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 2007

BLOCK, BARRY S. Associate Professor, Department of Gynecology and Obstetrics SM
M.D. Temple University, Philadelphia, Pennsylvania 1975

BLOCK, DAVID R. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University at Buffalo, State University of New York 2004
M.M.M. University of Southern California 2016

BLOMQUIST, INGRID K. Emerita Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1981

BLOOD, ARLIN B. Associate Professor, Department of Pediatrics SM, Department of Gynecology and Obstetrics SM, and Department of Basic Sciences SM; and Member FGS
Ph.D. Loma Linda University GS 2003

BOBKO, JOSHUA. Adjunct Assistant Professor, Department of Emergency Medicine SM
M.D. University of Miami School of Medicine 2006

BOCK, MATTHEW J. Assistant Professor, Department of Pediatrics SM
M.D. Drexel University 2008

BOCTOR, BAHER N. Assistant Professor, Department of Anesthesiology SM
M.D. University of California, San Diego 2008

BOGGS, SHARON A. Instructor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 1993

BOHR, THOMAS W. Associate Professor, Department of Neurology SM

M.D. University of California, San Francisco 1984

BOLDA, LAUREN M. Assistant Professor, Department of Physician Assistant Sciences AH
M.P.A. Loma Linda University AH 2017

BOLING, WARREN. Professor, Department of Neurosurgery SM and Department of Physician Assistant Sciences AH
M.D. Texas Tech University Health Science Center 1991

BOLTON, STEPHANIE L. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2003

BONDON, EDWINA F. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. University of Michigan, Ann Arbor 1997

BONG, PAUL. Clinical Instructor, Department of Psychiatry SM
M.D. University of California, Irvine 1993

BONNET, REINER B. Adjunct Professor, Department of Medicine SM
M.D. Loma Linda University SM 1981

BONYANPOOR, SHAHNAZ. Assistant Professor, Department of Pediatric Dentistry SD
D.M.D. Shiraz University 1977

BORBA, CASSANDRA J. Clinical Instructor, Department of Physical Therapy AH
D.P.T. Azusa Pacific University 2007

BORK, JANE N. Associate Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1979

BORUT, DANIELLE L. Assistant Clinical Professor, Department of Pediatrics SM
M.D. University of Southern California 1969

BOSKOVIC, DANILO. Assistant Professor, Department of Basic Sciences SM; Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. Queen's University at Canada, Ontario, Canada 1997

BOSSERT, ELIZABETH ANNE. Professor, School of Nursing SN
Ph.D. University of California, San Francisco 1990

BOTTINO, HEYLEY R. Instructor, Gynecology and Obstetrics SM
M.S.G.C. Keck Graduate Institute, California 2020

BOUNDS, JEFFREY ALLEN. Associate Professor, Department of Neurology SM
M.D. Loma Linda University SM 1972

BOURNE, ROBERT C. Assistant Clinical Professor, Department of Family Medicine SM
M.D.C.M. McGill University, Canada 1972

BOUSTANI, MAYA M. Assistant Professor, Department of Psychology BH
Ph.D. Florida International University 2015

BOWEN, WILLIAM W. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1973

BOWES, LARRY D. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1971

BOYD, BRENDA L. Assistant Professor, Department of Radiation Technology AH
Ph.D. Andrews University 2013

BOYD, KENDAL C. Associate Professor, Department of Psychology BH; and Member of FGS
Ph.D. Fuller Theological Seminary 1999

BOYKO, MICHAEL PETER. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S., M.P.H. Loma Linda University SD, PH 1975

BOYLE, BRENDA J. Assistant Professor, School of Nursing SN
D.N.P. University of San Diego 2017

BOYLE, KRISTOPHER E. Associate Professor, Department of Pharmaceutical and Administrative Sciences SP; and Associate Member FGS
Ph.D. University of California, Irvine 2008

BRADFORD, BENJAMIN D. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2012

BRADLEY, BRUCE D. Assistant Professor, Department of Physical Therapy AH
D.Sc. Loma Linda University AH 2001

BRADLEY, JOY F. Clinical Instructor, Department of Physical Therapy AH
M.P.T. Loma Linda University AH 2011

BRANCH, JOHN D. Assistant Clinical Professor, Department of Family Medicine SM
D.O. Western Health Sciences University, California 1985

BRAND, LEONARD R. Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. Cornell University 1970

BRANDON, KAREN R. Clinical Instructor, Department of Physical Therapy AH
D.Sc. Loma Linda University AH 2008

BRANDSTATER, MURRAY E. Emeritus Professor, Department of Physical Medicine and Rehabilitation SM, Department of Neurology SM, and Department of Basic Sciences SM
M.B.B.S. Melbourne University, Australia 1957
Ph.D. University of Minnesota 1972

BRANTLEY, EILEEN J. Assistant Professor, Department of Basic Sciences SM and Department of Pharmaceutical and Administrative Sciences SP
Ph.D. Meharry Medical College, Nashville, Tennessee 1999

BRAR, HARDINER S. Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Jadavpur University, India 1978

BRASHEAR, NANCY. Instructor, School of Nursing SN
B.S. Loma Linda University SN 2000

BRATHWAITE, RON K. Assistant Professor, Department of Family Medicine SM
M.D. University of Maryland 2002

BRAUER, STANLEY D. Professor, Department of Anesthesiology SM

M.D. Loma Linda University SM 1980

BRAUN, WHITNEY M. Assistant Professor, School of Religion SR
Ph.D. Claremont Graduate University 2015

BRAVO, THOMAS P. Assistant Professor, Department of Neurology SM
M.D. Loma Linda University SM 2010

BRAZEAL, THOMAS. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Pacific University, Oregon 2015

BRENCHLEY, RYAN. Assistant Professor, Department of Emergency Medicine SM
M.D. Medical College of Wisconsin 1998

BRENNER, COLLEEN A. Associate Professor, Department of Psychology BH
Ph.D. Indiana University, Bloomington 206

BRENNER, MEGAN L. Professor, Department of Surgery SM
M.D. Virginia Commonwealth University 2003

BRIGGS, BURTON A. Emeritus Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1966

BRINEGAR, CHARLES H. Emeritus Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1963

BRISTOL, ALYCIA A. Assistant Professor, School of Nursing SN; and Member FGS
Ph.D. The University of Arizona 2016

BRISTOL, SHIRLEY T. Associate Professor, School of Nursing SN; and Member FGS
J.D. University of La Verne, Los Angeles, California 1990
D.N.P. Western University of Health Sciences 2012

BRITT, WILLIAM, G. III. Associate Professor, Department of Psychiatry SM
Ph.D. Rosemead Graduate School of Professional Psychology 1981

BRITTON, DOUGLAS R. Adjunct Assistant Professor, Department of Earth and Biological Sciences SM
Ph.D. University of Wyoming 1998

BROAD, JENNIFER L. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2009

BROCKMANN, DOUGLAS C. Assistant Clinical Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1978

BROGDON, JOANNA. Instructor, School of Nursing SN
B.S., Loma Linda University SN 2015

BROWN, DANIEL L. Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific, California 1981

BROWN, JAMES A. Assistant Professor, Department of Surgery SM
M.D. Medical University of South Carolina 1978

BROWN, JENNIFER. Assistant Professor, School of Nursing SN
M.S.N. Florida International University 2008

BROWN, LANCE A. Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.D., M.P.H. Harvard University 1994

BRUCCOLERI, ALDO. Adjunct Research Professor, Department of Basic Sciences SM
Ph.D. University of Calgary 2000

BRUCE-LYLE, LESLIE A. Assistant Clinical Professor, Department of Ophthalmology SM
M.B.Ch.B. University of Ghana Medical School, Ghana 1976

BRUCKNER, EVERT A. Associate Clinical Professor, Department of Medicine SM
M.D. Stanford University 1958

BRUMAND, KAVEH. Assistant Professor, Department of Medicine SM
M.D. Shahid Beheshti University of Medical Sciences 2003

BRUNT, JOHN C. Professor, School of Religion SR
Ph.D. Emory University 1978

BRUTTOMESSO, SAMUEL D. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Hahneman Medical College, Pennsylvania 1970

BRYAN, PATRICK J. Associate Clinical Professor, Department of Radiology SM
M.B.Ch.B. University College at Galway, Ireland 1967

BRYSON, JULIE H. Assistant Professor, Department of Family Medicine SM
M.D. University of California, Davis 1996

BU, LIMING. Instructor, Department of Neurosurgery SM
M.S.P.A. Western University of Health Sciences, California 2012

BUCHHOLZ, JOHN N. Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. Loma Linda University GS 1989

BUCKERT, LINDA SCUDDER. Instructor, Department of Clinical Laboratory Science AH
B.S. University of Illinois, Chicago 1980

BUCKLES, BEVERLY J. Professor, Department of Social Work and Social Ecology BH
D.S.W. Adelphi University, New York 1989

BUCKMAN, MICHELLE. Assistant Professor, School of Nursing SN
M.S.N. St. Louis University, Missouri 1993

BUENO, MAURICIO. Assistant Professor, Department of Family Medicine SM
M.D. University of Southern California 1983

BUKHARI, SARAH A. Assistant Clinical Professor, Division of General Dentistry SD
B.D.S. King Abdulaziz University 2009
M.S. Loma Linda University SD 2018

BULL, BERYL HEATHER. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 1994

BULL, BRIAN S. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1961

BULL, MAUREEN. Emeritus Associate Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1957

BUNNELL, WILLIAM P. Professor, Department of Orthopedic Surgery SM
M.D. Temple University, Pennsylvania 1968

BURDICK, JOHN (JACK) C. Assistant Professor, Department of Dental Education Services SD
M.B.A. Vanderbuilt University 1989

BURGDORFF, CHADWICK J. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2003

BURGDORFF, THOMAS R. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1974

BURKS, TAMARA. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1998

BURNS, MARGARET. Emerita Associate Professor, School of Nursing SN
D.N.Sc. Catholic University of America 1985

BUROKER, JACQUELINE J. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.A.T. Lewis and Clark College 1971
M.S.W. Walla Walla College 2000

BURRUSS, SIGRID K. Assistant Professor, Department of Surgery SM
M.D. University of California, San Francisco 2007

BURTCH, PERRY D. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1989

BURTON, PAUL D. Assistant Clinical Professor, Department of Orthopedic Surgery SM
D.O. University of Health Sciences College of Osteopathic Medicine, Des Moines, Iowa 1986

BUSH, DAVID A. Professor, Department of Radiation Medicine SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1992

BUSHELL, THOMAS R. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Maryland, Baltimore 2012

BUSSELL, MARK R. Assistant Research Professor, Department of Allied Health Studies AH
D.P.T. Loma Linda University AH 2013

BUTLER, MONTE D. Professor, Department of Social Work and Social Ecology BH
Ph.D. University of Utah 2003

BYRNE, JOHN MAURICE. Associate Professor, Department of Medicine SM
D.O. University of Osteopathic Medicine and Health Sciences, Des Moines, Iowa 1989

BYUN, ESTHER H. Assistant Professor, Department of Neurology SM
M.D. University of California, San Francisco 2007

CABLING, MARVEN G. Assistant Professor, Department of Medicine SM
M.D. University of the Philippines, Manila 2006

CABRERA, IRENA B. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2011

CABRERA, JOYCE A. Clinical Instructor, Department of Occupational Therapy AH
O.T.D. Loma Linda University AH 2014

CACHO, VINCE PATRICK R. Assistant Clinical Professor, Department of Medicine SM and Department of Pediatrics SM
M.D. Loma Linda University SM 2007

CAFFERKY, BRYAN M. Assistant Professor, Department of Counseling and Family Science BH; and Member FGS
Ph.D. Kansas State University 2015

CAFFEY, MATTHEW R. Instructor, Department of Emergency Medicine SM
M.M.S. Saint Francis University, Pennsylvania 2011

CAI, CINDY X. Assistant Professor, Department of Medicine SM and Department of Basic Sciences SM
M.D. Sun Yat-Sen University of Medical Sciences, China 1986
Ph.D. Tufts University Sackler Graduate School of Biomedical Sciences 1997

CALAGUAS, DANIEL K. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2013

CALLA PAULINE JOYCE. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration AH
B.S. Loma Linda University AH 2005

CALMA, ELEANOR L. Assistant Professor, Department of Pediatrics SM
M.D. Far Eastern University, Philippines 1999

CALVO, ALEJANDRO R. Assstant Professor, Department of Medicine SM
M.D. Universidad Mayor de San Simon SOM Cbba Bolivia 1992

CAMACHO, JOSE A. Assistant Professor. Department of Pediatrics SM
M.D. University Central del Caribe, Puerto Rico 1980

CAMARILLO, DANIEL. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of California, Los Angeles 2003

CAMBRIDGE, ROBERT M. Assistant Professor, Department of Medicine SM
D.O. Nova Southeastern University, Florida 2008
M.P.H. Nova Southeastern University, Florida 2008

CAMPBELL, MICHAEL S. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2007

CAN, DIANA H. Instructor, Department of Urology SM
M.S.N. University of California, Los Angeles 2016

CANIZALES, RAFAEL. Assistant Professor, Department of Allied Health Studies AH
Ph.D. University of Texas-Austin 2001

CANTU, DANIEL. Clinical Instructor, Department of Oral and Maxillofacial Surgery SD
D.D. S. University of Texas Health Science Center, Houston 2010

CAO, HUYNH. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles 2008

CAO, JEFFREY D. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1971

CAO, KURT D. Assistant Professor, School of Nursing SN
D.N.A.P. Texas Wesleyan University 2012

CAO, MICHAEL B. Assistant Professor, Department of Pediatrics SM
Psy.D. Azusa Pacific University, California 2011

CAPLANIS, NICHOLAS. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.M.D. University of Medicine and Dentistry at New Jersey 1991

CAPUA-CURRIE, ZENAIDA. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1983

CARAIG, KIMBERLY A. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.B.A. Loma Linda University PH 2009

CARLSON, DONNA L. Assistant Clinical Professor, Department of Medical Education SM
M.D. Loma Linda University SM 1969
M.P.H. University of California, Berkeley 1974
J.D. University of Southern California 1998

CARLSON, JOHN P. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Creighton University, Nebraska 1995

CARMONA, CLAUDIA R. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2009

CARNAHAN, CLARENCE E., JR. Adjunct Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1954

CARPENTER, ALBA G. Instructor, Department of Anesthesiology SM
M.S. Loma Linda University SN 2013

CARPENTER, MARK J. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1980

CARR, KRISTIN A. Assistant Professor, Department of Medicine SM
M.D. University of Vermont 2015

CARRIGG, KAREN GRIGSBY. Associate Professor, School of Nursing SN
Ed.D. Loma Linda University SE 1988

CARRITTE, DEBORAH M. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1986

CARSON, MARGIE I. Clinical Instructor, Department of Nutrition and Dietetics AH
B.S. Western Washington University 1995

CARTER, CAMEO A. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2003

CARTER, ERIK C. Assistant Professor, School of Religion SR
D.Min. Louisville Presbyterian Theological Seminary 2009
Ph.D. Claremont School of Theology 2015

CARTER, ETHELRED E. Assistant Professor, Department of Medicine SM
M.D. Universidad Autonoma de Guadalajara, Mexico 1968

CARTER, HARMONY F. Assistant Professor, Department of Anesthesiology SM
M.D. University of Louisville, Kentucky 2009

CARTER, RONALD L. Professor, Department of Earth and Biological Sciences SM and School of Religion SR
Ph.D. Loma Linda University GS 1977

CARTER, SHALINI M. Associate Professor, Department of Clinical Laboratory Science AH
Ph.D. Loma Linda University SM 2012

CARUSO, JOSEPH MICHAEL. Distinguished Professor, Department of Orthodontics SD; and Member FGS
D.D.S. Loma Linda University SD 1973
M.S. Loma Linda University GS 1975
M.P.H. Loma Linda University SPH 1976

CARVER, MICHAEL S. Assistant Professor, Department of Anesthesiology SM
M.D. Medical College of Wisconsin 2013

CASH, ZACHARY J. Instructor, Department of Family Medicine SM
M.S. Western University of Health Sciences, Pomona, California 2007

CASIANO, CARLOS A. Professor, Department of Basic Sciences SM and Department of Medicine SM; and Member FGS
Ph.D. University of California, Davis 1992

CASON, JOHN B. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. George Washington University, Washington, DC 2000

CASTELINO-PRABHU, SHOBHA L. Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Grant Medical College, India 1991
M.S. Duke University, North Carolina 1995

CASTILLO, LAURYN JANAY. Clinical Instructor, Department of Dental Education Services SD
B.S. Loma Linda University SD 2016

CASTILLO, ROMEO C. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Lyceum Northwestern University, Philippines 1998

CASTILLO-YETTER, GLENDA M. Clinical Instructor, School of Nursing SN
B.S. Loma Linda University SN 1979

CASTRO, DANIEL. Adjunct Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1986

CATALANO, RICHARD D. Professor, Department of Surgery SM
M.D. Loma Linda University SM 1976

CATALON, SAMUEL R. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1984

CAVINDER, JUANA R. Adjunct Assistant Professor, Department of Dental Education Services SD
D.M.D. Southwestern University, Philippines 1973
M.P.H. University of California, Los Angeles 2005

CAZARES, JESUS J. Adjunct Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1986
M.D. Universidad Autonoma de Guadalajara, Mexico 1977

CERVANTES, MICHAEL C. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2016

CESAR, JOSE M. Assistant Professor, Department of Physical Medicine and Rehabilitation SM and Department of Anesthesiology SM
M.D. Loma Linda University SM 2012

CHA, CHUL C. Emeritus Associate Professor, Department of Pediatrics SM
M.D. Seoul National University, Republic of Korea 1961

CHAFFIN, DONALD L. Adjunct Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1990

CHALAM, KAKARLA V. Professor, Department of Ophthalmology SM and Department of Basic Sciences SM
M.D. State University of New York, Albany 1992
Ph.D. University of South Carolina, Columbia 2004

CHAMBERLIN, DAVID A. Associate Professor, Department of Urology SM and Department of Pediatrics SM
M.D. University of California, Irvine 1988

CHAMBERLIN, JOSHUA D. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 2012

CHAN, BOBBY S. Assistant Professor, Department of Medicine SM
M.D. Franklin University of Medicine and Science of Chicago Medical School 1999

CHAN, CLEMENT KAR-MAN. Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1980

CHAN, CLIFFORD R. Assistant Professor, Department of Periodontics SD
D.M.D., Ph.D. Eberhard-Karls University, Germany 1981, 1983

CHAN, FRANCIS D. Associate Professor, Department of Pediatrics SM and Department of Medicine SM
M.D. Loma Linda University SM 1994

CHAN, JACQUELINE. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1999

CHAN, KIMBERLY M. Instructor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2011

CHAN, NADIA, Assistant Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Boston University, Massachusetts 2010

CHAN PHILIP J. Professor, Department of Gynecology and Obstetrics SM and Department of Basic Sciences SM
Ph.D. Michigan State University 1983

CHANDRASEKAR, JAYARAM. Assistant Professor, Department of Medicine SM
D.O. Touro University California 2013

CHANG, ARTHUR C. Assistant Professor, Department of Radiology SM
M.D. University of Southern California 2003

CHANG, BERNARD C. Adjunct Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1993
M.S. Loma Linda University GS 1996

CHANG, EDDIE. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 1999

CHANG, ERICA P. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Columbia University, New York 2010

CHANG, MELODY M. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2008

CHANG NANCY Y. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2006

CHANG, STEVE H. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University 1991

CHANG, SUZANNE E. Assistant Clinical Professor, Department of Medicine SM
M.D. Northeastern Ohio University 1997

CHANG, WALTER T. Y. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Darmouth Medical School, New Hampshire 2000

CHAO, DANIEL. Assistant Professor, Department of Medicine SM
M.D. University of Massachusetts Medical School, Worcester 2007

CHARLES-MARCEL, ZENO L. Adjunct Associate Professor, Department of Medicine SM
M.D. Harvard University 1980

CHASE, RESA C. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1977

CHATIGNY, CAROLINE E. Instructor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2014

CHATRIYANUYOKE, PAKAWAT. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. Chulalongkorn University, Thailand 2004

M.S. Ohio State University 2009

CHAU, BRIAN L. Assistant Research Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 2013

CHAU, MINH-HANG. Assistant Professor, Department of Urology SM
M.D. Albert Einstein College of Medicine, New York 1994

CHAU, PETER. Assistant Professor, Department of Pediatrics SM
M.D. University of California, Los Angeles 2011

CHAVAN, RISHIKESH. Assistant Professor, Department of Pediatrics SM
M.B.B.S. Maharashtra University of Health Sciences 2004

CHE, KENDRICK M. Associate Professor, Department of Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2006

CHEA, KAY. Assistant Professor, Department of Medicine SM and Department of Pediatrics SM
M.D. Drexel University College of Medicine, Philadelphia 2007

CHEE, PRISCILLA H. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2012

CHEE, VINCENT K. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1992

CHEEK, GREGORY A. B. Associate Professor, Department of Medicine SM and Department of Anesthesiology SM
M.D. Loma Linda University SM 1987

CHEN, BRIAN G. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2007

CHEN, CATHERINE J. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 2012

CHEN, CHIEN-SHING. Professor, Department of Medicine SM and Department of Basic Sciences SM
M.D. China Medical College, Taiwan, Republic of China 1985
Ph.D. University of Minnesota 1992

CHEN, ERIC. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2014

CHEN, JIAN. Assistant Professor, Department of Family Medicine
M.D. Sichuan University, China 2002

CHEN, JOEY T. Y. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. Northwestern University, Illinois 2001

CHEN, JUNG-WEI. Professor, Department of Pediatric Dentistry SD; and Member FGS
D.D.S. Taipei Medical College, Taiwan 1996
Ph.D. University of Texas, Houston 2007

CHEN, MIRYAH C. Assistant Professor, Department of Pediatrics SM
M.D. University of Washington, Seattle 2007

CHEN, RONNIE C. R. Assistant Professor, Department of Radiology SM
M.D. University of California, San Diego 2011

CHEN, SHAW S. Assistant Professor, Department of Medicine SM
M.D. Rush University at Chicago 1989

CHEN, THOMAS J. Assistant Clinical Professor SM
M.D. Loma Linda University SM 2002

CHEN, TOM T. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1977

CHEN, XIN SEAN. Assistant Professor, Department of Basic Sciences SM
Ph.D. University of California, Riverside 2010

CHENE, YASMIN. Adjunct Assistant Professor, Department of Physician Assistant Sciences AH
D.H.Sc. Nova Southeastern University 2009

CHENG, JASON T. Assistant Professor, Department of Medicine SM
M.D. Medical College of Wisconsin 2002

CHENG, WAYNE K. Clinical Professor, Department of Basic Sciences SM
M.D. Loma Linda University SM 1995

CHEREPUSCHAK, KELSEY L. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2015
M.P.H. Loma Linda University PH 2019

CHEUNG, SUM C. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Dartmouth Medical School 2005

CHEW, ANDREW. Assistant Professor, Department of Surgery SM
B.M.B.S. Flinders University, Australia 1982

CHIAPASCO, MATTEO. Visiting Professor, Department of Restorative Dentistry SD
M.D., D.D.S. University of Milan, Italy 1984, 1989

CHIEN, ALEXANDER J. Associate Professor, Department of Radiology SM
M.D. University of Michigan 1997

CHIH, DORIS Y. Associate Professor, Department of Medicine SM
M.D., Ph.D. University of California 2003

CHI-LUM, BONNIE J. Associate Professor, Department of Preventive Medicine SM; Assistant Professor, School of Public Health PH
M.D., M.P.H. Loma Linda University PH 1991, 1995

CHIN, ERIC K. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Rosalind Franklin University of Medicine and Science 2009

CHIN, GYU S. Clinical Instructor, Department of Plastic and Reconstructive Surgery SM
M.D. Tulane University 1994

CHING, VICTOR C. Assistant Clinical Professor, Department of Urology SM
M.D. Loma Linda University SM 1977

CHINNOCK, LAWRENCE E. Associate Professor, Department of Physical Therapy AH
Ed.D. La Sierra University 1996

CHINNOCK, RICHARD E. Professor, Department of Pediatrics SM and School of Public Health PH
M.D. Loma Linda University SM 1982

CHINNOCK, TIMOTHY J. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2008

CHIONG, JUN R. Associate Clinical Professor, Department of Medicine SM; Associate Professor, Department of Pharmacy Practice SP
M.D. Cebu Institute of Medicine, Philippines 1994

CHITSAZAN, MORTEZA. Assistant Professor, Department of Medicine SM
D.O. Western University of Health Sciences, Pomona, California 1991

CHO, EUN-HWI, ELIZABETH. Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1993

CHO, JEFFREY Y. Assistant Professor, Department of Family Medicinie
M.D. Loma Linda University SM 2014

CHO, NAM K. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. Western University of Health Sciences 2012

CHO, SUSAN Y. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2017

CHOE, DAVID P. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 2006

CHOI, CHRISTOPHER C. Assistant Clinical Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Columbia University 2006
M.D. State University of New York, Stony Brook 2009

CHOI, DAVID M. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. University of Illinois 1997

CHOI, DONGRAK. Associate Professor, Department of Radiation Medicine SM
Ph.D. Yonsei University, Seoul, South Korea 1992

CHOI, EUN-JOO P. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1996

CHOI, HEIDI M. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2009

CHOI, JEREMIAH J. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2014

CHOI, VIVIEN, L. Clinical Instructor, Department of Nutrition and Dietetics AH
M.S. Kansas State University 1984

CHON, KENNETH S. Assistant Professor, Department of Radiology SM
M.D. University of California, San Diego 1993

CHONG, STEVEN. Assistant Professor, Department of Medicine SM
M.B.B.S. Yangyon, Mayanmar, Burma 1988

CHONKICH, GEORGE D. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1960

CHOO, EVELYN BEE IMM. Asociate Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1992

CHOOLJIAN, DAVID M. Associate Professor, Department of Medicine SM
M.D. Vanderbilt University, Tennessee 2007

CHOPRA, SAHIL. Assistant Professor, Department of Medicine SM
M.B.B.S. Government Medical College 2008

CHOUDHURY, BALSHAKHI. Assistant Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. State University of New York, Buffalo 2009

CHOUDHURY, SHELLY C. Assistant Professor, Department of Pediatrics SM
M.B.B.S. University of Calcutta, India 2006

CHOW, CONROY. Assistant Professor, Department of Dermatology SM
M.D. University of Michigan, Ann Arbor 2011

CHOW, KENT. Assistant Professor, Department of Allied Health Studies AH
M.B.A. Claremont Graduate School 1995

CHOW, LORI J. Assistant Clinical Professor, Department of Surgery SM
M.D. University of California, Davis 1994

CHRISLER, JOHN M. Instructor, Department of Orthopedic Surgery SM
B.S. Texas A & M University, School of Veterinary Medicine 1985

CHRISPENS, JERE E. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH; Associate Clinical Professor, School of Public Health PH
M.A. University of California, Los Angeles 1966

CHRISSIAN, ARA A. Associate Professor, Department of Medicine SM
M.D. University of California, San Diego 2003

CHRISTENSEN, AMARILDA A. Clinical Instructor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 2007
M.P.H. Loma Linda University PH 2010

CHRISTENSEN, HEIDI LAVERNE. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1983
M.S. University of Texas, San Antonio 1997

CHRISTIAN-KOPP, SARAH J. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2007

CHRISTISON, GEORGE W. Clinical Professor, Department of Psychiatry SM
M.Div. Andrews University 1970
M.D. University of California, San Diego 1982

CHU, DAVIN Y. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 2012

CHU, DEREK C. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 2004

CHU, JA-YEE ANN. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2017

CHUA, SAMNUEL C. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Southern California 1990

CHUI, JAMES. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Hahnemann University, Philadelphia, Pennsylvania 1993

CHUN, EVELYN E. Y. Assistant Professor, Department of Pediatrics SD
M.D. Universidad Autónomous de Guadalajara, Mexico 2009

CHUNG, BOSUN. Assistant Clinical Professor, Department of Pharmacy Practice SP and Department of Psychiatry SM
Pharm.D. Loma Linda University SP 2007

CHUNG, KWANG S. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1982

CHUNG, KWANG-SU P. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1976
M.A. Loma Linda University GS 1981

CHUNG, PAUL Y. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1991

CHUNG, REBECCA S. Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2012

CHUNG, SEUNG-HWAN. Assistant Clinical Professor, Department of Restorative Dentistry SD
M.S. Chonnam National University, South Korea 2000

CHURCH, CASSANDRA S. Clinical Instructor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2010

CHURCH, CHRISTOPHER A. Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1996

CHURG, WARREN, B. Assistant Professor, Department of Family Medicine SM
M.D. Johns Hopkins University SM 1975

CHWA, SOPHIE K. Assistant Professor, Department of Medicine SM
M.B.B.S. Institute of Medicine, Myanmar 1994

CIOVICA, ANTONIA. Assistant Professor, Department of Psychiatry SM
Ph.D. Fuller Theological Seminary Graduate School of Psychology 2008

CIPTA, ANNE T. Associate Professor, Department of Physical Medicine and Rehabilitation SM
M.D. University of Airlangga, Indonesia 1982

CLARK, ALEXANDRA M. Assistant Professor, Department of Pediatrics SM
M.D. Albany Medical College 1999

CLARK, RALPH W. Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2007
M.P.H. Loma Linda University PH 2011

CLARK, ROBIN D. Professor, Department of Pediatrics SM and Department of Pathology and Human Anatomy SM
M.D. University of Arizona 1978

CLARK, CAMILLE A. Adjunct Assistant Professor, Department of Preventive Medicine SM; Assistant Professor, Department of Medicine SM and School of Behavioral Health BH
M.D. Loma Linda University SM 2012

CLARKE, IAN CAMERON. Research Professor, Department of Orthopedic Surgery SM
Ph.D. University of Strathclyde, Scotland 1972

CLAUSEN, BENJAMIN LEROY. Adjunct Associate Professor, Department of Earth and Biological Sciences SM; Member of FGS
Ph.D. University of Colorado, Boulder 1987

CLEVELAND, ANNIKA E. Instructor, School of Nursing SN
M.S.N. University of New Mexico, Albuquerque 2020

CLEVELAND, TIMOTHY B. Instructor, Department of Orthotics and Prosthetics AH
M.S.O.P. Loma Linda University AH 2015

CLINE, DENIS J. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1992

CLINE, JOHN D. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University GS 2003

CLYMER, JOHN. Adjunct Assistant Professor, School of Public Health PH
A.B. Wabash College, Indiana 1982

COBB, CAMILLA J. Professor, Department of Pathology and Human Anatomy SM
M.D. Meharry Medical College, Nashville, Tennessee 1977

COBBINA, EKUA N. Assistant Professor, Department of Pediatrics SM
M.D. Creighton University, Nebraska 2003

COCJIN, INVEST JOY B. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2018

COCKRILL, KATHRYN M. Instructor, Department of Radiation Technology AH
M.A. Pepperdine University 2016

CODORNIZ, KEVIN A. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2005

COHEN, ANDREW TODD. Assistant Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Case Western Reserve University 1994

COIMBRA, RAUL. Professor, Department of Surgery SM
M.D. Santa Casa de Misericórdia School of Advanced Scientific Studies of Vitória, Brazil 1985

COJOCARU, TRAIAN T. Associate Professor, Department of Neurosurgery SM
M.D. Facultatea de Medicina IMF/University of Bucharest, Romania 1972

COLBURN, KEITH K. Clinical Professor, Department of Medicine SM; Professor, Department of Basic Sciences SM
M.D. Loma Linda University SM 1970

COLE, ARIEL F. Assistant Professor, Department of Family Medicine SM
M.D. University of South Florida, Tampa 1999

COLE, BRADLEY ALAN. Assistant Professor, Department of Neurology SM, Department of Medical Education SM, and Department of Basic Sciences SM
M.D. Loma Linda University SM 1992

COLE, DOROTHEE. Assistant Professor, Department of Neurology SM
M.D. Loma Linda University SM 1994

COLLIER, CARL E. Assistant Professor, Department of Anesthesiology SM and School of Nursing SN
D.O. College of Osteopathic Medicine, Iowa 1980

COLLINS, CHELSEA L. Assistant Professor, Department of Pediatrics SM
M.D. University of Illinois, Springfield 2006

COLLINS, NORBERTO E. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Universidad Nacional de Córdoba, Argentina 1973

COMBS, WALTER F. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of California, San Francisco 1986

COMUNALE, FRANCIS L. Professor, Department of Anesthesiology SM
M.D. Boston University 1959

COMUNALE, MARK E. Professor, Department of Anesthesiology SM
M.D. Tufts University School of Medicine, Boston, Massachusetts 1985

CONCEPCION, WALDO. Adjunct Associate Professor, Department of Surgery SM
M.D. Universidad Autónomous de Guadalajara, Mexico 1978

CONDON, DAVID S. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1994

CONDON, STANLEY C. Emeritus Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1956

CONDON, VANETA MABLEY. Emerita Associate Professor, School of Nursing SN
Ph.D. Claremont Graduate School 1996

CONNOLLY, SEAN P. Adjunct Assistant Professor, Department of Periodontics SD
D.M.D. A. T. Still University, Missouri 2009
M.S. Medical College of Georgia 2012

CONTRACTOR, TAHMEED A. Assistant Professor, Department of Medicine SM
M.B.B.S. Tilak Maharashtra Vidyapeeth, India 2006

COOK, DOUGLAS W. Adjunct Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2001

COOPER, KYLE J. Assistant Professor, Department of Radiology SM
M.D. University of Toledo, Ohio 2010

COPELAND, WILLIAM R. Assistant Professor, Department of Surgery SM
M.D. University of Arkansas for Medical Sciences 2009

COPPOLA, DAMON P. Adjunct Assistant Professor, School of Public Health PH
M.S. George Washington University 2003

CORA, CHERIE A. Assistant Professor, Department of Radiology SM
M.D. Emory University, Georgia 2004

CORDERO-MACINTYRE, ZAIDA R. Associate Clinical Professor, School of Public Health PH
Ph.D. University of Arizona 1998

CORDETT, TIMOTHY K. Assistant Professor, Department of Physical Therapy AH; and Member of FGS
D.P.T. Loma Linda University AH 2003

CORNEJO, LUAMY G. Department of Otolaryngology and Head and Neck Surgery SM
M.S. Loma Linda University SN 2013

CORONADO, MICHAEL P. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1975

CORONEL, CARMENCITA J. Assistant Professor, Department of Anesthesiology SM
M.D. University of Santo Tomas, Manila, Philippines 1982

CORSELLI, JOHANNAH. Assistant Professor, Department of Gynecology and Obstetrics SM
Ph.D. University of California, Riverside 1986

COSAND, CHELSEA L. Instructor, Department of Emergency Medicine SM
M.D. University of Iowa 2012

COSTA, PRISCILLA R. Adjunct Assistant Professor SD
D.D.S. Loma Linda University SD 2017

COTTI, ELISABETTA. Lecturer, Department of Endodontics SD
D.D.S. University of Cagliari, Italy 1985
M.S. Loma Linda University SD 1990

COTTON, ADRIAN N. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1996

COTTRELL, ALFRED C., JR. Associate Professor, Department of Medicine SM
M.D. Hahnemann Medical College, Philadelphia, Pennsylvannia 1982

COUPERUS, JAMES J. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1967

COUTSOUMPOS, ALEXANDROS. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2010

CRAIG, DEBRA D. Associate Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1982

CRAIG, WINSTON J. Adjunct Professor, School of Public Health PH
Ph.D. University of Queensland, Australia 1971

CRAMER, TONYA E. Assistant Professor, Department of Preventive Medicine SM
M.D. Rosalind Franklin University of Medicine and Science, Illinois 2012
M.P.H. University of Maryland, Baltimore 2017

CRANSTON, RICHARD T. Assistant Professor, Department of Psychiatry SM
M.S. Ohio State University 1974

CRAVANAS JR. BRIAN A. Instructor, Department of Neurology SM
M.D. University of South Alabama 2014

CRAWFORD, JAMES MERLIN. Emeritus Professor, Department of Dental Education Services
D.D.S. Loma Linda University SD 1960
M.P.H. Harvard University 1969

CRAWFORD, STEVEN W. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. University of Cincinnati 1993

CRAWLEY, BRIANNA K. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. University of California, San Diego 2008

CRISTALL, JENNIFER B. Assistant Professor, Department of Anesthesiology SM
M.D. University of Manitoba, Canada 2002

CROUNSE, JAMES E. Assistant Professor, Department of Family Medicine SM and Department of Preventive Medicine SM
M.D. Loma Linda University SM 2007
M.P.H. Loma Linda University PH 2011

CRUISE, JAMES ROBERT, Instructor, Department of Radiation Technology AH
M.S.R.S. Loma Linda University AH 2016

CRUZ, AUDREY S. L. Assistant Professor, Department of Medicine SM
M.D. University of Nevada, Reno 2015

CUMINGS, CHRISTOPHER D. Assistant Clinical Professor, Department of Radiology SM
M.D. Loma Linda University SM 1970

CUMMINGS, JOHN L. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1986

CUNI, JILL R. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1997

CURTIS, ANN. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University GS 2000

CUTLER, DREW C. Assistant Professor, Department of Pediatrics SM
M.D. University of Washington School of Medicine 1982

DAGERMANGY, DEAN E. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. New York Medical College 1998

DAHER, NOHA SALIM. Professor, Department of Allied Health Studies AH; Assistant Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 2005

DAHLAN, EDNA. Assistant Cliniccal Professor, Department of Pharmacy Practice SP
B.S. University of Santo Tomas, Philippines 1975

DAILEY, LENA J. Assistant Professor, School of Nursing SN
M.S.N. Villanova University 2011993

DALEY, SAFIYA. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2019

DAMODARAN, CHITRA. Assistant Professor, Department of Medicine SM
M.D. University of Madras, India 1982

DAN, NICOLAE G. Adjunct Assistant Professor, School of Public Health PH
M.D. University of Medicine and Pharmacy, Bucharest 1990

DANDAMUDI, NAGAMANI. Assistant Professor, Department of Medicine SM
M.B.B.S. SV Medical College, India 1981

DANESH, SID A. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.D. Tehran University School of Medicine, Iran 1979

DANG, PATRICIA P. Assistant Professor, Department of Medicine SM
D.O. Touro University, San Francisco, California 2008

DANG, TRIEN T. Assistant Professor, Department of Radiology SM
M.D. Drexel University, Pennsylvania 2009

DANIEL, ALTHEA P. Assistant Professor, Department of Pediatrics SM
M.D. University of California, Los Angeles/Drew Medical School 1988

DANIELS, MORGAINE E. Assistant Professor, Department of Emergency Medicine SM
M.D. University of California, Irvine 2014

DANIEL-UNDERWOOD, LYNDA. Associate Professor, Department of Emergency Medicine SM and Department of Medical Education SM
M.D. Loma Linda University SM 1991

DANISA, OLUMIDE. Associate Professor, Department of Orthopedic Surgery SM and Department of Neurosurgery SM
M.D. University of Virginia School of Medicine 1990

DAO, QUY ALAN D. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
M.S.P.A. Western University of Health Sciences, California 2020

DAOUD, NASIM. Assistant Professor, Department of Medicine SM
M.D. University of Damascus, Syria 1997

DARBY, ROBERT L. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1961

DARNELL, T. ALLAN. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 1995
M.P.H. Loma Linda University PH 1998

DART, G. CHARLES, JR. Assistant Professor, Department of Allied Health Studies AH

M.B.A. La Sierra University 1994

DARWISH, DANA S. Assistant Professor, Department of Anesthesiology SM
D.O. Touro University 2007

DASTJERDI, MOHAMMAD. Associate Professor, Department of Neurology SM
M.D. Iran University of Medical Sciences 1998
Ph.D. Florida Atlantic University, Boca Raton 2007

DASHTIPOUR, KHASHAYAR. Associate Professor, Department of Neurology SM, Department of Basic Sciences SM, and Department of Pharmacy Practice SP
M.D. Ahwaz University of Medical Sciences, Iran 1992
Ph.D. Ancana University 1999

DASON, ADLEY C. Instructor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2016
M.P.H. Loma Linda University PH 2019

DATEMA, JODI. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
M.S. University of Redlands, California 2012

DAVIDIAN, MARILYN HOPKINS. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
Ph.D. Claremont Graduate School 2010

DAVIDS, ALLIE A. Instructor, Otolaryngology and Head and Neck Surgery SM
Au.D. Arizona State University 2013

DAVIDSON, CAROLYN M. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2005

DAVIDSON, MICHAEL J. Assistant Professor, Department of Orthotics and Prosthetics AH and Department of Physical Medicine and Rehabilitation SM
M.P.H. Loma Linda University PH 2001

DAVIS, ANDREW. Instructor, Department of Emergency Medicine SM
M.D. University of Southern California 2013

DAVIS, CAROL A. L. Assistant Professor, Department of Radiation Technology AH
Dr.P.H., Psy.D. Loma Linda University PH, ST 2010

DAVIS, DANIELLE L. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2012

DAVIS, GERALDINE. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.H.I.S. Loma Linda University AH 2002

DAVIS, JOSEPH V. III. Assistant Professor, Department of Surgery SM
D.O. Texas College of Osteopathic Medicine, Des Moines, Iowa 1982

DAVIS, NICCETA. Associate Professor, Department of Physical Therapy AH
Ph.D. American University, Washington D.C. 1999

DAVIS, RICHARD E. Assistant Professor, Department of Surgery SM
M.D. Creighton University School of Medicine, Omaha, Nebraska 2000

DAVIS, SHAREECE A. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. University of California, Los Angeles 2005

DAVIS, WILLIE L., JR. Associate Professor, Department of Pharmaceutical and Administrative Sciences SP and Department of Basic Sciences SM; and Member FGS
Ph.D. Meharry Medical College 2001

DAVIS-NELSON, SHAREECE. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Charles R. Drew University of Medicine and Science 2005

DAWES, JHANELLE K. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2017

DAYES, LLOYD. Emeritus Professor, Department of Surgery SM
M.D. Loma Linda University SM 1959

DBOUK, HASAN M. Assistant Clinical Professor, Department of Restorative Dentistry SD
B.D.S. Beirut Arab University 2002

DEAN, LANDON L. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2009

DE ANDRADE, PEDRO A. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
B.M. Centro Universitário Lusíada 1993

DEBAY, MARC J. Associate Clinical Professor, Department of Preventive Medicine; Associate Professor, Department of Medicine SM
M.D. Universite Libre de Bruxelles, Belgium 1982
Ph.D. Johns Hopkins 2000

DE BRUN, JESSICA N. Adjunct Associate Professor, Department of Occupational Therapy AH
O.T.D. Loma Linda University 2014

DeCARVALHO, LORIE T. Adjunct Associate Professor, Department of Psychiatry SM
Ph.D. Loma Linda University GS 2003

DEGUZMAN, LINO J. Assistant Clinical Professor, Department of Medicine SM
M.D. University of Santo Tomas, Philippines 1986

DEHOM, SALEM O. Associate Professor, School of Nursing SN and Member FGS
M.P.H. Loma Linda University PH 2011

DEISCH, JEREMY K. Associate Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 2006

DELANGE, MARIE T. Instructor, Department of Radiation Technology AH
B.S. University of Redlands 1988

DE LA PENA, IKE C. Assistant Professor, Department of Pharmaceutical and Administrative Sciences SP
Ph.D. Sahmyook University, South Korea 2012

DE LA PENA, WENDY L. Assistant Professor, Department of Pediatrics SM

M.D. University of Wisconsin, Madison 2000

DE LEON, DAISY D. Professor, Department of Basic Sciences SM
Ph.D. University of California, Davis 1987

DE LEON, MARINO A. Professor, Department of Basic Sciences SM
Ph.D. University of California, Davis 1987

DELEON, MICHAEL. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2008

DE LOS REYES, KENNETH. Assistant Professor, Department of Neurosurgery SM and Department of Otolaryngology and Head and Neck Surgery SM
M.D. New York University 2006
M.S. Icahn School of Medicine at Mount Sinai 2012

DEL ROSARIO, CHRISTIA J. Instructor, Department of Gynecology and Obstetrics SM
M.D. Drexel University, Pennsylvania 2013

DEMING, DOUGLAS D. Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1975

DEMIRDJI, SAMUEL A. Assistant Professor, Department of Orthodontics SD
Ph.D. University of Colorado, Boulder
1993
D.D.S. Loma Linda University SD 2001

DEMUTH, PETER W. Assistant Professor, Department of Medicine SM
M.D. Penn State College of Medicine, Pennsylvania 2017

DENHAM, LAURA J. Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 2010

DENLER, LOREN LEE. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1964

DENMARK, T. KENT. Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1994

DENNIS, DAVID S. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1984

D'ERRICO, ELLEN M. Professor, School of Nursing SN; and Member FGS
Ph.D. University of California, Los Angeles 2006

DE GIORGIO, SHIRIN R. Instructor, Department of Pediatrics SM
M.D. Loyola University Chicago, Illinois 2017

DE SOUZA, JULIA. Instructor, School of Nursing SN
B.S.N. Liberty University, Virginia 2016

DEVERA, JESSE R. Clinical Instructor, Department of Psychiatry SM
M.D. University of the East, Philippines 1978

DE VERA, MICHAEL E. Professor, Department of Surgery SM
M.D. University of California, Los Angeles 1991

DE-WHYTE, JANICE P. Assistant Professor, School of Religion SR
Ph.D. McMaster University 2014

DEXTER, JAMES R. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1974

DHALIWAL, SONIA G. Assistant Professor, Department of Radiology SM
M.D. University of California, Los Angeles School of Medicine 2001

DHARMARAJ, TONY M. Instructor, School of Nursing SN
B.S. Loma Linda University SN 2006

DHOOT, SONIA B. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Albany Medical College, New York 2011

DIAZ, LYNN. Assistant Professor, Department of Endodontics SD
D.D.S. University of California, Los Angeles 1995

DICICCO, PASQUALINO. Adjunct Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1985
M.S. Loma Linda University GS 1993

DICKEY JEFMAR. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2011

DICKINSON, MARK T. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 1997

DIEHL, HANS A. Clinical Professor, Department of Preventive Medicine SM
D.H.Sc., M.P.H. Loma Linda University PH 1975

DIETRICH, TERRY J. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1971

DINH, VI A. Associate Professor, Department of Emergency Medicine SM
M.D. University of California, San Francisco 2009

DISTELBERG, BRIAN. Associate Professor, Department of Counseling and Family Sciences Program BH; and Member FGS
M.A. Western Michigan University 2005

DOAN, ANDREW P. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Johns Hopkins University 2001

DOAN, JENNIFER A. Assistant Professor, Department of Family Medicine SM
D.D. Lake Erie College of Osteopathic Medicine 2011

DONALDSON, THOMAS K. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1984

DONG, WEI. Associate Research Professor, Department of Otolaryngology and Head and Neck Surgery SM
Ph.D. University of Bristol, United Kingdom 2001

DONKOR, KOFI. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 2006

DONNELLY, JANET. Assistant Professor, School of Nursing SN
Ph.D. University of San Diego 2016

DORAM, KEITH R. Adjunct Associate Professor, Department of Medicine SM
M.D. Indiana University School of Medicine 1983

DOROTTA, IHAB. Associate Professor, Department of Anesthesiology SM, Department of Surgery SM, and Department of Basic Sciences SM; Assistant Professor of Nursing SN
M.B.Ch.B University of Alexandria, Egypt 1995

DOS SANTOS, HILDEMAR F. Associate Professor, School of Public Health PH
M.D. Rio Grande University Medical School, Brazil
1978
Dr.P.H. Loma Linda University PH 1999

DOTY, RICHARD D. Assistant Clinical Professor, Department of Dermatology SM
M.D. University of California, Los Angeles 1974

DOUCETTE, DAVID J. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1982

DOUGLAS, TERRY D. Associate Professor, Department of Communication Sciences and Disorders AH
Ph.D. The University of Memphis 1994

DOVICH, J. ADAM. Clinical Instructor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2003

DOWNEY, RALPH III. Adjunct Associate Professor, Department of Medicine SM
Ph.D. University of California, Riverside 1989

DRIEBERG, KEITH L. Associate Clinical Professor, Department of Psychology BH
Ph.D. United States International University 1992
M.P.H. Loma Linda University PH 1994

DROLLINGER, DALE W. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Wright State University, Ohio 1983

DROUIN, MELINDA L. Adjunct Instructor, Department of Dental Education Services SD
B.S. Loma Linda University SD 2008

DROUIN, VINCENT P. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2009

DU, DAI VIEN. Assistant Professor, Department of Family Medicine SM
M.D. University of California, Davis 1998

DUERKSEN-HUGHES, PENELOPE J. Professor, Department of Basic Sciences SM and School of Public Health PH; and Member FGS
Ph.D. Emory University, Atlanta, Georgia 1987

DUMOIS, CARLOS F. Assistnat Professor, Department of Medicine SM
M.D. Universidad Central del Este, Dominican Republic 1986

DUNBAR, JENNIFER A. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1991

DUNBAR, RICHARD D. Emeritus Associate Professor, Department of Radiology SM
M.D. Loma Linda University SM 1962

DUNBAR, SABINE S. Assistant Professor, School of Nursing SN
M.S. Central Queensland University, Australia 2002

DUNBAR, STEPHEN G. Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. Central Queensland University, Australia 2002

DURAN, GRACIELA G. Assistant Professor, Department of Dental Education Services SD
B.S. Loma Linda University SD 2007

DUROSEAU, DANIEL. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2001

DUS, IVAN. Adjunct Assistant Professor, Department of Orthodontics SD
M.D. University of Padua, Italy 1980

DUWAL, RAMILA D. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1998

DYJACK, DAVID T. Adjunct Professor, School of Public Health PH
Dr.P.H. University of Michigan 1996

DYLESKI, ROBIN A. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM and Department of Pediatrics SM
M.D. University of Southern California 1988

DYSINGER, WAYNE S. Associate Professor, Department of Preventive Medicine SM and Department of Family Medicine SM; Assistant Professor, School of Public PH
M.D. Loma Linda University SM
1986
M.P.H. Loma Linda University PH 1990

EBHELE, JACQUES A. Assistant Professor, Department of Surgery SM
M.D. Universite de Lubumbashi, Congo 2008

EDDERKAOUI, BOUCHRA. Assistant Research Professor, Department of Medicine SM
Ph.D. Catholic University of Louvain, Belgium 1995

EDDOW, CHRISTINE MARIE. Clinical Instructor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2003

EDELL, THOMAS A. Associate Professor, Department of Anesthesiology SM and Department of Physical Medicine and Rehabilitation SM
M.D. University of Kansas 1992

EDMUNDS, WILLIAM J. Assistant Professor, Department of Radiation Technology AH
M.A. University of Redlands 2013

EGGERS, MARILYN B. Associate Professor, School of Public Health PH
Ph.D. Andrews University 1999

EGUCHI, JIMMY H. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2002

EICHENBERG, BRIAN J. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Georgetown School of Medicine 1994

EISENHUT, DEBORAH A. Assistant Professor, Department of Surgery SM
M.D. Oregon Health and Science University 1981

EJIKE, JANETH C. Associate Professor, Department of Pediatrics SM
M.B.B.S. University of Lagos, Nigeria 1994

EKE, CLIFFORD C. Assistant Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1992

EKINS, BRENT R. Associate Clinical Professor, Department of Pharmacy Practice SP
Pharm.B. University of Utah 1974

EKLUND, DIANE K. Assistant Clinical Professor, Department of Pathology and Human Anatomy SM
M.D. University of Arizona 1988

EKROTH YUKL, ANN J. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1976

EKWEN, GERALD T. Assistant Professor, Department of Surgery SM
M.D. University of Yaounde, Cameroon 2002

ELAZEGUI, LISA M. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2008

ELDER, HARVEY A. Clinical Professor, Department of Medicine SM; Professor and School of Public Health PH
M.D. Loma Linda University SM 1957

ELGOHARY, BASSEM. Assistant Professor, Department of Medicine SM
M.D. University of Wisconsin, Madison 2002

ELIAS, MARVIN L. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2008

ELLINGTON, DANIELLE L. Assistant Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2013

ELLOWAY-SONG, TAMARAH R. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1990

ELLSTROM, MERVIN L. Assistant Clinical Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 1975
M.P.H. Loma Linda University PH 1975

ELO, JEFFREY A. Assistant Clinical Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Indiana University 2002
M.S. Loma Linda University SD 2006

ELSHERIF, ISMAIL I. Assistant Professor, Department of Endodontics SD
B.D.S. Cairo University, Egypt 1979
Ph.D. Al-Azhar University, Egypt 1993

ELSISSY, PETER. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of California, Los Angeles 2005

EMANUELLI, SILVIO F. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. University of Pavia, Lombardy, Italy 1986
M.S. Loma Linda University GS 1992

ENGLANDER, DAVID M. Assistant Professor, Department of Emergency Medicine SM
M.D. Temple University School of Medicine, Philadelphia, Pennsylvania 1973

ERICKSON, DAVID G. Clinical Instructor, Department of Pediatrics SM
B.S. Loma Linda University GS 1986

ESCOBAR-PONI, BERTHA C. Professor, Department of Pathology and Human Anatomy SM; and Member FGS
M.D. Universidad Centro-Occidental Lisandro Alvarado, Venezuela 1989

ESKANDARIAN, ROMIC. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Western University of Health Sciences, Pomona, California 2003

ESMAIL, FATEMA Q. Assistant Professor, Department of Ophthalmology SM
M.D. Mount Sinai School of Medicine, New York 2005

ESPERANTE, RAUL. Adjunct Assistant Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. Loma Linda University GS 2002

ESTEY, MARK EDWARD. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1998

ESTRADA, SANDRA E. Instructor, Department of Neurology SM
M.S.N. University of California, Los Angeles 1991

EVANS, DWIGHT C. Associate Professor, Department of Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 1973

EVANS, LAURA E. Assistant Clinical Professor, Department of Radiation Technology AH
J.D. University of California, Berkeley 2007

EVERETT, GEORGE. Professor, Department of Medicine SM
M.D. University of Iowa College of Medicine 1975

EZINWA, N. MARGARETE. Assistant Professor, Department of Family Medicine and Department of Preventive Medicine, SM
M.B.Ch.B. University of Auckland, New Zealand 2003
M.P.H. Johns Hopkins University, Maryland 2010

FAN, JOSEPH T. Associate Professor, Department of Ophthalmology SM and Department of Basic Sciences SM
M.D. University of California, San Diego 1990

FANG, DENNY Y. K. Assistant Professor, Department of Endodontics SD
D.D.S. University of California, Los Angeles 1998

FANOUS, YVONNE F. Associate Professor, Department of Pediatrics SM
M.D. Cairo University, Egypt 1973

FARAJZADEH, FARZIN. Assistant Professor, Department of Medicine SM
M.D. Shahid Beheshti University of Medical Science, Iran 2002

FARGO, RAMIZ A. Associate Professor, Department of Medicine SM

M.D. Loma Linda University SM 1996

FARRAGE, JAMES ROBERT. Associate Professor, Department of Orthodontics SD
D.D.S. Loyola University School of Dentistry 1965
M.S. Loyola University 1967

FARSHIDPANAH, SIAVASH. Assistant Professor, Department of Medicine SM
M.D. St. George's University, Grenada 2007

FARZIN GOHAR, SHADI FARZIN. Assistant Professor, Department of Pediatrics SM
M.D. Lund University School of Medicine, Sweden 2002

FAYARD, CARLOS R. Associate Professor, Department of Psychiatry SM
Ph.D. California School of Professional Psychology 1988

FAYAZI, KHAIRALLAH. Assistant Professor, Department of Psychiatry SM
M.D. Spartan Health Sciences University

FEBRE, APRILLE DAWN F. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2007

FEENSTRA, LAURENCE A. Instructor, Department of Cardiopulmonary Sciences AH
B.S. California State University, San Bernardino 1974

FELDSHER, MENDEL J. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University of Southern California 1996

FELEMA, BIFTU G. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2007

FELIX, ALLEN C. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of Southern California 1991

FELLER, JOHN FRANCIS. Assistant Clinical Professor, Department of Radiology SM
M.D. Ohio State University 1991

FERGUSON, CORY G. Instructor, Otolaryngology and Head and Neck Surgery SM
M.S.P.A. Western University of Health Sciences 2012

FERGUSON, EARL W. Clinical Professor, School of Public Health PH; Associate Clinical Professor, Department of Medicine SM
M.D., Dr.P.H. University of Texas, Galveston 1970

FERNANDO, NANCY R. Assistant Professor, Department of Pediatrics SM
D.O. College of Osteopathic Medicine of the Pacific 1991

FERNANDO, RONALD S. Assistant Professor, Department of Medicine SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1993

FERRY, DAVID R. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1976

FERRY, LINDA H. Associate Professor, Department of Preventive Medicine SM, Department of Family Medicine SM, and School of Public Health PH
M.D. Loma Linda University SM
1979
Dr.P.H. Loma Linda University PH 1989

FIELD, SUE A. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1983

FIGUEIREDO, FABIO C. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Universidade de São Paulo, Brazil 1994

FIGUEROA, HEATHER R. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2008

FILIPPOV, VALERI. Assistant Research Professor, Department of Basic Sciences SM
Ph.D. Institute of Cytology and Genetics, Nivosibirsk, Russia 1993

FILIPPOVA, MARIA. Associate Research Professor, Department of Basic Sciences SM
Ph.D. Institute of Cytology and Genetics, Russia 1997

FILLMAN, MICHAEL J. Associate Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1974
M.P.H. Loma Linda University PH 1974
M.S. Loma Linda University GS 1984

FINNIE, SONJA F. Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1998
M.S. Loma Linda University SD 2000

FIREK, ANTHONY F. Assistant Professor, Department of Medicine SM
M.D. University of Hawaii 1984

FISCHER, DAN E. Adjunct Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1974

FISCHER, SCOTT P. Assistant Clinical Professor, Orthopedic Surgery SM
M.D. University of Wisconsin, Madison 1981

FISHER, FRANZ P. Assistant Professor, Department of Medicine MS
M.D. Loma Linda University SM 1984

FISHER, KENDRA L. Assistant Professor, Department of Radiology SM and Department of Basic Sciences SM
M.D. University of Calgary 1989

FISHER, LORRAINE WHEATON. Instructor, Department of Nutrition and Dietetics AH
M.P.H. Loma Linda University SH 1981
M.S. Loma Linda University GS 1983

FISHER, ROSS. Assistant Professor, Department of Pediatrics SM
M.D. McGill University, Montreal, Canada 1988

FITZGERALD, GARRY J. Assistant Professor, School of Public Health PH
M.D. Autonomous University of Guadalajara, Mexico 1973

FITZPATRICK, MICHAEL J. Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1987

FITZPATRICK, SOFIA I. Assistant Professor, Division of General Dentistry SD

D.D.S. Loma Linda University SD 1998
M.S. Loma Linda University GS 2000

FLAMING, DANIEL T. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1999

FLANERY, ANDREW S. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Kansas 2012

FLEMING, ELAINE. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1975

FLETCHER, HANSEL M. Professor, Department of Basic Sciences SM and Department of Periodontics SD; and Member FGS
Ph.D. Temple University, Philadelphia, Pennsylvania 1990

FLORES, CHRISTOPHER V. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of California, Irvine 1990

FLORES, DANIEL ALEXANDER. Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1982
M.S. Loma Linda University GS 1988

FLORES, LISA D. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1998

FLORES, MARIO M. Assistant Professor, Department of Periodontics SD
D.D.S. University of Mexico, Puebla State, Mexico 1977

FLORIDIA, ROSARIO. Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. University of Colorado 1997

FLOWERS, CALVIN J. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1992

FLYNN, PATRICIA. Assistant Professor, Department of Psychology BH
Ph.D. Loma Linda University ST 2005
M.P.H. Loma Linda University PH 2008

FOGEL, TRAVIS G. Assistant Professor, Department of Physical Medicine and Rehabilitation SM and Department of Psychology BH
Ph.D. Michigan State University at East Lansing 1999

FOMENKO, OLHA. Assistant Professor, Department of Medicine SM
M.D. Vinnica Medical University, Ukraine 2001

FONG, MATTHEW B. Assistant Professor, Department of Pediatrics SM
M.D. Saint Louis University School of Medicine 2008

FOO, RON S. Assistant Clinical Professor, Department of Psychiatry SM and Department of Physician Assistant Sciences AH
M.D. Loma Linda University SM 1998

FORDE, RONALD E. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1983
M.S.D. Loma Linda University SD 2011

FORLAND, STEVEN C. Assistant Professor, Department of Medicine SM; Associate Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1974

FORRESTER, TERRENCE J. Emeritus Associate Professor, Department of Social Work and Social Ecology BH
M.S.W. University of Louisville, KY 1979

FOSTER, GLENN L. Emeritus Professor, Department of Medicine SM
M.D. College of Medical Evangelists 1957

FOSTER-NICHOLAS, LESLEY-ANN. Assistant Professor, Department of Nutrition and Dietetics AH
Dr.P.H. Loma Linda University PH 2020

FOWLER, KENNETH A. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1984

FRADIN-READ, DOMINIQUE. Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. Free University of Brussels, Belgium 1980

FRANCO, DANIEL. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Autonomous University of Guadalajara, Mexico 1979

FRASER, GARY E. Professor, School of Public Health PH, Department of Medicine SM and Department of Preventive Medicine SM; and Member FGS
M.B.Ch.B. University of Otago, New Zealand 1969
Ph.D. University of Auckland, New Zealand 1978
M.P.H. University of Minnesota, Twin Cities 1980

FRAUSTO, TERESA. Assistant Professor, Department of Psychiatry SM
M.D. University of Illinois 1991

FREEMAN, KIMBERLY R. Professor, Department of Social Work and Social Ecology BH
Ph.D. Loma Linda University GS 1999

FREI, KAREN P. Assistant Professor, Department of Neurology SM
M.D. Thomas Jefferson University, Pennsylvania 1992

FREIER RANDALL, MARY-CATHERIN. Professor, Department of Pediatrics SM and School of Public Health PH
Ph.D. University of Health Sciences, Chicago Medical School 1989

FRENCH, KATTY JOY FENTON. Emerita Associate Professor, School of Nursing SN
Ph.D. University of California, Riverside 1988

FRIDEY, JOY L. Assistant Clinical Professor, Department of Pathology and Human Anatomy SM
M.D. Medical College of Pennsylvania 1982

FRIEDMAN, GERALD S. Assistant Clinical Professor, Department of Medicine SM
M.D. University of Miami 1966

FRIEDRICHSEN, ERIC J. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1987

FRIESEN, DEBRA K. Assistant Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 1993

M.S. Loma Linda University SBH 2012

FRITZ, HELMUTH F. Adjunct Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1973

FRITZ, ROBERT L. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University 1975

FRIVOLD, GEIR PAUL. Assistant Professor, Department of Medicine SM
M.D., M.P.H. Loma Linda University SM, PH 1981

FRYKMAN, ERIC K. Assistant Clinical Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda SM 1996
M.P.H. Loma Linda University PH 1999

FUENTES, J. PAUL. Assistant Professor, Department of Periodontics SD
D.D.S. University of California, Los Angeles 1981

FUENTES-DELGADO, JANICE R. Assistant Professor, Department of Neurology SM
M.D. Universidad Autónoma de Guadalajara 2008

FUNKHOUSER, LAURA S. Assistant Clinical Professor of Pediatrics SM
M.D. Eastern Virginia Medical School 1978
M.P.H. Johns Hopkins University 1984

FURUTAN, NAVID P. Assistant Clinical Professor, School of Nursing SN
M.D. University of Virginia School of Medicine 1987

GABRIEL, ALLEN. Adjunct Professor, Department of Plastic and Reconstructive Surgery SM
M.D. University of Nevada School of Medicine 2001

GABRIEL, EDWARD. Assistant Clinical Professor, Department of Radiology SM
M.D. UHS/Chicago Medical School 1987

GAEDE, DONN P. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2010

GAIKWAD, SHUBHANGI N. Assistant Professor, Department of Emergency Medicine SM
M.B.B.S. University of Pune, India 2002

GAJIC, DRAGANA. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. California State University, San Bernardino 2006
M.B.A. University of Redlands 2009

GALANG-FEATHER, NERISSA V. Adjunct Assistant Professor, Department of Psychiatry SM
M.D. University of the Philippines 1981

GALANTE, DANIEL J. Assistant Professor, Department of Surgery SM
D.O. Touro College, New York City 2011

GALARNYK, IHOR A. Associate Clinical Professor, Department of Psychiatry SM
M.D. McGill University, Montreal, Canada 1982

GALARZA, STEVEN F. Adjunct Assistant Professor, Department of Psychiatry SM
D.O. Western University of Health Sciences 2001

GALAT, DANIEL D. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Ohio State University 2002

GALURA, JOSEPH P. Assistant Professor, Department of Anesthesiology SM
D.O. Arizona College of Osteopathic Medicine 2004

GAMBOA-MALDONADO, THELMA. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2011

GANESAN, KRISTIN A. Assistant Professor, Department of Medicine SM
M.D. University of California, San Diego 2012

GANEY, MICHAEL E. Assistant Professor, Department of Surgery SM
M.D. Albany Medical College, New York 2000

GANG, GINA R. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2015

GANO, DAVID L. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1993

GARBACEA, ANTOANELA. Assistant Professor, Department of Restorative Dentistry SD
D.D.S. University of Medicine and Pharmacy, Romania 1998
M.S.D. Loma Linda University SD 2012

GARBEROGLIO, CARLOS A. Professor, Department of Surgery SM and Department of Basic Sciences SM
M.D. National University of Rosario, Argentina 1973

GARBEROGLIO, MARIA C. Assistant Professor, Department of Pediatrics SM
M.D. National University of Rosario, Argentina 1974

GARCIA, AMY B. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2019

GARCIA, A. KEYLA. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2006

GARCIA, GABRIELA ELIZABETH. Assistant Professor, Department of Orthodontics SD
D.D.S. Universidad Nacional Autónoma de Honduras, Honduras 1998
M.S. Loma Linda University GS 2005

GARCIA, HENRY ALBERT. Assistant Professor, Department of Physical Therapy AH
M.P.T. Loma Linda University AH 1990

GARCIA-HENREQUEZ, NORBERT. Assistant Professor, Department of Surgery SM
M.D. New York Medical College 2003

GARDINER, GEOFFREY A., SR. Emeritus Professor, Department of Radiology SM
M.D. College of Medical Evangelists 1949

GARDNER, BENJAMIN D. Associate Clinical Professor, Department of Earth and Biological Sciences SM
Ph.D. Michigan State University 1998
M.P.H. Johns Hopkins University 2008

GARDNER, VANCE O. Associate Clinical Professor, Department of Orthopedic Surgery SM
M.D. Washington University in St. Louis 1980

GARG, SHIVALI G. Assistant Professor, Department of Periodontics SD
D.M.D. Boston University 2012
M.S. Loma Linda University SD 2015

GARRISON, ROGER C. Assistant Professor, Department of Medicine SM
D.O. Oklahoma State University, College of Osteopathic Medicine 1999

GASHUGI, LEONARD K. Professor, School of Public Health PH
Ph.D. Boston University 1992

GATLING, JASON W. Associate Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2002

GATTO, NICOLE M. Adjunct Associate Professor, School of Public Health PH
Ph.D. University of Southern California 2008

GAZZANIGA, DAVID S. Assistant Clinical Professor, Orthopedic Surgery SM
M.D. Dartmouth 1995

GELDWERT, DARON. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Tel Aviv University, Israel 2000

GELLER, ARNOLD Z. Associate Clinical Professor, Department of Radiology SM
M.D. State University of New York, College of Medicine 1955

GENTRY, DAVID W. Assistant Professor, Department of Radiology SM; Assistant Clinical Professor, Department of Radiation Technology AH
M.D. University of Tennessee Graduate School of Medicine 2003

GERLING, WILLIAM L. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1976

GERMAIN, CHERYL A. Assistant Professor, Department of Pathology and Human Anatomy SM
M.H.S. Quinnipiac University, Connecticut 1995

GERONA, ALMA. Assistant Professor, Department of Medicine SM
M.D. Xavier University 1999

GESLANI, BEVAN A. Assistant Professor, Department of Medicine SM
M.D. Far Eastern University, Philippines 1981

GESLANI, VAN F. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2008

GHARIBVAND, LIDA. Associate Professor, Department of Allied Health Studies AH; and Member FGS
Ph.D. Loma Linda University PH 2016

GHAZAL, ELIZABETH A. Associate Professor, Department of Anesthesiology SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1990

GHAZAL, RONNY G. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1987

GHEBREMEDHIN, ABIEL. Associate Professor, Department of Radiation Medicine SM
Ph.D. Baylor University, Texas 1995

GHEEN, KRYSTAL S. Clinical Instructor, School of Public Health PH
M.P.H. Loma Linda University PH 2009

GHEEN, P. CORY. Assistant Professor, Department of Nutrition and Dietetics AH
M.S. Loma Linda University AH 2013

GIANG, DANIEL W. Professor, Department of Neurology SM and Department of Medical Education SM
M.D. Loma Linda University SM 1983

GIBSON, DESMOND D. Assistant Clinical Professor, Department of Dermatology SM
M.D. Loma Linda University SM 1978

GIBSON, L. JAMES, JR. Adjunct Associate Professor, Department of Earth and Biological Sciences SM
Ph.D. Loma Linda University GS 1984

GIEBEL, ARTHUR W. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1991

GIEBEL, HERBERT N. Assistant Professor, Department of Family Medicine SM and School of Public Health PH; Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 1988

GIEM, PAUL A. Adjunct Assistant Professor of Emergency Medicine SM
M.D. Loma Linda University SM 1977

GIERZ, MONIKA S. Associate Clinical Professor, Department of Psychiatry SM
M.D. Medical School University of Wuerzburg, Germany 1978

GIL, LAURA. Instructor, School of Nursing SN
B.S. Loma Linda University SN 2013

GILBERT, BRADLEY PAUL. Assistant Clinical Professor, School of Public Health PH
M.D. University of California, San Diego 1983

GILBERT, MONIQUE. Instructor, Department of Clinical Laboratory Science AH
B.S. Loma Linda University AH 1989

GILEWSKI, MICHAEL J. Associate Professor, Department of Physical Medicine and Rehabilitation SM and Department of Psychology BH
Ph.D. University of Southern California, Los Angeles 1983

GILL, LEIA D. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2005

GILLESPIE, TIMOTHY J. Assistant Clinical Professor, School of Public Health PH
D.Min. George Fox University 2011

GIMBEL, HOWARD V. Professor, Department of Ophthalmology SM
M.P.H. Loma Linda University PH 1978
M.D. Loma Linda University SM 1960

GIORDANO, EUGENIA. Assistant Clinical Professor, School of Public Health PH
M.D. La Plata National University, Argentina 1985
M.P.H. Loma Linda University PH 2000

GIORDANO, OSCAR. Associate Clinical Professor, School of Public Health PH
M.D. La Plata National University, Argentina 1978
M.P.H. Loma Linda University PH 2000

GIRGUIS, MARK S. Assistant Professor, Department of Radiology SM
M.D. Cairo University School of Medicine 1981

GIRI, PARESH C. Assistant Professor, Department of Medicine SM
M.B.B.S. Tribhuvan University Teaching Hospital, Nepal 2000

GLEASON, PETER C. Adjunct Assistant Professor, School of Public Health PH
Ph.D. Loma Linda University BH 2011

GILVAR, PHILLIP J. Assistant Clinical Professor, Department of Orthopaedic Surgery SM
M.D. University of Illinois at Chicago 2014

GOBBLE, CLAIR-ALYCE R. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2012

GOBBLE, TIMOTHY R. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2012

GODFREY, THOMAS E. Emeritus Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1957
M.S. University of Minnesota 1961

GOFF, DONNA A. Assistant Professor, Department of Pediatrics SM
M.D. Albany Medical College, New York 2003

GOLD, JUNE-ANNE. Associate Professor, Department of Pediatrics SM and Department of Basic Sciences SM
M.B.B.S. St. Bartholomew's and the Royal London School of Medicine 1996

GOLD, PHILIP MICHAEL. Professor, Department of Medicine SM
M.D. University of California, Los Angeles 1962

GOLDEN, GARY J. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1977

GOLDSTEIN, MITCHELL R. Professor, Department of Pediatrics SM
M.D. University of Miami 1988

GOLKAR, LINDA. Assistant Professor, Department of Dermatology SM
M.D. University of Southern California 1993

GOLTZ-NEAL, KANDI S. Clincal Instructor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2000

GOMES, MARSHALL E. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1985

GOMEZ, NEPHTALI R. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2004

GONGOL, BRENDAN R. Assistant Professor, Department of Cardiopulmonary Sciences AH
Ph.D. University of California, Riverside 2013

GONZAGA, ALMA ALMARIO. Assistant Professor, Department of Medicine SM
M.D. Far Eastern University, Philippines 1979

GONZALES, JASMINE C. Clinical Instructor, Department of Periodontics SD
B.S. Loma Linda University SD 2015

GONZALEZ, MARK A. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Midwestern University of Chicago College of Pharmacy 1998

GOODACRE, BRIAN J. Associate Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2013

GOODACRE, CHARLES J. Distinguished Professor, Department of Restorative Dentistry SD; and Member FGS
D.D.S. Loma Linda University SD 1971
M.S.D. Indiana University 1974

GOODWIN, H. THOMAS. Adjunct Professor, Department of Earth and Biological Sciences PH
Ph.D. University of Kansas 1990

GORDON, BRENT. Associate Professor, Department of Pediatrics SM
M.D. The Chicago Medical School at Rosalind Franklin University 2002

GORENBERG, ALAN E. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SD 1986

GOWDA, NANDINI N. Assistant Professor, Department of Medicine SM
M.B.B.S. University of Mysore, India 1999

GOWDA, PRASHANTH. Assistant Professor, Department of Medicine SM
M.B.B.S. Gilbarga University, India 1996

GRAMES, BARRY S. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1990

GRANDHI, ANUPAMA. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of Southern California 2006

GRANGAARD, LUELLA MARIE. Clinical Instructor, Department of Occupational Therapy AH
M.A. University of Puget Sound, Washington 1983

GRANGE, JEFFREY T. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1994

GRAYSON, BRITNEY L. Assistant Profesor, Department of Surgery SM
Ph.D. Vanderbilt University, Tennessee 2010
M.D. Vancerbilt University, Tennessee 2012

GREEK, JAMES O. III. Associate Professor, School of Religion SR; Adjunct Assistant Professor, Department of Plastic and Reconstructive Surgery SM

D.Min. Fuller Theological Seminary 1985

GREEN, STEVEN M. Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.D. University of California, San Diego 1985

GREGORIUS, THEODORE K. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 2000

GREGORIUS, WENDY C. Assistant Professor, Division of General Dentistry SD
D.D.S., M.S.D. Loma Linda University SD 2007, 2011

GRIDLEY, DAILA S. Emerita Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University GS 1978

GRIGORYAN, GRIGOR. Assistant Professor, Department of Orthopaedic Surgery SM
M.D. Howard University, District of Columbia 2013

GRISE, MURLAN E. Adjunct Assistant Professor, Department of Family Medicine SM
D.O. College of Osteopathic Medicine of the Pacific 1982

GROHAR, ALBIN H. Associate Professor, School of Public Health PH
Ph.D. Andrews University 1989

GRUBE, MATTHEW ALAN. Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 2007

GRUMET, ROBERT C. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Southern California 2003

GRUMMONS, DUANE CHARLES. Assistant Clinical Professor, Department of Orthodontics SD
D.D.S. Marquette University, Wisconsin 1970

GUBER, KEVIN M. Adjunct Assistant Professor, Department of Psychiatry SM
M.D. University of California, San Diego 2006

GUERRERO FERNANDES, ANDRE V. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of California, San Francisco 2009

GUERRERO, JENNIFER LOUISE. Instructor, Department of Health Informatics, Information Mangement, and Administration AH
B.S. Loma Linda University AH 1997

GUI, SERENA. Assistant Professor, Department of Family Medicine SM
Ph.D. Andrews University, Michigan 1984

GULDNER, GREGORY T. Associate Professor, Department of Emergency Medicine SM
M.D. Stanford University 1997

GUO, ANDREW H. Assistant Professor, Department of Preventive Medicine SM
M.D. Howard University College of Medicine, Washington D.C. 2000
M.P.H. Loma Linda University PH 2004
M.B.A. University of Southern California 2006

GUO, EDMUND. Assistant Clinical Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 2004

GUO, YUJIAN. Assistant Clinical Professor, Department of Neurology SM
M.D. Shanghai Second Medical University 1996

GUPTA, RITESH. Instructor, Department of Ophthalmology SM
M.D. University of Toronto, Mississauga, Canada 2015

GUPTA, SUBHAS C. Professor, Department of Plastic and Reconstructive Surgery SM
M.D. McGill University, Montreal, Canada 1992
Ph.D. University of Louisville/Columbia State University 1997

GUPTILL, MINDI J. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2006

GURULE, DONNA LYNNE. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2016

GUSTAFSON, G. ALLEN. Associate Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1970

GUSTAVSSON, LARS G. Assistant Clinical Professor, School of Public Health PH
M.B.A. Andrews University 1990

GUTHRIE, GEORGE E. Adjunct Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 1981

GUTIERREZ, RIO T. Instructor, Department of Family Medicine SM
M.S.N. Azusa Pacific University 2015

GYSBERS, ERIN L. Assistant Professor, Department of Physician Assistant Sciences AH
M.P.A.S. Saint Francis University, Pennsylvania 2007

GYSBERS, JOSHUA T. Instructor, Department of Cardiothoracic Surgery SM
M.P.A.S. Saint Francis University, Pennsylvania 2007

HAACKE, E. MARK. Adjunct Professor, Department of Radiology SM
Ph.D. University of Toronto, Toronto, Canada 1978

HABER, VIVIANE S. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1985

HACINAS, JOSEPH. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2013

HACKETT, NICOLA W. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University GS 1998

HADDAD, ELLA HASSO. Associate Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1978

HADDAD, LARA. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 2010

HADDAD, RAMI. Assistant Professor, Department of Family Medicine SM

D.O. Nova Southeastern University, Florida 2011

HADDOCK, BRYAN LEROY. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1997

HADLEY, ALISE E. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1993

HADLEY, DAVID A. Adjunct Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 2005

HADLEY, DEAN A. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 1975

HADLEY, H. ROGER. Professor, Department of Urology SM
M.D. Loma Linda University SM 1975

HADLEY, TIFFANY C. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2009

HADLEY, ZACHARY S. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 2006

HAERICH, PAUL E. Professor, Department of Psychology BH
Ph.D. University of Florida 1989

HAGGLOV, CALVIN G. Assistant Professor, Department of Family Medicine SM
M.D. University of Manitoba, Winnipeg, Canada 2002

HAHN, HARVEY S. H. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1994

HAIAVY, JACOB. Assistant Clinical Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. New York University, College of Dentistry 1994
M.D. Mt. Sinai School of Medicine, New York 1997

HAID, JOANNIE L. Assistant Clinical Professor, Department of Radiology SM
D.O. Western Univeristy of Health Sciences, California 1982

HAIDER, GAYLE L. Instructor, Clinical Laboratory Science AH
B.S. Loma Linda University AH 1980

HAJIHA, MOHAMMAD. Assistant Professor, Department of Urology SM
M.D. University of Toronto, Canada 2012

HALAS-LIANG, MELISSA. Clinical Instructor, Department of Nutrition and Dietetics AH
M.A. University of Redlands 1994

HALL, DONALD R. Adjunct Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1978

HALL, SUSAN L. Associate Professor, Department of Medicine SM and Department of Basic Sciences SM; Assistant Professor, School of Public Health PH
Ph.D. Loma Linda University GS 1996
M.D. Loma Linda University SM 1998

M.P.H. Loma Linda University PH 2001

HALSTEAD, LINDA G. Assistant Professor, School of Public Health PH
M.A. University of California, Riverside 1979

HALVERSON, BRYAN E. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2009

HALVERSON, SARA E. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2009

HAMADA, DEBRA LYNN. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration AH
A.B. College of St. Scholastica, Minnesota 1984

HAMADA, NORMAN H. Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1980

HAMMER, JERROLD. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1978

HAMMOND, PAUL G. Associate Clinical Professor, Department of Medicine SM
M.B.B.S. University of Oxford, England 1970

HAMRA, STEPHEN W. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2010

HAMRA, WILLIAM S. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2010

HANCOCK, CHRISTOPHER R. Assistant Clinical Professor, Department of Radiology SM
M.D. Medical College of Georgia 2002

HANDOJO, TROY. Assistant Professor, Department of Medicine SM
M.D. Thomas Jefferson University, Pennsylvania 2003

HANDYSIDES, ALLAN R. Adjunct Professor, Department of Allied Helath Studies AH and School of Public Health PH
M.B.Ch.B. University of Edinburgh, United Kingdom 1963

HANDYSIDES, DANIEL G. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2010

HANDYSIDES, ROBERT A. Associate Professor, Department of Endodontics SD; and Member FGS
D.D.S. Loma Linda University SD 1993

HANDYSIDES, SANDRA L. Instructor, School of Public Health PH
M.S. California State University, Long Beach 2011

HANNA, AMGAD. Assistant Professor, Department of Anesthesiology SM
M.D. Ain Shams University, Egypt 1998

HANNA, MARY ADEEB. Assistant Professor, Department of Family Medicine SM
M.D. Ain Shams University, Egypt

HANSEN, KENT A. Assistant Professor, Department of Dental Education Services SD
J.D. Willamette University, Oregon 1979

HANSON, LISA. Assistant Professor, School of Nursing SN

B.S.N. University of Oklahoma 2009

HARDER, SHERI L. Assistant Professor, Department of Radiology SM
M.D. University of Saskatchewan, Canada 1994

HARDESTY, JEFFREY STEVEN. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1980

HARDESTY, ROBERT A. Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Loma Linda University SM 1978

HARDIN, STEVEN BARTON. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1985

HARDING, GEORGE T. IV. Emeritus Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1953

HARMS, LAWRENCE A. Assistant Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1983

HARRIS, DAVID P. Associate Professor, Department of Health Informatics, Information Mangement, and Administration AH and School of Public Health PH
Ph.D. Claremont Graduate University 1995

HARRIS, MELVYN LEWIS. Adjunct Assistant Professor, Department of Emergency Medicine SM
M.D. University of Oklahoma Medical Center 1977

HART, DYNNETTE. Emerita Associate Professor, School of Nursing SN
Dr.P.H. Loma Linda University PH 1994

HART, ELAINE A. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2000

HART, KENNETH W. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 1969

HART, RICHARD H. Professor, School of Public Health PH and Department of Preventive Medicine SM
Dr.P.H. Johns Hopkins University 1977
M.D. Loma Linda University SM 1970

HARTMAN, RICHARD E. Professor, Department of Psychology BH
Ph.D. Washington University, St. Louis, Missouri 2001

HASHMI, AIJAZ. Associate Professor, Department of Pediatrics SM
M.D. University of Ottawa, Canada 1989

HASSAN, MOHAMED AMIN. Assistant Professor, Department of Periodontics SD
B.D.S. Cairo University Dental School, Egypt 1991
M.S. Loma Linda University GS 2004

HASSO, ANTON N. Clinical Professor, Department of Radiology SM
M.D. Loma Linda University SM 1967

HATHOUT, EBA H. Professor, Department of Pediatrics SM
M.D. Faculty of Medicine at Kuwait, State of Kuwait 1985

HATTI, KALPITA. Adjunct Assistant Professor, Department of Medicine SM
M.B.B.S. University of Maharashtra Health Sciences, India 2008

HATTIS, RONALD P. Associate Clinical Professor, Department of Preventive Medicine SM
M.D. University of California, San Francisco 1968
M.P.H. University of Hawaii 1972

HAUSCHILD, CHRISTOPHER L. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 2002

HAVENS, DOUGLAS F. Instructor, Department of Earth and Biological Sciences SM
M.S. University of California, Riverside 1975
M.A. Loma Linda University SE 1977

HAVILAND, MARK G. Emeritus Professor, Department of Psychiatry SM
Ph.D. University of Northern Colorado 1979

HAWKINS, KELLEY L. Clinical Instructor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2014

HAWKINS, ROBERT A. Associate Professor, Department of Medicine SM
M.D. University of Colorado 1977

HAWY, EMAN. Assistant Professor, Department of Ophthalmology SM
M.B.B.Ch. Ain Shams University, Egypt 2007

HAYASAKA, RUBY A. Adjunct Instructor, Department of Nutrition and Dietetics AH
M.S. Loma Linda University GS 1971
M.A. University of Redlands 1986

HAYATSHAHI, ALIREZA. Associate Professor, Department of Pharmacy Practice SP and Department of Dental Education Services SD
Pharm.D. Midwestern University, Glendale, Arizona 2003

HAYCOCK, KORBIN H. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2000

HAYES, WILLIAM K. Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. University of Wyoming 1991

HAYNES-LEE, JOAN E. Assistant Professor, Department of Family Medicine SM
M.D. Howard University, Washington D.C. 1994

HAYTON, AMY C. Assistant Professor, Department of Medicine SM
M.D., M.P.H. Loma Linda University SM, PH 2004

HAYTON, RYAN. Associate Professor, Department of Surgery SM
M.D. Loma Linda University SM 2005

HAYTON, SHELLEY L. Assistant Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 1982
M.A. La Sierra University 2010

HAYTON, W. ANDREW. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2004

HECHT, DAVID A. Assistant Professor, Department of Medicine SM and Department of Emergency Medicine SM
D.O. Arizona College of Osteopathic Medicine 2000

HEGSTAD, DOUGLAS R. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1980

HEIDARI-BATENI, GIV. Assistant Professor, Department of Medicine SM
M.D. Tehran University of Medical Sciences, Iranx 2009

HEIM, Erin M. Assistant Professor, School of Nursing SN
B.S. Loma Linda University 2009

HEINE, NANCY J. Assistant Professor, Department of Medical Education SM and Department of Medicine SM
M.Ed. University of Southern California 1996

HEINRICH, CHERRIE A. Adjunct Assistant Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Loma Linda University SM 2001

HEISKELL, LAWRENCE E. Assistant Clinical Professor, Department of Surgery SM
M.D. University of Guadalajara, Mexico 1985

HEISLER, WILLIAM HENRY. Emeritus Professor, Department of Restorative Dentistry SD
D.D.S. Loma Linda University SD 1959

HENLEY, STEVEN S. Research Professor, Department of Medicine SM
M.S. Southwestern Methodist University. Georgetown, Texas 1985

HENRY-SAVAJOL, OLIVIER. Assistant Clinical Professor, Department of Restorative Dentistry SD
D.D.S. University of the Mediterranean School of Dentistry, France 2001

HERBER, MARILYN D. Clinical Instructor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1958

HERFORD ALAN S. Professor, Department of Oral and Maxillofacial Surgery SD; and Member FGS
D.D.S. Loma Linda University SD 1994
M.D. University of Texas 1997

HERNANDEZ, BARBARA A. Professor, Department of Medical Education SM; and Member FGS
Ph.D. University of Minnesota, Twin Cities 2003

HERNANDEZ, DELIA D. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1993

HERNANDEZ, RAUL M. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of Montemorelos 1985

HERNANDEZ, SAMANTHA J. Instructor, School of Nursing SN
B.S. Loma Linda University SN 2017

HERRICK, KEVIN RAY. Assistant Clinical Professor, Department of Family Medicine SM
Ph.D. University of Davis 1992
M.D. University of Colorado 1998

HERRING, R. PATRICIA. Professor, School of Public Health PH
Ph.D. Texas Woman's University 1992

HERRMAN, JAN M. Assistant Clinical Professor, Department of Medicine SM
M.D. Louisiana State University 1980

HERRMANN, E. CLIFFORD. Emeritus Associate Professor, Department of Biochemistry and Microbiology SM
Ph.D. Virginia Polytechnic Institute 1970

HERRMANN, MARILYN MURDOCH. Emerita Dean, School of Nursing SN
Ph.D. Claremont Graduate University 1992

HERRMANN, PAUL C. Professor, Department of Pathology and Human Anatomy SM Department of Clinical Laboratory Science AH, Department of Oral and Maxillofacial Surgery SD
Ph.D. Stanford University 1996
M.D. Loma Linda University SM 2000

HERZBERGER, KATHY A. Instructor, Department of Medical Education SM and Department of Medicine SM
M.S. Loma Linda University SN 2015

HESKEY, CELINE E. Assistant Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 2014

HESSELTINE, ANDREW W. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1997

HESSINGER, DAVID A. Professor, Department of Basic Sciences SM
Ph.D. University of Miami at Coral Gables 1970

HEUSTIS, DARRYL G. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1973

HEWES, GORDON E. Adjunct Assistant Professor, School of Public Health PH
M.B.A. University of La Verne, Los Angeles, California 1992

HEWES, JOSEPH E. Instructor, Department of Radiation Technology AH
M.B.A. Loma Linda University PH 2016

HEWITT, LIANE HINAZUMI. Associate Professor, Department of Occupational Therapy AH; Assistant Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 2007

HEYWOOD, J. THOMAS. Clinical Professor, Department of Medicine SM
M.D. University of California, San Diego 1980

HICKS, JAMES B. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Meharry Medical College, Philadelphia, Pennsylvania 1980

HIGHTON, LISA R. Assistant Professor, SN
M.S. Loma Linda University SN 2014

HILGERS, JAMES J. Associate Professor, Department of Orthodontics SD
D.D.S. Loyola University Chicago Dental School 1969
M.S. Northwestern University 1971

HILL, MICHAEL E. Associate Professor, Department of Plastic and Reconstructive Surgery SM

M.D. University of Virginia 1985

HILLIARD, ANTHONY A. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 2002

HINKLEMAN, LORRAINE L. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1990

HINSHAW, DAVID B., JR. Professor, Department of Radiology SM
M.D. Loma Linda University SM 1971

HINSHAW, DAVID B., SR. Emeritus Professor, Department of Surgery SM
M.D. Loma Linda University SM 1947

HINTON, SHAWN J. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Howard University, Washington D.C. 1986

HIROKANE, JANE M. Assistant Professor, Department of Dermatology SM
M.D. Loma Linda University SM 1990

HISADA, PAUL A. Assistant Professor, School of Public Health PH
M.Ed. University of Hawaii, Manoa 1988

HLINE, SU SU. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. University of Medicine, 1, Yangon Myanmar 1987

HO, ANDREW T. Assistant Clinical Professor, Department of Medicine SM
M.D. University of California, San Diego 1999

HO, DENNIS. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2001

HO, RAYNOLD, Instructor, Department of Radiation Technology AH
B.S. Pacific Union College 2004

HOAG, E. PATRICK. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1973
M.S. University of Southern California 1975

HOANG, PHUONG THAO T. Assistant Professor, Department of Pediatrics SM
M.D. University of Medicine of Ho Chi Minh City, Vietnam 1993

HOANG, QUOC HOA. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2004

HOANG, THANH X. Assistant Professor, Department of Medicine SM
M.D. St. George's University School of Medicine, Grenada 1999

HODGKIN, GEORGIA W. Professor, Department of Nutrition and Dietetics AH
Ed.D. Loma Linda University SE 1991

HODGKINS, BRIAN D. Associate Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1988

HODGKINS, MARIE E. Assistant Clinical Professor, School of Nursing SN
M.B.A. University of La Verne, Los Angeles, California 1991

HOFFMAN, WILLIAM C. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1995

HOFFMANN, OLIVER C. Associate Professor, Department of Periodontics SD
D.D.S. University of Wunborg, Germany 1997
M.S. Loma Linda University SD 2003

HOFMEISTER, ELIZABETH M. Adjunct Associate Professor, Department of Ophthalmology SM
M.D. Uniformed Services University, Bethesda, Maryland 1993

HOHENSEE, NATALIE C. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2008

HOLL, DOUGLAS B. Assistant Clinical Instructor, Department of Psychiatry SM
M.D. Loma Linda University SM 2006

HOLLOWAY, GRANT L. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1987

HOLMAN, CHARLES MICHEAL. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1963

HOLMES, TROY ANDREW. Assistant Professor, School of Public Health PH
M.H.A. Chapman University, Orange County, California 1991

HOLSHOUSER, BARBARA A. Emeritus Professor, Department of Radiology SM
Ph.D. Loma Linda University GS 1983

HOLTHOUSE, MARK E. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1990

HOM, STEVE M. Assistant Professor, Department of Radiology SM
M.D. Keck School of Medicine, University of Southern California 2005

HONG, MICHELLE. Instructor, Department of Pediatrics SM
Psy.D. Rosemead Graduate School of Psychology 2017

HOPKINS, GAIL E. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Alabama 1997

HOPKINS, GARY L. Adjunct Associate Professor, School of Public Health PH
M.D. Universidad Autonoma de Guadalajara, Mexico 1975
Dr.P.H. Loma Linda University PH 1997

HOPP, JOYCE WILSON. Dean Emerita, School of Allied Health Professions AH; Distinguished Emerita Professor, School of Allied Health Professions AH and School of Public Health PH
Ph.D. University of Southern California 1974

HOPPER, ANDREW O. Professor, Department of Pediatrics SM
M.D. University of Texas Medical School, San Antonio 1977

HORRICKS, JUSTIN E. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2005

HORSTMANN, JONATHAN WILLIAM. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Washington University, St. Louis, Missouri 1977

HOUCHIN, KENNETH W. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1985

HOUCK, LAURA K. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.P.A. Loma Linda University 2007

HOWARD, FRANK D. Assistant Professor, Department of Medicine SM
Ph.D. Stanford University 1981
M.D. Harvard Medical School 1985

HOXIE, RUSSELL EVAN, JR. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1988

HOYLE, JERRY D. Associate Clinical Professor, Department of Psychiatry SM
Ph.D. California School of Professional Psychology 1980

HSIAO, AMBER F. Assistant Clinical Professor, Department of Radiology SM
M.D. Northwestern University, Illinois 1996

HSU, JEFFREY H. Assistant Clinical Professor, Department of Surgery SM
M.D. New York Medical College 1997

HSU, JULIEANN A. Instructor, Department of Anesthesiology SM
M.S.N. Azusa Pacific University 2000

HSUEH, CHUNG-TSEN. Professor, Department of Medicine SM
M.D. Taipei Medical College, Taiwan 1986
Ph.D. State University, New York 1993

HU, BRIAN R. Assistant Professor, Department of Urology SM
M.D. University of California, Davis 2007

HU, CHARLES K. C. Adjunct Assistant Professor, Department of Surgery SM
M.D. Wayne State University, Michigan 1998

HU, EUGENE W. Assistant Professor, Department of Emergency Medicine SM
M.D. Louisiana State University Health Sciences Center at Shreveport 2002

HU, XIANG-QUN. Assistant Research Professor, Department of Basic Sciences SM
Ph.D. Iowa State University 1994

HUANG, JAMES JUE-TE. Assistant Professor, Department of Medicine SM
M.D. Boston University Medical School 1990

HUANG, JOYCE. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2001

HUANG, LEI. Assistant Research Professor, Department of Neurosurgery SM and Department of Basic Sciences SM
M.D., M.S. Chongqing Medical University 1996, 1999

HUANG, LYNN L. Assistant Professor, Department of Ophthalmology SM
M.D. University of California, Los Angeles 2007

HUARINGA, ARMANDO J. Professor, Department of Medicine SM
M.D. National Major University of San Marcos, Peru 1979

HUBBARD, IONELA O. Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. School of Medicine and Pharmacology, Romania 1982

HUBBARD, R. JEREMY. Assistant Professor, Department of Physical Therapy AH
D.Sc. Loma Linda University AH 2015

HUDSON, BEVERLY K. Instructor, Department of Gynecology and Obstetrics SM
M.S.N. University of Texas, El Paso 1984

HUENERGARDT, DOUGLAS W. Professor, Department of Counseling and Family Science BH; and Member FGS
Ph.D. Northwestern University, Illinois 1967

HUERTA, GLORIA. Assistant Professor, School of Nursing SN
D.N.P. Western University of Health Sciences, California 2013

HUFFAKER, GARY G. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1973

HUFFAKER, SUSAN MATTOON. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2006

HUGHES, W. WILLIAM III. Emeritus Dean, School of Pharmacy SP
Ph.D. Loma Linda University GS 1978

HUI, JENNIFER I. Assistant Professor, Department of Ophthalmology SM
M.D. University of California, San Francisco 2002

HUNG, YUAN-LUNG. Assistant Professor, Department of Endodontics SD
D.M.D. Centro Escolar University, Philippines 1998

HUNT, ENACIO G. Assistant Professor, Department of Medicine SM
M.D. State University of New York, Downstate 1984

HUNTER, RICHARD K. Assistant Professor, Department of Periodontics SD
D.D.S. Creighton University 2012
M.S.D. Loma Linda University SD 2015

HUNTSMAN, MARY ANN. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1983

HUSSAIN, FARABI M. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1994

HUTCHINS, BRIAN C. Assistant Clinical Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 2008

HWANG, JASON S. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 2008

HYDER, SHAZIA. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. University of South Hampton UK 1997

HYUN, CHRISTINE. Assistant Professor, Department of Radiology SM
M.D. Keck School of Medicine, University of Southern California 2006

IBARRA, RALPH. Instructor, Department of Orthotics and Prosthetics AH
M.B.A. Western Governors University 2015

IHDE, JANET K. Associate Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1977

ILANO, EARL P. Assistant Professor, Department of Medicine SM
M.D. De La Salle University, Philippines 2006

IM, SUNGGEUN SAMUEL. Assistant Professor, Department of Surgery SM
M.D. Pusan National University, Korea 1965

IM, TED T. Assistant Clinical Professor, Dental Education Services SD
D.D.S. Loma Linda University SD 1993

INFANTE, SERGIO. Assistant Professor, Department of Medicine SM
M.D. El Bosque University, Bogota, Colombia 1997

ING, JEFFREY J. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1992

ING, MICHAEL B. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1990

INGERSOLL, LEE R. Associate Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1970
M.S. Loma Linda University GS 1974

INGRAM, KATHIE M. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1970

INJETI, PRAVEEN. Clinical Instructor, Department of Occupational Therapy AH
B.S. Loma Linda University AH 1998

INMAN, JARED C. Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 2004

IORIO, MICHAEL F. Assistant Professor, Department of Radiation Technology AH
Ph.D. Azusa Pacific University, California 2019

ISAAC, GEORGE M. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1989

ISAEFF, DALE M. Professor, Department of Medicine SM
M.D. Loma Linda University SM 1965

ISAEFF, WAYNE B. Associate Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1962

ISHIKAWA, EMILY. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 2001

ISHINO, RISA. Assistant Clinical Professor, Department of Psychiatry SM and Department of Pharmacy Practice SP
Pharm.D. California State University, Los Angeles 2007

ISMAIL, MOHAMED H. Assistant Clinical Professor, Department of Medicine SM and Department of Preventive Medicine SM
M.B.B.Ch. Cairo University Faculty of Medicine, Egypt 1999
M.P.H. Loma Linda University PH 2006

ISSA MERCADO, LUIS A. Assistant Professor, Department of Medicine SM
M.D. Universidad Central de Venezuela 2011

IZVERNARI. PAULA M. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2011

JABOLA, B. RODNEY. Instructor, Department of Radiation Medicine SM
M.D. Loma Linda University SM 1980

JACELDO-SIEGL, KAREN. Associate Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 2003

JACKSON, CHRISTIAN. Assistant Professor, Department of Medicine SM, Department of Basic Sciences SM, and School of Public Health PH
M.D. University of Chicago 1999

JACKSON, CRAIG R. Associate Professor, Department of Allied Health Studies AH and Department of Social Work and Social Ecology BH
J.D. Western State University College of Law, Fullerton, California 1993

JACKSON, G. VICTORIA. Assistant Professor, Department of Social Work and Social Ecology BH
M.S.W. University of Michigan 1972
Ed.D La Sierra University 2012

JACOB, SHARON E. Professor, Department of Dermatology SM
M.D. Temple University 2000

JACOBS, MURRAY K. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Baylor College of Dentistry, Dallas, Texas 1976

JACOBS, RANDOLPH J. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.D. University of Southern California 1986

JACOBSON, ALAN K. Assistant Professor, Department of Medicine SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1981

JACOBSON, BRENNA L. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2000

JACOBSON, HAROLD L. Assistant Professor, Department of Endodontics SD
D.D.S. University of the Pacific 1980

JACOBSON, J. PAUL. Associate Professor, Department of Radiology SM and Department of Basic Sciences SM
M.D. University of California School of Medicine 1997

JACOBSON, JOHN D. Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1970

JAHNG, ALEXANDER W. Assistant Professor, Department of Medicine SM,
M.D. University of California, Irvine 2006

JAIN, AKSHAT. Assistant Professor, Department of Pediatrics SM and School of Public Health PH

M.B.B.S. University of Mauritius 2007

JAIPAUL, NAVIN. Associate Professor, Department of Medicine SM
M.D. University of Iowa 2000

JAISWAL, BHAVINI J. Assistant Clinical Professor, Department of Medicine SM
M.D. Ross University, Portsmouth, Dominica West Indies 2004

JAMES, SIGRID. Adjunct Professor, Department of Social Work and Social Ecology BH
Ph.D. University of Southern California 2003

JAMES, WESLEY P. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1995

JANG, G. DAVID. Emeritus Professor, Department of Medicine SM
M.D. Korea University College of Medicine 1965

JAVAHERIAN-DYSINGER, HEATHER A. Associate Professor, Department of Occupational Therapy AH; and Member FGS
O.T.D. Creighton University, Omaha, Nebraska 2004

JAVOR, GEORGE T. Emeritus Research Professor, Department of Biochemistry and Microbiology SM
Ph.D. Columbia University 1967

JAWOR, RONALD WALTER. Assistant Professor, Department of Orthodontics SD
D.D.S. Loyola University, Chicago 1969

JEGEDE, AKINLOLU T. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2019

JEIROUDI, M. TOUFIC. Professor, Department of Orthodontics
D.D.S. University of Damascus, Syria 1978

JEKKI, BALSAM F. Associate Professor, Division of General Dentistry SD
B.D.S. Baghdad University, Iraq 1994

JEKKI, RAMI R. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2006

JENG, LEO C. Assistant Professor, Department of Pediatrics SM
M.D. New York Medical College 2000

JENKINS, LOUIS E. Emeritus Professor, Department of Psychology BH
Ph.D. Pennsylvania State University 1973

JENNINGS-NUNEZ, CHASITY D. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Harvard Medical School 1995

JI, LIANG. Assistant Professor, Department of Allied Health Studies AH
Dr.P.H. Loma Linda University PH 2019

JIFFRY, KATHY. Assistant Professor, Department of Pediatrics SM
M.D. University of Colombo, Sri Lanka 1980

JIH, WILLIAM W. Assistant Professor, Department of Family Medicine SM
M.D. Albany Medical College, New York 1999

JIMENEZ, PETER N. Lecturer, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 2000

JINAMORNPHONGS, SUCHAYA. Assistant Professor, Department of Medicine SM
M.D. St. George's University School of Medicine, Grenada 1999

JO, DAVID JAEKWAN. Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1982
M.S. Loma Linda University GS 1985

JOB, ALLEN J. Lecturer, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 2003

JOB, JAYAKARAN S. Professor, School of Public Health PH, Department of Medicine SM, and Department of Preventive Medicine SM; and Member FGS
M.D. Christian Medical College, India 1982
Dr.P.H. Johns Hopkins Hospital 1990

JOBE, CHRISTOPHER MALLORY. Professor, Department of Orthopedic Surgery SM and Department of Anesthesiology SM
M.D. Baylor College of Medicine, Texas 1975

JOE, VICTOR C. Assistant Professor, Department of Surgery SM
M.D. Medical College of Virginia 1995

JOHL, JASKAM S. Assistant Professor, Department of Ophthalmology SM
D.O. Lake Erie College of Osteopathic Medicine, Pennsylvania 2014

JOHNA, SAMIR D. Clinical Professor, Department of Surgery SM
M.D. University of Baghdad, Iraq 1983

JOHNS, LORETTA B. Associate Professor, Department of Medical Education SM
Ph.D. University of Maryland 1986

JOHNSON, CAMERON J. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1989

JOHNSON, ERIC G. Professor, Department of Physical Therapy AH; and Member FGS
D.P.T.Sc. Loma Linda University AH 2001

JOHNSON, MARK S. Associate Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. University of Utah 1984

JOHNSON, MELANIE D. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W., M.S. Loma Linda University ST 2011

JOHNSON, RONALD B. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1984

JOHNSON, SAMANTHA J. Instructor, Department of Urology SM
M.S. Loma Linda University SN 2009

JOHNSON, SUSIE M. Instructor, Department of Clinical Laboratory Science AH
B.S. Loma Linda University AH 1981

JOHNSON, WALTER D. Professor, School of Public Health PH and Department of Neurosurgery SM
M.D. Loma Linda University SM 1983

JOHNSTON, CHRISTIAN W. Assistant Professor, School of Public Health PH
J.D. Pepperdine University School of Law 1995

JOHNSTON, ZINA A. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2000

JONES DEBAY, KATHERINE D. Assistant Professor, School of Public Health PH
M.S.P.H. University of California, Los Angeles 1972

JONES, PATRICIA SADIE. Distinguished Emerita Professor, School of Nursing SN
Ph.D. George Peabody College 1977

JONES, RACHEL N. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2012

JONES-OYEFESO, VANESSA. Assistant Professor, School of Nursing SN
Dr.P.H. Loma Linda University PH 2009

JOSEPH, THERESA M. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2013

JUHL, LYNDA M. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1984

JUMA, HAITHAM J. Associate Professor, Department of Preventive Medicine SM; Assistant Professor, School of Public Health PH
M.B.Ch.B. University of Baghdad, Iraq 1978
M.P.H. Loma Linda University PH 2011

JUN, ALLISON J. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 2002

JUNCAJ, JENNY. Assistant Professor, Division of General Dentistry SD
D.D.S. University of Detroit, Mercy 2001

JUNG, HELEN H. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. University of California, Los Angeles 2012

JUNG, TIMOTHY T. K. Clinical Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1974

JUTZY, GREGORY J. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2011

JUTZY, KENNETH ROY. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1977

KAFROUNI, GEORGE I. Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. Loma Linda University SM 1961

KAIGLE, ALLIE. Assistant Professor, Department of Psychiatry SM
Pharm.D. Massachusetts College of Pharmacy 2013

KAIRIS, LISA A. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. University of Illinois at Chicago 1996

KAISER, CAMERON D. Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2003

KAHN, AQEEL S. Assistant Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.B.B.S. Bahauddin Zakariya University, Pakistan 1986

KALBERMATTER, OLGA R. Instructor, Department of Pediatrics SM
M.S. Loma Linda University GS 1995

KALRA, TEJINDER M. Associate Professor, Department of Medicine SM
M.D. Postgraduate Institute of Medical Education and Research, India 1971

KAN, JOSEPH YUN KWONG. Professor, Department of Restorative Dentistry SD
D.D.S. Loma Linda University SD 1990
M.S. Loma Linda University GS 1999

KANG, ILHO. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2002

KANG, JOSEPH I. Assistant Professor, Department of Radiation Medicine SM
M.D., Ph.D. Loma Linda University SM 2008

KAO ANDERSON, CECILIA C. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. University of California, San Francisco 2001

KARAGYOZYAN, DANIELA S. Assistant Professor, Department of Anesthesiology SM
M.D. I.P. Pavlov Higher Medical Institute, New York 1989

KARDASINSKI, DANIEL S. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1978

KASHANI, S. AMIR. Assistant Professor, Department of Medicine SM
M.D. Tehran University of Medical Science, Iran 2000
M.P.H. Loma Linda University PH 2013

KASHNER, T. MICHAEL. Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. University of Michigan 1981
J.D. Oklahoma City University 1987

KASSIR, MOHAMMAD M. Assistant Professor, Department of Radiology SM
M.D. Wayne State University, Michigan 2013

KATIRAEI, PEJMAN. Assistant Clinical Professor, Department of Preventive Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2003

KATSAROS, EMMANUEL P. Associate Professor, Department of Medicine SM
D.O. Midwestern University, Texas 1995

KATTADIYIL, MATHEW THOMAS. Professor, Department of Restorative Dentistry SD; and Member FGS
B.D.S. College of Dental Surgery at Manipal, India 1990
M.S. Loma Linda University GS 1999

KAUR, MANJU. Instructor, Department of Urology SM
M.S. California State University, Long Beach 2011

KAWAHARA, NANCY E. Associate Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1982

KAWAYEH, ANAS. Assistant Clinical Professor, Department of Medicine SM
M.D. University of Aleppo, Syria 2005

KAZANJIAN, KEVORK K. Adjunct Associate Professor, Department of Surgery SM
M.D. University of California, Los Angeles 2001

KAZI, ASMA M. Assistant Professor, Department of Medicine SM
M.B.B.S. Baqai University, Karachi, Pakistan 1994

KEARBEY, VAUGHN E. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1992

KEARNS-JONES, MARY K. Associate Professor, Department of Pathology and Human Anatomy SM; and Member FGS
Ph.D. McGill University, Montreal, Canada 1985

KEEFE, KELLY S. Associate Professor, Department of Pathology and Human Anatomy

M.D. Case Western Reserve University, Cleveland, Ohio 1985

KEEHBAUCH, JENNIFER. Associate Professor, Department of Family Medicine SM
M.D. University of Florida 1992

KEJRIWAL, KAMAL. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Sawai-Man-Singh Medical College, India 1995

KELLEY, STEPHEN M. Assistant Professor, Department of Surgery SM
M.D. SUNY Health Sciences Center, Brooklyn, New York 1985

KELLING, JONATHAN G. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2005

KELLY, JOHN H., JR. Adjunct Assistant Professor, Department of Preventive Medicine SM
M.P.H. Loma Linda University PH 2002
M.D. Loma Linda University SM 2000

KELLY, THOMAS J. Assistant Professor, Department of Radiology SM
M.D. University of Maryland Medical School 1986

KENNEDY, CASEY M. C. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1990

KENNEDY, WILLIAM A. Associate Professor, Department of Pediatrics SM
M.D. McGill University, Montreal, Quebec 1981

KERSTETTER, GARY A. Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1983

KERSTETTER, JUSTIN C. Associate Professor, Department of Pathology and Human Anatomy SM, Department of Dermatology SM, and Oral and Maxillofacial Surgery SD
M.D. Loma Linda University SM 2008

KESAVAN, CHANDRASEKHAR. Assistant Research Professor, Department of Medicine SM
Ph.D. University of Madras Chennai, India 2002

KESSLER, TODD S. Assistant Professor, Department of Medicine SM
M.D. Michigan State College of Human Medicine 1996

KETTERING, JAMES D. Emeritus Professor, Department of Dental Education Services SD
Ph.D. Loma Linda University GS 1974

KEUSHKERIAN, SIMON M. Assistant Clinical Professor, Department of Surgery SM
M.D. American University of Beirut, Lebanon 1981

KEVORKIAN, GARY K. Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1986
M.S. Loma Linda University GS 1990

KHAN, AQEEL S. Assistant Professor, Department of Emergency Medicine SM
M.B.B.S. Bahauddin Zakariya University, Pakistan 1986

KHAN, FAISAL A. Associate Clinical Professor, Department of Surgery SM
M.D. University of Southern California 1980

KHAN, SADIA S. Assistant Professor, Department of Medicine
M.D. Vanderbilt University 2009

KHAN, SALMA. Assistant Research Professor, Department of Basic Sciences SM, Department of Medicine SM, and Department of Otolarynology and Head and Neck Surgery
Ph.D. Umamoto University School of Medicine, Kumamoto, Japan 2000

KHANOYAN, SIRVARD. Assistant Professor, Department of Family Medicine SM
M.D. Tufts University, Boston 2001

KHARRAZIAN, DATIS. Associate Clinical Professor, Department of Preventive Medicine SM
D.C. Southern California University of Health Sciences 1999
D.H.Sc. Nova Southeastern University 2007

KHAZAENI, LEILA M. Associate Professor, Department of Ophthalmology SM
M.D. University of Michigan, Ann Arbor 2000

KHERADPOUR, ALBERT. Associate Professor, Department of Pediatrics SM
M.D. Tehran University, Iran 1980

KHOCHT, AHMED H. Professor, Department of Periodontics SD; and Member FGS
M.S.D. Farleigh Dickinson University 1987
D.D.S. Columbia University 1989

KIANG, SHARON C. Instructor, Department of Cardiothoracic Surgery SM
M.D. Vanderbilt University, Tennessee 2005

KIDD, VASCO D. Assistant Clinical Professor, Physician Assistant Sciences AH
D.H.Sc. A.T. Still University, Arizona School of Health Sciences 2011

KIDDER, MELISSA M. Assistant Professor, Department of Gynecology and Obstetrics SM

M.D. Loma Linda University SM 1994

KIDO, DANIEL K. Professor, Department of Radiology SM and Department of Basic Sciences SM
M.D. Loma Linda University 1965

KIEF-GARCIA, MONIKA L. Assistant Clinical Professor, Department of Radiology SM
M.D. Baylor College of Medicine, Houston, Texas 1987

KIERNAN, WILLIAM H. Assistant Professor, Department of Ophthalmology SM
O.D. Southern California College of Optometry 1981

KIGER, ROBERT D. Clinical Professor, Department of Periodontics SD
D.D.S. Loma Linda University SD 1970
M.S. Oregon Health and Science University 1973
M.A. Loma Linda University GS 1985

KIM, BIBLIA UNG-KYUNG. Clinical Instructor, School of Public Health PH
M.P.H. Loma Linda University PH 2011

KIM, CHRISTINA K. E. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2004

KIM, DANIEL IL-SUN. Associate Professor, Department of Medicine SM
M.D. Hahnemann University at Philadelphia 1994

KIM, DAVID H. T. Assistant Clinical Professor, Department of Medicine SM and Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 1993

KIM, DAVID S. Y. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2003

KIM, DENNIS Y. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1997

KIM, ESTHER J. Assistant Professor, Department of Neurosurgery SM
M.D. University of Maryland, Baltimore 2009

KIM, ESTHER JEONG. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
M.S.P.A. Western University of Health Science, California 2009

KIM, EUGENE S. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2011

KIM, GRACE JEE-EUN. Assistant Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.D. Loma Linda University SM 1990

KIM, HAHNS Y. Associate Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Boston University 2003

KIM, ISAAC K. Assistant Professor, Department of Family Medicine SM
M.D. Texas Tech University 1997

KIM, JEFFREY L. Assistant Professor, Department of Family Medicine SM
M.D. Eastern Virginia Medical School 2008

KIM, JESSICA JUNG HWA. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2005

KIM, JOHN J. Assistant Professor, Department of Medicine SM
M.D. University of Illinois, Chicago 2003

KIM, MARY INYOUNG. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 2006

KIM, MI YE. Assistant Professor, Department of Medicine SM
D.O. Southeastern University of Health Sciences 1990

KIM, PAGGIE P. Assistant Professor, Department of Radiology SM and Department of Pediatrics SM
M.D. Loma Linda University SM 2008

KIM, PAUL SEUNG-KI. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 2009
M.P.H. Loma Linda University PH 2012

KIM, PAUL SEUNG-KOOK. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1990

KIM, RICHARD SEONG EUI. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1983

KIM, SOH YEUN. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2010

KIM, SOO YOUN. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1995

KIM, STEVEN S. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1997

KIM SUNGHEE. Assistant Professor, Department of Emergency Medicine SM
D.N.P. The Johns Hopkins University, Maryland 2016

KIM, TOMMY Y.H. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1999

KIM, WONHA. Assistant Professor, Department of Pediatrics SM, Department of Preventive Medicine SM, and School of Public Health PH
M.D. Johns Hopkins University 2008
M.P.H. Johns Hopkins University 2012

KIM, YOON-JEONG J. Professor, Department of Periodontics SD; and Member FGS
D.D.S. Seoul National University, Republic of Korea 1993
M.S. Loma Linda University SD 2006

KINBACK, KEVIN M. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1992

KINGSLEY, AILEEN M. Instructor, Department of Orthotics and Prosthetics AH
M.S.O.P. Loma Linda University AH 2015

KINNEY, JUSTIN M. Assistant Professor, Department of Pharmacy Practice SP

Pharm.D. Loma Linda University SP 2014

KINSEY, DAVID J. Assistant Professor, School of Public Health PH
M.A. Wright State University, Ohio 1979

KIRAZ, ALARIA A. Assistant Clinical Professor, Department of Pharmacy Practice SP
B.S. University of Iowa 1985

KIRBY, MICHAEL A. Professor, Department of Pathology and Human Anatomy SM and Department of Basic Sciences SM
Ph.D. University of California, Riverside 1984

KIRK, GERALD A. Associate Professor, Department of Radiology SM
M.D. Loma Linda University SM 1967

KIRK, SHANNON RICHARD. Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 1994

KIRSCH, WOLFF M. Professor, Department of Neurosurgery SM, Department of Basic Sciences SM; and Member FGS
M.D. Washington University, St. Louis, Missouri 1955

KISINGER, NORIECE R. Instructor, Department of Radiation Technology AH
B.S. University of Redlands 1989

KLEIN, WALTER F. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2005

KLEINMAN, S. ALEJANDRO. Associate Clinical Professor, Department of Restorative Dentistry SD
D.D.S. University of Chile 1967

KLOOSTER, MARQUELLE J. Associate Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1977

KNECHT, KATHRYN T. Associate Professor, Department of Pharmaceutical and Administrative Sciences SP
Ph.D. University of North Carolina at Chapel Hill 1990

KNUTSEN, RAYMOND. Associate Professor, School of Public Health PH; and Member FGS
M.D. University of Oslo, Norway 1972
M.P.H. Loma Linda University PH 1977

KNUTSEN, SYNNOVE. Professor, School of Public Health PH and Department of Preventive Medicine SM; and Member FGS
Ph.D. University of Torso, Norway 1991
M.P.H. Loma Linda University PH 1977
M.D. University of Oslo, Norway 1972

KO, EDMUND Y. Associate Professor, Department of Urology SM
M.D. Loma Linda University SM 2005

KO, EDWARD S. C. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1985

KOH, SHAWN S.W. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2008

KOHLTFARBER, HEIDI B. Associate Professor, Department of Radiology and Imaging Sciences SD
D.D.S. Loma Linda University SD 2003
M.S. University of North Carolina, Chapel Hill 2012

KOKA, SREENIVAS. Clinical Professor, Department of Restorative Dentistry SD
D.D.S. University of Michigan, Ann Arbor 1989
M.S. University of Michigan, Ann Arbor 1991
Ph.D. University of Nebraska, Omaha 1999
M.B.A. Massachusetts Institute of Technology 2013

KONO, GREGORY M. Assistant Clinical Professor, School of Public Health PH
M.H.A. Loma Linda University PH 1998

KOPILOFF, GEORGE. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Facultad de Medicina, Montevideo, Uruguay 1969

KORE, ARPUTHARAJ H. Associate Professor, Department of Surgery SM
M.B.B.S. Christian Medical College, India 1979

KORPMAN, RALPH A. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1974

KOSCH, CINDY LODER. Assistant Professor, Department of Nutrition and Dietetics AH
M.S. Loma Linda University GS 1986

KOSHY, RUBY E. Assistant Professor, Department of Neurology SM
M.D. Kasturba Medical College, India 1996

KOU, BOND. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Idaho State University College of Pharmacy 2004

KOUNANG, ROBERTUS HASAN. Assistant Clinical Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Airlangga University Medical School, Indonesia 1977

KOZMAN, MAHER SHAWKY. Assistant Clinical Professor, Department of Psychiatry SM
M.B.B.Ch. Ain Shams University School of Medicine, Egypt 1980

KRICK, EDWIN HARRY, SR. Emeritus Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1961
M.P.H. Loma Linda University SH 1971

KRIDER, SUSAN JONES. Assistant Clinical Professor, School of Nursing SN
M.S. Loma Linda University GS 1983

KRIEGER, ROBERT I. Clinical Professor, School of Public Health PH
Ph.D. Cornell University 1970

KRISHNA, PRIYA D. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. University of Missouri, Kansas City 1997

KRISHNAMURTHY, VIDHYA. Assistant Professor, Department of Pediatrics SM
Ph.D. Loma Linda University SM 2008

KRISHNAN, RAJAGOPAL. Assistant Professor, Department of Medicine SM

M.B.B.S. Maduvai Medical College, Maduvai, Southern India 1973

KROETZ, ARTHUR W. Associate Professor, Department of Radiation Technology AH
Ph.D. University of Southern California 1999

KROETZ, JANET M. Assistant Professor, School of Nursing SN
M.N. University of the Pacific 1993

KRONBERG, BENJAMIN P. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2007

KRONBERG, BETHANY I. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2007

KRPALEK, DRAGANA. Assistant Professor, Department of Occupational Therapy AH; and Member FGS
Ph.D. University of Queensland, Brisbane, Australia 2012

KRUSE, DAVID W. Assistant Clinical Professor, Orthopedic Surgery SM
M.D. University of California, San Diego 2004

KUCK, GLEN ROBERT. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
M.S. University of Southern California 1999

KUGEL, JULIE D. Associate Professor, Department of Occupational Therapy AH
O.T.D. Loma Linda University AH 2009

KUHN, IRVIN N. Emeritus Professor, Department of Medicine SM
M.D. Loma Linda University SM 1955

KUHN, MICHAEL ALLAN. Associate Professor, Department of Pediatrics SM
M.D. University of Texas Southwestern Medical School 1988

KUNIHIRA, DANIEL M. Assistant Professor, Department of Periodontics SD
D.D.S. Loma Linda University SD 1974

KUNIHIRA, RICHARD Y. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1986

KUNTZ, HEATHER M. Assistant Professor, Department of Emergency Medicine SM and Department of Pediatrics S
M.D. Medical College of Wisconsin 2010

KWON, SO RAN. Professor, Department of Dental Education Services SD
D.D.S. Yonsei University, South Korea 1993
M.S. University of Iowa 2011

KYLE, JAMES L. II. Adjunct Assistant Professor, School of Public Health PH
M.D. University of California, Los Angeles, School of Medicine 1987

LABABIDI, DIMA S. Assistant Professor, Department of Medicine SM
M.B. University of Damscus, Syria 1999

LABARTE, THERESA L. Assistant Professor, Department of Neurology SM
D.O. Lake Erie College of Osteopathic Medicine 2010

LABIB, WESSAM. Assistant Professor, Department of Family Medicine SM; Assistant Clinical Professor School of Nursing SN, Department of Physician Assistant Sciences AH
M.D. El-Minya University, Egypt 2000

LAIRD, AMY M. Assistant Clinical Professor, Department of Pharmacy Practice SP
B.S. Purdue University School of Pharmacy 2001

LAKE, MICHELLE. Assistant Professor, School of Public Health PH
M.B.A. University of Phoenix 2002

LALAS, SERAFIN T. Assistant Professor, Department of Psychiatry SM
M.D. Manila Central University, Philippines 2003

LAM, EDUARDO D. Assistant Professor, Department of Emergency Medicine SM
M.D. University of California, Los Angeles/Charles Drew University 2004

LAM, JEREMY D. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2017

LAM, MARY P. Assistant Professor, Department of Pediatrics SM
M.D. John A. Burns School of Medicine, University of Hawaii 1983

LAMBERTON, HENRY H. Associate Professor, Department of Psychiatry SM and School of Religion SR
Psy.D. Fuller Theological Seminary 1992

LANDLESS, PETER N. Adjunct Associate Professor, School of Public Health PH and Department of Medical Education SM
M.D. University of Witwatersrand, South Africa 1974

LANE, CARTER ALAN. Lecturer, Department of Orthodontics SD
D.D.S. Loma Linda University SD 2000
M.S. Loma Linda University SD 2005

LANG, KEVIN J. Assistant Professor, School of Public Health PH
M.B.A. Loyola University 1987

LANGGA, LEO MAYPA. Clinical Instructor, Department of Cardiopulmonary Sciences AH
M.B.A. Loma Linda University PH 2007

LANGGA-SHARIFI, EULY MAYPA. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1985

LANGLEY, SHAWNA K. Assistant Professor, Department of Dermatology SM
M.D. Loma Linda SM 2007

LANGRIDGE, WILLIAM H. R. Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. University of Massachusetts at Amherst 1973

LANGSTON, SABAH M. Adjunct Assistant Professor, School of Nursing SN
D.O. Western University of Health Sciences, Pomona, California 2007

LANZISERA, PHILIP J. Clinical Professor, Department of Psychology BH
Ph.D. University of Detroit 1975

LAO, WILSON D. Instructor, Department of Medicine SM
M.D. Southwestern University, Philippines 1984

LaROSE, CONNOR. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Cincinnati 2005

LARSEN, JAMES PETER. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1982

LARSEN, RANAE L. Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1982

LARSON, DAVID R. Professor, School of Religion SR
D.Min. Claremont School of Theology
1973
Ph.D. Claremont Graduate University 1982

LARSON, MARC R. Assistant Clinical Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 2000

LASHIER, HARVEY M. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1963

LATOUR, DONN A. Adjunct Assistant Professor, Department of Dermatology SM
Ph.D. Loma Linda University GS 1990
M.D. Loma Linda University SM 1992

LAU, ALAN C. K. Assistant Professor, Department of Medicine SM
M.B.B.S. University of Hong Kong 1976

LAU, CAROL A. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1979

LAU, CECILIA S. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.B. University of Wisconsin, Madison 1989

LAU, FRANCIS Y. Emeritus Professor, Department of Medicine SM
M.D. College of Medical Evangelists 1947

LAU, KATHLEEN M. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1982

LAU, K. H. WILLIAM. Research Professor, Department of Medicine SM
Ph.D. Iowa State University 1982

LAUER, RYAN E. Associate Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2003

LAVERY, ADRIAN P. Associate Professor, Department of Pediatrics SM
M.D. Eastern Virginia Medical School 2001

LAVIN WILLIAMS, KARLA. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration AH
Dr.P.H. Loma Linda University 2012

LAWRENCE, LARRY C. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Hahnemann Medical College, Philadelphia, Pennsylvania 1974

LE, COLIN T. Adjunct Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 1993

LE, HUY X. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1995

LEE, ANITA E. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2003

LEE, BRIAN C.M. Clinical Instructor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of California, San Francisco 2015

LEE, BRIAN T. Assistant Professor, Department of Medicine SM
M.D. Rush University, Illinois 2013

LEE, DANIEL Y. Assistant Professor, Department of Periodontics SD
D.D.S. Columbia University 1991

LEE, ESTHER CHOUGH. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 1988

LEE, GILBERT H. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1988

LEE, GRACE J. Assistant Professor, Department of Psychology BH
Ph.D. Fuller Theological Seminary 2009

LEE, HOBART. Associate Professor, Department of Family Medicine SM
M.D. University of Pennsylvania 2006

LEE, JERRY WINFIELD. Professor, School of Public Health PH
Ph.D. University of North Carolina at Chapel Hill 1976

LEE, KAINI. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. School of Pharmacy 2007

LEE, SANDRA H. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1996

LEE, SCOTT S. Assistant Professor, Department of Periodontics SD
D.D.S. Seoul National University 1994
M.S. Loma Linda University GS 2003

LEE, SCOTT W. Clinical Professor, Department of Medicine SM
M.D. Northwestern University, Illinois 1993

LEE, SEAN S. Professor, Department of Clinical Restorative Dentistry SD; and Member FGS
D.D.S. University of California, Los Angeles 1988

LEE, SHIRLEY ANN. Associate Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 1982
M.S. Loma Linda Univesity IDS 2007

LEE, SONNY C. Associate Professor, Department of Medicine SM and Department of Pediatrics SM
M.D. New York Medical College 1999

LEE, STEVE. Assistant Clinical Professor, Department of Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2002

LEE, STEVE C. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM; Assistant Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University GS 2002

M.D. Loma Linda University SM 2003

LEE, TIMOTHY T. Assistant Professor, Department of Psychiatry SM
M.D. Boston University School of Medicine 2006

LEE, TONY B. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1995

LEE, YONG-KWON, Adjunct Assistant Professor, Department of Surgery SM
M.D. University of Buenos Aires 1995

LEEDS, SARA L. Clinical Instructor, Department of Radiation Technology AH
M.S.R.S. Loma Linda University AH 2012

LEGGITT, VARNER LEROY. Professor, Department of Orthodontics SD and Department of Earth and Biological Sciences; and Member FGS
D.D.S. Loma Linda University SD 1984
M.S. Loma Linda University GS 1992
Ph.D. Loma Linda University GS 2005

LEMLEY-FULLER, EVAN E. Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2007

LENART, JOHN. Associate Professor, Department of Anesthesiology SM; Assistant Professor, School of Nursing SN
M.D. Loma Linda University SM 1996

LENNAN, PATRICIA MARY. Associate Professor, Department of Dental Hygiene SD
B.S. University of Southern California 1981

LENOIR, LETICIA COX. Instructor, Department of Periodontics SD
B.S. Loma Linda University SD 1989

LEON, NELLIE. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2009

LEONG, VALERIE S.L. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1999

LEPALE, TALOLO T. Assistant Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University GS 1999
M.B.A. University of Redlands 2003

LESSARD, GEORGE M. Emeritus Professor, Department of Dental Education Services SD
Ph.D. University of California, Riverside 1973

LEUNG, JOANNE H.Y. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. University of Southern California 2006

LEUNG, PETER K.Y. Assistantt Professor, Department of Gynecology and Obstetrics SM
M.D. University of Toledo College of Medicine 2007

LEVINE, PAUL ALLEN. Emeritus Professor, Department of Medicine SM
M.D. Boston University School of Medicine 1968

LEVETEROV, THEODORE. Associate Professor, School of Religion SR
Ph.D. Andrews University 2011

LEW, AVERY M. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California School of Pharmacy 1988

LEWIS, TERENCE D. Professor, Department of Medicine SM
M.B.B.S. University of Sydney, Australia 1967

LEYMAN, JOHN WILLIAM. Associate Professor, Department of Dental Anesthesiology SD
D.D.S. University of the Pacific 1978

LI, ANGELA H. Assistant Professor, School of Religion SR
Ph.D. Claremont School of Theology 2018

LI, HONGZHE. Associate Research Professor, Department of Otolaryngology and Head and Neck Surgery SM
Ph.D. Arizona State University 2008

LI, JENNIFER N. Assistant Professor, Department of Medicine SM
M.B.B.S. Peking Medical University 1994

LI, MAN. Clinical Instructor, Department of Gynecology and Obstetric SM
M.D. Tonji University, China 1991
Ph.D. Sun Yat-sen University, China 1998

LI, YIMING. Distinguished Professor, Department of Restorative Dentistry SD
D.D.S. Shanghai Second Medical University, China 1977
M.S., Ph.D. Indiana University 1984, 1987

LIANG, REED T. W. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2007

LIBBY, WARREN D. Assistant Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 2005
M.A. Loma Linda University FR 2006
M.S. Loma Linda University SD 2011

LIM, ALICE M. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1983

LIN, CATHY C. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2010

LIN, CHRISTINA H. Assistant Professor, Department of Pediatric Dentistry SD
M.S. University of Maryland 2004
D.D.S. University of Maryland 2001

LIN, NANCY. Assistant Professor, Physical Medicine and Rehabilitation SM
M.D. New York Medical College 2004

LIN, STEVE G. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. SUNY Health Science Center, New York 1992

LIN, YUSHIU. Assistant Professor, Department of Pediatrics SM
D.O. A.T. Still University of Health Sciences, Arizona 2013

LINDSEY, VIOLA. Assistant Professor, Department of Social Work and Social Ecology BH
Ph.D. Loma Linda University ST 2011

LIU, ALLEN K. Assistant Professor, Department of Family Medicine SM
M.D. University of Cincinnati 2003

LIU, ANTONIO K. Associatex Clinical Professor, Department of Neurology SM
M.D. University of Southern California 1995

LIU, YI. Assistant Professor, Department of Family Medicine SM
Ph.D. Loma Linda University GS 1997
M.D. Shanghai Medical University, China 1985

LLAGUNO, MARIAN C. Assistant Professor, School of Nursing SN
D.N.P. University of San Diego 2012

LLOYD, SUSAN T. Associate Professor, School of Nursing SN and Member FGS
Ph.D. University of San Diego 2000

LO, CHIN-YU JEAN. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Iowa Carver College of Medicine 2005

LO, TAKKIN. Adjunct Associate Professor, Department of Medicine SM; Associate Clinical Professor, Department of Cardiopulmonary Sciences AH
M.D. Loma Linda University SM 1986
M.P.H. Loma Linda University PH 1987

LOBO MORENO, PAMELA. Assistant Professor, Department of Medicine SM
M.B.B.S. Universidad Nacional Autonoma de Honduras 2013

LOH, MICHELLE H. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1992

LOH, SAMUEL. Clinical Instructor, Department of Anesthesiology SM
M.D. Howard University, Washington D.C. 1971

LOHMAN, EVERETT BERNELL III. Professor, Department of Physical Therapy AH; and Member FGS
D.Sc. Loma Linda University AH 1998

LOHR, JASON LEE. Assistant Professor, Department of Family Medicine SM and Department of Preventive Medicine SM
M.D. Loma Linda University SM 2001

LOMARDA, EVELYN B. Assistant Professor, Department of Medicine SM
M.D. Cebu Institute of Medicine, Philippines 1978

LONSBURY-MARTIN, BRENDA L. Research Professor, Department of Otolaryngology and Head and Neck Surgery SM
Ph.D. University of Oregon Medical School 1975

LONSER, ROLAND E. Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1967

LOO, LAWRENCE K. Professor, Department of Medicine SM and Department of Medical Education SM
M.D. University of California, San Diego 1981

LOOMIS, MICHELLE B. Assistant Professor, Department of Dental Hygiene SD
M.P.H. Loma Linda University PH 2016

LOPER, NICHOLAS E. Instructor, Department of Anesthesiology SM
M.S.N. University of California, Los Angeles 2015

LOPEZ, DAVID. Associate Professor, Department of Cardiopulmonary Sciences AH
Ed.D. La Sierra University 2001

LOPEZ, YAMIL. Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 2006

LOREDO, LILIA N. Assistant Professor, Department of Radiation Medicine SM
M.D. Loma Linda University SM 1984

LOSEY, TRAVIS E. Assistant Professor, Department of Neurology SM
M.D. Loma Linda University SM 2002

LOVE, JUSTIN D. Instructor, Department of Dermatology; Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.P.A. Loma Linda University AH 2006

LOVELESS, EDNA MAYE. Adjunct Professor, Department of Dental Education Services SD
Ph.D. University of Maryland 1969

LOWE, ANDREW G. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1987

LOWE, OARIONA. Assistant Clinical Professor, Department of Pediatric Dentistry SD
D.D.S. Howard University, Washington D.C. 1981

LOZADA, JAIME L. Professor, Department of Restorative Dentistry SD; and Member FGS
D.D.S. Benemérita Universidad Autonoma de Puebla, Mexico 1982

LUDI, H. DANIEL. Assistant Professor, Department of Surgery SM
M.D. Universidad Nacional de Cordoba, Argentina

LUDWICK, MONICA. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 2007

LUI, PAUL D. Associate Professor, Department of Urology SM
M.D. Loma Linda University SM 1984

LUKE, JANIENE D. Associate Professor, Department of Dermatology SM
M.D. Charles R. Drew University of Medicine and Science/University of California, Los Angeles 2007

LUM, MICHAEL. Clinical Instructor, Department of Cardiopulmonary Sciences AH
M.B.A. Loma Linda University PH 2007

LUM, SHARON S. J. Professor, Department of Surgery SM
M.D. Washington University 1992

LUNDGREN, TORD M. Professor, Department of Periodontics SD; and Member FGS
D.D.S. Umeå University, Sweden 1975

LUO, ZHONGRONG R. Assistant Professor, Department of Pathology and Human Anatomy SM
Ph.D. Loma Linda University GS 1988

LUO-OWEN, XIAN. Assistant Research Professor, Department of Surgery SM and Department of Basic Sciences SM
Ph.D. Loma Linda University GS 2004
M.D. Capital University of Medical Sciences 1998

LUTHER, R. DANIEL II. Adjunct Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1981
M.P.H. Loma Linda University PH 1981

LY, ANH M. Clinical Instructor, Department of Radiation Technology AH
M.D. St. George's University School of Medicine, Grenada 1999

MA, QING YI. Assistant Research Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University SM 2011

MACE, JOHN W. Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1964

MACK, DOUGLAS K. Assistant Clinical Professor, Department of Physical Medicine and Rehabilitation SM
M.D. University of California, Irvine 1996

MACKENZIE, D. ALLAN. Clinical Professor, Department of Orthopedic Surgery SM
M.D. McGill University, Montreal, Canada 1964

MACKNET, KENNETH D., JR. Assistant Professor, Department of Dermatology SM
M.D. Loma Linda University SM 1996

MADHAT, FARAH. Assistant Clinical Professor, Department to Pharmacy Practice SP
Pharm.D. University of Kentucky 2005

MAHDI, TAREK Z. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Academy of Medicine at Sofia, Bulgaria 1983

MAINESS, KAREN JOANNE. Assistant Professor, Department of Communication Sciences and Disorders AH; and Member FGS
Ph.D. Columbia University 2002

MAKEN, KANWALJEET. Assistant Professor, Department of Medicine SM
M.B.B.S. University College of Medical Sciences, India 1990
M.D. Maulana Azad Medical College, India 1995

MALAMUD, ARIEL. Associate Professor, Department of Medicine SM
M.D. Universidad Complutense de Madrid, Spain 1993

MALDONADO, DANIEL C. Assistant Professor, Department of Family Medicine SM
M.D. Charles R. Drew University of Medicine and Science, California 1999

MALIK, MASOOD P. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Idaho State University 1981
M.B.A. University of Phoenix 1997

MALIK, PRIYA. Assistant Clinical Professor, Department of Medicine SM
M.D. University of Madras, India 1988

MALKIN, MATHEW. Assistant Professor, Department of Anesthesiology SM
M.D. University of Chicago, Pritzker 2005

MAMDANI, NIRAV. Assistant Professor, Department of Medicine SM
M.B.B.S. M.P. Shah Medical College, India 2001

MAMIER, IRIS. Associate Professor, Nursing SN; and Member FGS
Ph.D. Loma Linda University SN 2009

MANALO, CARLO A. Assistant Professor, Department of Radiology SM and Department Pediatrics SM
M.D. Loma Linda University SM 2011

MANCHANDA, RAMESH K. Assistant Professor, Department of Medicine SM
M.B.B.S. Delhi University, India 1968

MANDAPATI, RAVI. Professor, Department of Medicine and Department of Pediatrics SM
M.D. Maulana Azad Medical College, New Delhi, India 1985

MANOUCHERI, MANOUCHER. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1976

MANSOUR, MARIE C. Assistant Professor, Department of Orthodontics SD
M.B.A. Nova Southeastern University, Florida 2002
D.M.D. Nova Southeastern University, Florida 2001

MANSUR, NICOLE E. Instructor, Department of Emergency Medicine SM
M.S. University of St. Francis, Albuquerque Branch Campus 2020

MANY, HEATH R. Assistant Professor, Department of Surgery SM
M.D. University of Tennessee Health Science Center, Memphis 2000

MANZANO, MICHAEL. Assistant Clinical Professor, Department of Radiology SM
M.D. George Washington University 2007

MAO, XIAO WEN. Associate Research Professor, Department of Basic Sciences SM, Department of Radiation Medicine SM; and Member FGS
M.D. Shanghai Second Medical University, China 1991
M.S. Loma Linda University GS 1995

MAR, JEFFREY N. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Dartmouth Medical School, New Hampshire 1999

MARAIS, GARY E. Associate Clinical Professor, Department of Medicine SM
M.B.Ch.B. Stellenbosch University Medical School, South Africa 1973

MARAIS, H. JOHN. Associate Clinical Professor, Department of Medicine SM
M.B.Ch.B. Stellenbosch University Medical School, South Africa 1972

MARCKS, KURT O. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1994

MARIE-MITCHELL, ARIANE. Associate Professor, Department of Preventive Medicine SM and School of Public Health PH
Ph.D. University of Southern California 2002
M.D. University of Southern California 2003
M.P.H. University of Rochester 2008

MARLOW, HAROLD J., JR. Assistant Clinical Professor, School of Public Health PH
Ph.D. Loma Linda University ST 2006

MARONEY, STEPHANIE J. Assistant Professor, Department of Surgery SM
M.D. SUNY Upstate Medical University, New York 2011

MARSA, ROBERT J. Emeritus Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1970

MARSHAK, ARTHUR BOHDAN. Assistant Professor, Department of Allied Health Studies AH
Ed.D. La Sierra University 2008

MARSHAK, HELEN HOPP. Associate Professor, School of Public Health PH and Department of Psychology BH
Ph.D. University of Washington 1991

MARTELL, AXA I. Assistant Professor, Department of Medicine SM
M.D. Montemorelos University, Mexico 1989

MARTELL, J. TODD. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1990

MARTIN, BRADFORD DOUGLAS. Professor, Department of Physical Therapy AH; and Member FGS
Ph.D. Loma Linda University GS 1984

MARTIN, EDWARD H. Assistant Professor, School of Public Health PH
M.H.A. Loma Linda University PH 2005

MARTIN, GILBERT I. Professor, Department of Pediatrics SM
M.D. State University of New York Downstate Medical Center 1967

MARTIN, GLEN K. Research Professor, Department of Otolaryngology and Head and Neck Surgery SM
Ph.D. University of Oregon Medical School 1995

MARTIN, LESLIE R. Clinical Professor, Department of Psychology BH and School of Public Health PH
Ph.D. University of California, Riverside 1996

MARTIN, MARK C. Professor, Department of Plastic and Reconstructive Surgery SM
D.M.D. McGill University, Montreal, Canada 2002
M.D. University of Manitoba, Winnipeg, Canada 1996

MARTIN, ROBERT DOUGLAS. Professor, Department of Anesthesiology SM and School of Nursing SN
M.D. Loma Linda University SM 1976

MARTINEZ, HELEN R. Assistant Professor, Department of Allied Health Studies AH
M.A.M. University of Redlands 2001

MARTINEZ, JAMES A. Assistant Clinical Professor, School of Public Health PH
Ed.D. Columbia University, New York 2013

MARTINEZ, YOLANDA J. Instructor, Department of Allied Health Studies AH
M.A.M. University of Redlands 2016

MARTINEZ ARDILA, ANA M. Assistant Professor, Department of Earth and Biological Sciences SM and Member FGS
Ph.D. Loma Linda University SM 2016

MARTORELL-BENDEZU, LILY B. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2001

MARTZ, MARTIN G. Assistant Professsor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1976
M.S. Loma Linda University GS 1983

MASI, KYLE A. Instructor, Department of Family Medicine SM
M.P.A. Loma Linda University 2015

MASKIEWICZ, VICTORIA. Professor, Department of Pharmaceutical and Administrative Sciences SP
Ph.D. University of California, San Francisco 1989

MASON, DANIELLE M. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2005

MASON, LINDA JO. Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1974

MASSAD, JOSEPH J. Adjunct Associate Professor, Department of Restorative Dentistry SD
D.D.S. Loyola University 1975

MASSEY, EVELYN L. Assistant Professor, Department of Cardiopulmonary Sciences AH
M.D. Universidad Technologica de Santiago, Dominican Republic 1985

MATA, CRYSTAL. Assistant Professor, Department of Preventive Medicine SM
Au.D. A.T. Still University of Health Sciences, Missouri 2008

MATA-GREENWOOD, EUGENIA I. Assistant Professor, Department of Basic Sciences SM and Department of Gynecology and Obstetrics SM
Ph.D. University of Illinois 2000
Pharm.D. University of Costa Rica 1992

MATAYA, RONALD H. Professor, School of Public Health PH
M.D. West Visayas State University, Philippines 1981

MATEJA, SHARON B. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1983

MATHEWS, FREDERICK R. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
M.S. Loma Linda University GS 1987
M.P.H. Loma Linda University PH 1983
D.D.S. Loma Linda University SD 1983

MATHEWS, TIMOTHY A. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2013

MATHUR, MUDIT. Associate Professor, Department of Pediatrics SM
M.B.B.S. University of Delhi, India 1990

MATIKO, JAMES D. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1977

MATIN, AFSANEH. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. University of California, Los Angeles 1994

MATTHEWS, VICHUDA LOUSUEBSAKUL. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2001

MATTHEWS, WAYNE R. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1979

MATUS, MICHAEL J. Instructor, Department of Medicine SM
M.D. Loma Linda University SM 2011
M.B.A. Loma Linda University PH 2012

MAURER, J. STEPHEN. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1991

MAXWELL, ALLISON G. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University ST 2008

MAZAHERI, ATA. Assistant Professor, Department of Surgery SM
M.D. Royal College of Surgeons in Ireland 2000

MCARTHUR III, CLAIRE L. Associate Professor, Department of Emergency Medicine and Department of Medicine SM
M.D. University of Florida 1972

MCAULEY, GRANT A. Assistant Professor, Department of Radiation Medicine SM
Ph.D. Loma Linda University 2010

MCBRIDE J. PETER. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
B.A. University of Phoenix

MCCAFFERY, PATRICK G. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1964

MCHAN, KELLY. Assistant Professor, School of Nursing SN
M.P.H. Loma Linda University PH 2002

MCCLEARY, KARL J. Professor, School of Public Health PH
Ph.D. University of Alabama at Birmingham 1998

MCCLURE, ERIKA A. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2004

MCCLUSKEY, EDWARD A. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1989

MCCONNELL, COURTNEY M. Assistant Professor, Department of Physician Assistant Sciences AH
M.P.A. Loma Linda University 2014

MCCULLOUGH, WILLIAM M., JR. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Ohio State University 1982

MCDONALD, STEPHEN D. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 2003

MCFIELD MORGAN, EDWARD S, JR. Associate Professor, School of Public Health PH
Ph.D. Loma Linda University ST 2009

MCGANN, DAVID G. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
M.S. Colorado State University 1972

MCGHEE, WILLIAM H. Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1972

MCIVOR, DEBORAH W. Assistant Professor, Department of Anesthesiology SM
M.D. University of Guadalajara, Mexico 1983

MCLEAN, LANCELOT S. Associate Professor, Department of Dental Education Services SD
Ph.D. Loma Linda University GS 2008

MCLOUTH, LANA SUE KANACKI. Associate Professor, School of Nursing SN
Ph.D. University of San Diego 2010

MCMILLAN, JAMES IRA. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1986

MCNEILL, JEANINE A. Assistant Clinical Professor, Department of Radiology SM
M.D. Loma Linda University SM 1983

MCTALLEY, MERIJANE T. Instructor, Department of Nutrition and Dietetics AH
B.S. California State Polytechnic University, Pomona 1975

MEAD, KELLY. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.S. University of San Diego 2010

MEADOWS, LAVONNE M. Assistant Professor, Department of Dermatology SM
M.D. Loma Linda University SM 2009

MEDAL, DIANA STEED. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.A. California State University, San Bernardino 2001

MEDINA, ERNESTO PAUL SARNO. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1993

MEDINA, KERI KUNIYOSHI. Assistant Professor, School of Nursing SN
D.N.S. University of San Diego 1996

MEDLEY-VALENZUELA, MELINDA S. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 1988

MEGLIO, DANIELLE J. Clinical Instructor, Department of Occupational Therapy AH
A.A. Loma Linda University AH 1993

MEHTA, NISHANT K. Assistant Professor, Department of Radiology SM
M.D. University of Southern California 2006

MEHTA, RAJ. Assistant Professor, Department of Family Medicine SM
M.D. University of Florida, Gainesville 2009

MEHTA, SUKH SAMPAT RAJ. Associate Professor, Department of Medicine SM
M.D. SMS Medical College, India 1968

MEISTER, ROBERT E. Assistant Professor, Department of Orthodontics SD
M.S. Loma Linda University 1984
D.D.S. Loma Linda University 1978

MEJIA, LEONIDAS V. Instructor, Department of Medicine SM
M.D. Manila Central University, Philippines 1992

MEJIA, MAXIMINO A. Adjunct Associate Research Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2000

MENDES, JEANNINE STUART. Assistant Professor, Department of Physical Therapy AH
M.P.T. Loma Linda University AH 1995

MENDOZA, BRIGIT C. Assistant Professor, Department of Radiation Technology AH
M.A.M. University of Redlands 2008

MERCADO, HENRY W. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1977

MERKEL, CLIFFORD DARA. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1980

MERRITT, T. ALLEN. Professor, Department of Pediatrics SM and Department of Cardiopulmonary Sciences AH
M.D. University of Kansas 1972
M.P.A. Portland State University 1999

MESSINA, MARK JOHN. Adjunct Associate Professor, School of Public Health PH
Ph.D. Michigan State University 1987

MESSINA, MICHAEL J. Clinical Instructor, Department of Dermatology SM
M.D. Northeastern Ohio University 2007

MEYER, BONNIE LEE. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1972

MICHEL, ALAN W. Adjunct Assistant Professor, Department of Medicine SM
M.D. Montemorelos, Mexico 2001

MICHELOTTI, MARCOS J. Assistant Professor, Department of Surgery SM
M.D. National University of Cordoba School of Medicine, Argentina 1996

MICHELSON, DAVID J. Assistant Professor, Department of Pediatrics SM and Department of Neurology SM
M.D. University of California, Los Angeles 1998

MIHAS, ATHANASIOS A. Assistant Professor, Department of Psychiatry SM
M.D. University of Mississippi 1995

MIKHAEL, MAGDI S. Assistant Clinical Professor, Department of Psychiatry SM
M.B.B.Ch. Ain Shams Medical School, Egypt 1975

MIKHAIL, AMANDA L. Clinical Instructor, Department of Physical Therapy AH
A.S. Loma Linda University AH 2012

MILES, DUNCAN A. Associate Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. University of Saskatchewan, Saskatchewan, Canada 1990

MILLER, DANIEL WILLIAM. Professor, Department of Radiation Medicine SM
Ph.D. North Carolina State University, Raleigh 1971

MILLER, JON M. Assistant Professor, Department of Radiology SM and Department of Pediatrics SM
M.D. Loma Linda University SM 1990

MILLER, KYLE L. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 2005

MILLER, MEAGAN J. Clinical Instructor, Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 2015

MILLER, M. Jon H. Professor, Department of Radiology SM
M.D. Wayne State University, Detroit Michigan 1968

MILLER, RYAN A. Adjunct Assistant Professor, School of Public Health PH
M.S. George Washington University 2002

MILLER, SCOTT A. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2001

MILLS, DANIEL C. II. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Loma Linda University SM 1982

MIN, ALEXANDERK. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University 2015

MINYARD-WIDMANN, MICHELLE. Assistant Professor, Department of Counseling and Family Sciences BH
M.S. University of La Verne, Los Angeles, California 1995

MIRSHAHIDI, HAMID R. Associate Research Professor, Department of Medicine SM
M.D. Marmara University School of Medicine, Istanbul, Turkey 1992

MIRSHAHIDI, SAIED. Associate Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. Gazi University, Ankara, Turkey 1997

MIRZA, FARRUKH. Assistant Professor, Department of Pediatrics SM
M.D. Dow Medical College, Pakistan 1989

MITCHELL, GREGORY D. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1984

MITCHELL, ROBERT DAVID. Assistant Professor, Department of Orthodontics SD

D.D.S. Loma Linda University SD 1978
M.S. Loma Linda University GS 1985

MIYAGI, SHISHIN. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2010

MLEZIVA, PABLO. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2007

MOBILIA, ADRIAN. Associate Professor, Department of Periodontics SD
TITULO University of Buenos Aires School of Dentistry, Argentina 1991
D.D.S. Loma Linda University SD 2008

MODAD, YVETTE M. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2011

MODESTE, NAOMI NOREEN. Emerita Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1984

MOE, BYRON S. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1964

MOESSER, AARON. Assistant Professor, Department of Occupational Therapy AH
M.O.T. Loma Linda University AH 2010

MOFFAT, JEFFREY C., JR. Clinical Instructor, Department of Psychiatry SM
M.D. University of Utah, 2010

MOHAN, SUBBURAMAN. Research Professor, Department of Medicine SM, Department of Basic Sciences SM, and Department of Orthopedic Surgery SM
Ph.D. Bangalore University, India 1978

MOHR, GINA M. J. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1996

MOHR, LESTER L. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1966

MOLDOVAN, IOANA. Associate Clinical Professor, Department of Medicine SM
M.D. University of Medicine and Pharmacy Carol Davila, Romania 1996

MOLINA, ENRIQUE F. Assistant Professor, School of Nursing SN
D.N.A.P. Middle Tennessee School of Anesthesia 2015

MOLINA, GRACIELA O. Instructor, School of Public Health PH
M.A. University of Montemorelos, Mexico 2000

MOLINA, RAFAEL. Assistant Professor, School of Public Health PH
M.Ed. University of Montemorelos, Mexico 1994

MOLINE, MARY VOGEL. Professor, Department of Counseling and Family Science BH; and Member FGS
Dr.P.H. Loma Linda University PH 1975
Ph.D. Brigham Young University, Utah 1979

MOLKARA, AFSHIN M . Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. Howard University, Washington D.C. 1996

MONDZELEWSKI, TODD J. Assistant Clinical Professor, Department of Ophthalmology
M.D. Uniformed Services University of the Health Sciences 2003

MONSON, JOHN R. Professor, Department of Surgery SM
M.B.B.Ch. National University of Ireland#University College-Dublin 1979

MONTGOMERY, SUSANNE B. Professor, Department of Social Work and Social Ecology BH, Department of Preventive Medicine SM, School of Public Health PH; and Member FGS
Ph.D. University of Michigan 1987

MOOR, MICHAEL GLENN. Instructor, Department of Orthotics and Prosthetics AH
M.S. Loma Linda University AH 2017

MOORADIAN, RYAN D. Assistant Professor, Department of Pediatrics SM
M.D. Chicago Medical School 2009

MOORE, KATHLEEN LOU. Assistant Professor, Department of Dental Education Services SD
M.H.I.S. Loma Linda University AH 1999

MOORES, DONALD C. Associate Professor, Department of Surgery SM and Department of Pediatrics SM
M.D. Loma Linda University SM 1987

MOORHEAD, J. DAVID. Adjunct Associate Professor, Department of Urology SM
M.D. Loma Linda University SM 1973

MORETTA, CARLOS MANUEL. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 2001

MORGAN, DOREE L. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1978

MORGAN, JOHN W. Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 1987

MORGAN, WALTER C. Assistant Clinical Professor, Department of Family Medicine
M.D. University of Washington 1981

MORIKAWA, WESLEY MIKJO. Assistant Clinical Professor, Department of Pediatric Dentistry SD
D.D.S. University of Southern California 1981

MORRELL, HOLLY E. Associate Professor, Department of Psychology BH
Ph.D. Texas Technological University 2007

MORRISON, MARTIN J. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Drexel University College of Medicine, Philadelphia 2007

MORROW, STEVEN GALE. Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1960
M.S. Loma Linda University GS 1987

MORTON, KELLY R. Professor, Department of Family Medicine SM, Department of Psychology BH; and Member FGS
Ph.D. Bowling Green State University, Ohio 1992

MOSES, OLIVIA. Assistant Professor, School of Public Health PH and Department of Preventive Medicine SM
Dr.P.H. Loma Linda University PH 2005

MOTABAR, ALI. Assistant Professor, Department of Medicine SM
M.D. Tehran Azad University 1997

MOTE, GORDON E. Assistant Clinical Professor, Department of Pharmacy Practice SP
Ph.D. Century University, Albuquerque 1995

MOTE, RAYLENE L. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1976

MOUSSAVI, KAYVAN. Assistant Professor, Department of Pharmacy Practice SP
PharmD. University of California, San Diego 2011

MOYNIHAN, JAMES A. Associate Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
D.O. Western University of Health Sciences 1996

MUDGE, M. KENNETH. Clinical Professor, Department of Orthopedic Surgery SM
M.B.Ch.B. University of Birmingham, England 1970

MUKHERJEE, ASHIS. Assistant Clinical Professor, Department of Medicine SM
M.D. Cornell University Medical College, New York 1985

MULDER, SHANNON M. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1983

MULLA, NEDA F. Associate Professor, Department of Pediatrics SM
M.B.B.S. Kuwait University Health Sciences Center College of Medicine, Kuwait 1986

MULLIGAN, BETH A. Adjunct Assistant Professor, School of Behavioral Health BH
B.S. Tufts University, Massachusetts 1979

MUNCE, C. JOHN. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1978

MUNDALL, JENNIFER L. Assistant Professor, School of Nursing SN
D.N.P. University of South Alabama 2011

MUNDALL, JOEL R. Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2006

MUNGUIA, FERNANDO MOISES. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Cayetano Heredia Peruvian University, Peru 1985

MUNIZ TAYLOR, BRENDA. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
B.S. Loma Linda University AH 1990

MUNOZ, NUMA F. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 1997

MUNSON, LAUREL JONES. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1978

MURAD, WADSWORTH H. Assistant Clinical Professor, Department of Psychiatry SM
D.O. Western University of Health Sciences, Pomona, California 1984

MURDOCH, J. LAMONT. Emeritus Professor, Department of Medicine SM
M.D. Loma Linda University SM 1963

MURDOCH, WILLIAM GORDON C., JR. Associate Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1973

MURRY, THOMAS. Professor, Otolaryngology and Head and Neck Surgery SM
Ph.D. University of Florida 1969

NAFTEL, JOHN C. Assistant Professor, Department of Emergency Medicine SM
M.D. University of California, Los Angeles 1972

NAGARAJ, GAYATHRI. Associate Professor, Department of Medicine SM
M.B.B.S. Bangalore University, India 2001

NAIR, AARTI. Assistant Professor, Department of Psychology BH, Department of Pediatrics, and Member FGS
Ph.D. University of California, San Diego 2015

NAKAMURA, JENNIFER G. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. California State University, Long Beach 2004

NAKAMURA, LANELLE V. Assistant Professor, Department of Pediatrics SM
M.D. University of Hawaii, John A. Burns School of Medicine 2005

NALIN, RONALD. Adjunct Assistant Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. Universita degli Studi de Paduva, Italy 2006

NAM, ENOCH H. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Albert Einstein School of Medicine SM 2007

NAM, GRACE H. Assistant Professor, Department of Pediatrics SM
M.D. University of Wisconsin, Madison 2009

NAMIHAS, IVAN C., JR. Assistant Professor, Department of Radiation Medicine SM
M.D. Loma Linda University SM 1984

NARULA, MINAKSHI. Assistant Professor, Department of Orthodontics SD
B.D.S. RA Dental College, Calcutta, India 1985

NARVAEZ, JULIO. Adjunct Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1992

NASH, DANIEL A. Assistant Professor, Department of Medicine SM
M.D. University of Nevada, Reno 1988

NASIBI, POOYAN. Instructor, Department of Pediatric Dentistry SD
D.D.S. University of Southern California 2013

NASS, SCOTT E. Assistant Clinical Professor, Department of Family Medicine SM

M.D. Charles R. Drew University of Medicine, California 2009

NASSERI-NOORI, KEVIN A. Assistant Professor, Department of Anesthesiology SM
M.D. University of California, Los Angeles 2007

NATHAN, NADIA. Associate Professor, Department of Anesthesiology SM
M.B.B.Ch. Cairo University, Egypt 1983
M.Sc. University of London, UK 1992

NATHANIEL, BRANDON L. Assistant Professor, Department of Medicine SM
M.D. University of California, Davis 2008

NATION, N. JARED. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 2002

NATT, TARANJIT. Assistant Professor, Department of Medicine SM
M.D. Ross University 2006

NAUERTZ, CINDA L. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1999

NAVA, P. BEN, JR. Professor, Department of Pathology and Human Anatomy SM
Ph.D. Loma Linda University GS 1973

NAYLOR, W. PATRICK. Adjunct Professor, Department of Restorative Dentistry SD
D.D.S. Georgetown University, Washington D.C. 1978
M.P.H. Harvard University 1981
M.S. Indiana University, Bloomington 1988

NAZARI, MOSTAFA. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. Esfahan University, Iran 1986
M.S. Loma Linda University SD 2009

NDASI, HENRY T. Assistant Professor, Department of Orthopedic Surgery SM
M.B.B.S. Bayero University, Kano, Nigeria 2002

NEECE, CAMERON L. Associate Professor, Department of Psychology BH
Ph.D. University of California, Los Angeles 2011

NEERGAARD, JAMES O. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2006

NEERGAARD, JOYCE B. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2005

NEGLIO, MICHAEL J. Assistant Clinical Professor, Department of Radiology SM
M.D. University Autonomous of Guadalajara, Mexico 1974

NEISH, CHRISTINE GERKEN. Associate Clinical Professor, School of Public Health, PH; Emerita Associate Professor, School of Nursing SN
Ph.D. Claremont Graduate University 1988

NELSON, ANNA. Associate Professor, School of Public Health PH; Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
Dr.P.H. Loma Linda University, PH 2014

NELSON, BONNIE ANN. Assistant Professor, Department of Pediatric Dentistry SD; and Member FGS
D.D.S. Loma Linda University SD 1988

NELSON, BRUCE L. Associate Professor, Department of Medicine SM
M.D. University of Hawaii 1975

NELSON, JARED M. Clinical instructor, Department of Psychiatry SM
D.O. Touro University Nevada 2010

NELSON, JERALD C. Emeritus Professor, Department of Medicine SM
M.D. College of Medical Evangelists 1957

NELSON, RICHARD DEANE. Assistant Professor, Department of Cardiopulmonary Sciences AH
M.D. Angeles University, Philippines 1995

NELSON, SCOTT C. Associate Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1996

NELSON, TODD C. Assistant Professor, Department of Physical Therapy AH
M.P.T. Loma Linda University AH 1997
M.B.A. Loma Linda University PH 2011

NELSON, W. KENNETH. Assistant Professor, Department of Allied Health Studies AH
M.D. Ago Medical & Educational Center 1988

NEPOMUCENO-PEREZ, MIA C. Professor, Department of Pathology and Human Anatomy SM; Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. University of the Philippines 1992

NESPER, TIMOTHY P. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Southern California 1983

NETTEBURG, DANAE. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2006

NETTEBURG, OLEN A.L. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2007

NEUENDORFF, HAROLD THOMAS. Clinical Instructor, Department of Occupational Therapy AH
B.S. Loma Linda University AH 1993

NEUFELD, ROLAND D. W. Associate Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1974
M.S. Loma Linda University GS 1976

NEUMANN, MONICA M. Associate Professor, Department of Anesthesiology SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1974

NEWBOLD, JEAN L. Assistant Clinical Professor, School of Nursing SN
M.S. Loma Linda University GS 1985

NEWTON, STEVEN DOUGLAS. Assistant Clinical Professor, Department of Physical Therapy AH

D.P.T. Loma Linda University AH 2014

NGO, EHREN BRENT. Assistant Clinical Professor, School of Public Health PH and Department of Allied Health Studies AH
M.S. University of Maryland, Baltimore County 1999

NGO, ERIC. Associate Clinical Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 1963

NGO, KHIET DOAN-THANH. Assistant Professor, Department of Medical Education SM
D.O. Nova Southeastern University College of Osteopathic Medicine, Beirut, Lebanon 1999

NGO, LAURA H. Assistant Professor, Department of Anesthesiology SM
M.D. University of Copenhagen 2004

NGO, PHAT H. Assistant Professor, Department of Medicine SM
M.D. Tufts University, Boston, Massachusetts 2000

NGUYEN, ANDRE. Clinical Instructor, Department of Surgery SM
M.D. Albert Einstein College of Medicine, New York 1998

NGUYEN, H. BRYANT. Professor, Department of Medicine SM, Department of Emergency Medicine SM, Department of Basic Sciences SM, and Department of Pharmacy Practice SP
M.D. University of California, Irvine 1998

NGUYEN, HIEU T.M. Assistant Professor, Department of Family Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2001

NGUYEN, HOA T. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles 1999

NGUYEN, KHOA D. Assistant Professor, Department of Medicine SM
M.D. Virginia Commonwealth University 2008

NGUYEN, LEE H. Associate Professor, Department of Pharmacy Practice SP
Pharm.D. University of California, San Francisco 2004

NGUYEN, MIKE C. Assistant Professor, Department of Medicine SM
D.O. Western University of Health Sciences, California 2011

NGUYEN, TEDDY D. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2007

NGUYEN, THUAN HUU. Instructor, Department of Clinical Laboratory Science AH
M.P.H. Loma Linda University PH 1975

NGUYEN, THUY-HUYNH. Assistant Clinical Professor, Department of Psychiatry SM
M.D. American University of the Caribbean, Netherlands Antilles 1991

NGUYEN, VAN T.N. Assistant Professor, Department of Family Medicine SM
D.O. Des Moines University 2011

NGUYEN-STRONGIN, ROSALYNN H. Assistant Professor, Department of Ophthalmology SM
O.D. Southern California College of Optometry, Fullerton, California 2007

NGUYEN-TRUAX, FAYETTE K. Assistant Professor, School of Nursing SN; and Member FGS
Ph.D. University of California, Los Angeles 2016

NICK, DOYLE R. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1978
M.S. Loma Linda University AH 2009

NICK, JAN M. Professor, School of Nursing SN
Ph.D. Texas Women's University 1997

NICK, KEVIN E. Associate Professor, Department of Earth and Biological Sciences SM; and Member FGS
Ph.D. University of Oklahoma 1990

NICOLAU, YONA. Assistant Professor, Department of Pediatrics SM
M.D. Carola Davila University, Romania 1998

NIEMEYER, MATTHEW S. Adjunct Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1991

NINAN, DANIEL J. Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2009

NINAN, DAVID J. Assistant Professor, Departent of Anesthesiology MD
D.O. Western University of Health Sciences, California 1999

NIST, LAURA DAWN HENRICHSEN. Associate Professor, Department of Neurology SM
M.D. Loma Linda University SM 1995

NOBRIGA, CHRISTINA V. Assistant Professor, Department of Communication Sciences and Disorders AH; and Member FGS
Ph.D. James Madison University 2009

NOOKALA, PRASHANTH K. Assistant Professor, Department of Radiation Medicine SM
M.S. Louisiana State University 2005

NOORVASH, SHAHAB. Assistant Professor, Department of Endodontics SD
D.D.S. Northwestern University, Illinois 1987

NOROUZI, SAYNA. Assistant Professor, Depart,ent of Medicine SM
M.D. Tehran University of Medical Sciences, Iran 2011

NOUR, CHELAN A. Assistant Professor, Department of Anesthesiology SM
M.D. Loyola University Chicago 2007

NOUR, MOHAMED B. Assistant Professor, Department of Anesthesiology SM
M.D. University of Oklahoma 2007

NOVAL, JERL JEAN. Assistant Professor, Department of Nutrition and Dietetics AH
Ph.D. Northcentral University 2016

NOVY, BRIAN B. Adjunct Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2006

NOWRANGI, PUSHPA. Associate Professor, Department of Pediatrics SM and Department of Medicine SM
M.B.B.S. Darbhanga Medical College, India 1978

NOWRANGI, SUNIL K. Associate Professor, Department of Pediatrics SM and Department of Medicine SM
M.B.B.S. University of Madras, India 1977

NOZAKI, JAMES K. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1995

NTAGANDA, EDMOND. Assistant Professor, Department of Surgery SM
M.D. National University of Rwanda 2012

NURSKSE, KATHERINE M. Instructor, Department of Anesthesiology SM
M.D. University of California, San Diego 2015

NYIRADY, STEPHEN A. Associate Clinical Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University GS 1972

OBENAUS, ANDRE. Adjunct Professor, Department of Basic Sciences SM and Department of Pediatrics SM; Adjunct Associate Research Professor, School of Behavioral Health BH
Ph.D. University of British Columbia, Vancouver, Canada 1989

OBERG, KERBY C. Professor, Department of Pathology and Human Anatomy SM; and Member FGS
M.D. Loma Linda University SM 1991
Ph.D. Loma Linda University GS 1989

O'BOSHY, KAREN R. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2007

O'CALLAGHAN, THOMAS A. Associate Professor, Department of Surgery SM; Associate Professor, Department of Basic Sciences SM
M.B.B.S. National University of Ireland 1968

OCHOA, HUMBERTO R. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Utah 1983

OCHOA, WILLIAM G. Assistant Professor, Department of Medicine SM
M.D. University of Wisconsin 2005

O'CONNOR, JENNIFER M. Assistant Professor, Department of Surgery SM
M.D. Drexel University, Pennsylvania 2006

O'CONNOR, ZACHARY J. Assistant Professor, Department of Surgery SM
M.D. Drexel University, Pennsylvania 2006

ODA, KEIJI. Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2006

ODABASHIAN, NISHAN M. Adjunct Assistant Professor, Department of Endodontics SD
D.M.D. Tufts University School of Dental Medicine, Boston, Masachusetts 1991

OH, JISOO. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2006

OH, SANG-DUK. Assistant Professor, Department of Periodontics SD
D.D.S. Kyungpook National University, South Korea 1981

OHANIAN, EDMOND K. Assistant Clinical Professor, Department of Medicine SM
D.O. Western University of Health Sciences 2011

OJANO, MAC-REY L. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 1997

OKADA, GEOFFREY TOSHIO. Assistant Professor, Department of Endodontics SD
D.D.S. Loyola University 1983

OKUMURA, WESLEY KENT. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 1994

OLAFSSON, SNORRI. Adjunct Associate Professor, Department of Medicine SM
M.D. University of Iceland 1978

OLEK, MICHAEL J. Associate Professor, Department of Neurology SM
D.O. Philadelphia College of Osteopathic Medicine 1989

OLIVO, RICARDO L. Assistant Professor, Department of Neurology SM
M.D. Universidad de Guadalajara 2015

OLOO, WINETTA BAKER. Associate Professor, Department of Counseling and Family Science BH; and Member FGS
Ph.D. Loma Linda University ST 2006

OLSON, GREGORY W. Adjunct Associate Professor, Department of Orthodontics SD; and Member FGS
D.D.S., M.S. Loma Linda University SD 1996, 2011

OLSON, JEFFREY T. Assistant Professor, Department of Pediatrics SM and Department of Medicine SM
M.D. Loma Linda University SM 2012

OLSON, JENNIFER A. Assistant Clinical Professor, School of Nursing SN
M.S. California State University, Fullerton 2014

OMAR, SAMAH I. Associate Professor, Department of Pediatric Dentistry SD; and Member FGS
D.D.S. Loma Linda University SD 2007

OMS, CATHERINE JOY D. Assistant Professor, Department of Physician Assistant Sciences AH
M.P.A. Loma Linda University AH 2007

ORLICH, MICHEAL J. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. University of Michigan 2001

ORR, BARBARA J. Associate Clinical Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1970

ORR, ROBERT D. Professor, Medical Education SM
M.D. McGill University, Montreal, Quebec, Canada 1966

ORTIZ, LARRY. Professor, Department of Social Work and Social Ecology BH; and Member FGS
Ph.D. State University of New York, Buffalo 1987

OSBORNE, JOHN E. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1979

OSHIRO, BRYAN T. Associate Professor, Department of Gynecology and Obstetrics SM, School of Public Health PH; and Member FGS

M.D. Loma Linda University SM 1985

OSORIO, CAROLINA. Assistant Professor, Department of Psychiatry SM
M.D. Universidad Libre, Cali, Colombia 2001

OSUR, MICHAEL. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
M.B.A. University of Phoenix 1998

OTSUKA, KIMBERLY N. Assistant Professor, Department of Pediatrics SM
M.D. University of Hawaii, Manoa 1998

OTSUKA, TAKAHIRO. Assistant Professor, Department of Medicine SM
M.D. University of Yamanashi, Japan 1987

OWEN, JASON E. Adjunct Associate Professor, Department of Psychology BH
Ph.D. University of Alabama, Birmingham 2003

OYAMA, KOTARO. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. Nippon Dental University, Japan 1997

OYOYO, UDOCHUKWU E. Assistant Professor, Department of Dental Education Services SD and Department of Radiology SM
MILS University of Pittsburgh 2000
M.P.H. Loma Linda University PH 2008

PADILLA, GERALDINE V. Adjunct Professor, School of Nursing SN
Ph.D. University of California, Los Angeles 1971

PADILLA, RACHEL A. Assistant Clinical Professor, Division of Interdisciplinary Studies BH
M.S. Loma Linda University ST 2011

PAI, RAMDAS G. Professor, Department of Medicine SM
M.D. Kasturba Medical College, Manipal, India

PAI, SHANTHARAM R. Assistant Clinical Professor, Department of Family Medicine SM
M.B.B.S. University of Mysore, India 1981

PAI, SUDHA M. Associate Professor, Department of Medicine SM
M.B.B.S. University of Mysore, India 1979

PAIK, JACQUELINE M. Assistant Professor, School of Nursing SN
M.S. University of Phoenix 2004

PAIK, SUN H. Adjunct Associate Professor, School of Public Health PH
Ph.D. University of Maryland 1997

PALADAR, ELDE MEL B. Assistant Professor, Department of Clinical Laboratory Science AH
M.S. University of the Philippines, Manila 2005

PALISOC, ALMA M. Associate Professor, Department of Preventive Medicine SM
M.D. Far Eastern University, Philippines 2001

PALMER, DENNIS D. Associate Professor, Department of Medicine SM
D.O. Kansas City University of Medicine and Biosciences 1976

PALMER, ERIK G. Assistant Clinical Professor, Department of Family Medicine SM
D.O. Western University of Health Sciences, Pomona, California 1995

PALMER, LINDA MARGARET. Clinical Instructor, Department of Health Informatics, Information Mangement, and Administration AH
B.S. Loma Linda University AH 1979

PANCER, BROOKE A. Assistant Professor, Department of Periodontics SD
D.M.D. McGill University, Canada 2011
M.S. University of Michigan 2014

PANDEY, NEHA. Assistant Professor, Department of Medicine SM
M.B.B.S. PTJNM Medical Colle, Raipur, India 2000

PANDIT, DIPIKA R. Adjunct Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2009
M.P.H. Loma Linda University PH 2013

PANDIT, IVY C. Assistant Professor, Department of Medicine SM
M.B.B.S. Christian Medical College and Hospital, India 1978

PAPPAS, JAMES M. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1985

PAQUIN, YVETTE M. Assistant Clinical Professor, Department of Occupational Therapy AH
O.T.D. Loma Linda University 2014

PARBOUNI, KRISTINE A. Assistant Professor, Department of Pharmacy Practice SM
PharmD. University of Maryland, Baltimore 2005

PAREDES, ALFREDO R. Adjunct Assistant Professor, Division of General Dentistry SD
D.D.S. University of California, Los Angeles 2008

PARK, ALICE S. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. University of Texas, Southwestern Medical Center 2002

PARK, BO Y. Clinical Instructor, Department of Gynecology and Obstetrics SM
Ph.D. Drexel University, Pennsylvania 2015

PARKER, LISA C. Instructoer, Department of Radiation Technology AH
A.S. Loma Linda University AH 2004

PARKER, RICHARD L. Associate Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1968
M.S. Medical College of Georgia 1977

PARSI, MANOOCHEHR G. Associate Professor, Department of Periodontics SD
D.M.D. Shiraz University, Iran 1979

PARSLEY, MARTIE E. Assistant Professor, Department of Medical Education SM
Ph.D. Ohio State University School of Journalism 1998

PASCA, IOANA. Assistant Professor, Department of Anesthesiology SM
M.D. University of Arkansas for Medical Sciences 2010

PASCAL, JEFFERY H. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2016

PASCUZZI, NINA M. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Columbia University 2004

PATEL, HITEN. Clinical Instructor, Department of Physical Therapy AH
Pharm.D. University of California, San Francisco 2001

PATEL, JIGNASA G. Assistant Professor, Department of Neurology SM
M.D. New York University School of Medicine 2004

PATEL, SHEELA T. Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. Tulane University School of Medicine, New Orleans 1991

PATTERSON, STEPHEN C. Assistant Professor, Department of Emergency Medicine SM
M.D. University of California, Irvine 1999

PATTON, WILLIAM C. Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1969

PATUSZYNSKI, MARK. Assistant Professor, Department of Medicine SM
M.D. University of Illinois, Chicago 1999

PATYAL, BALDEV RAJ. Associate Professor, Department of Radiation Medicine SM
Ph.D. Washington State University 1988

PAULIEN, JON. Professor, School of Religion SR
Ph.D. Andrews University 1987

PAVLOVICH, SHARON L. Assistant Professor, Department of Occupational Therapy AH and Member FGS
M.A.M University of Redlands 2010

PEAN, CARL F. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Universidad Eugenio Maria de Hostos, Dominican Republic 1987

PEARCE, DANIEL. Associate Clinical Professor, Department of Medicine SM
D.O. College of Osteopathic Medicine and Surgery, Iowa 1980

PEARCE, WILLIAM. Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. University of Michigan 1979

PECAUT, MICHAEL JAMES. Research Professor, Department of Basic Sciences SM; Associate Research Professor, Department of Radiation Medicine SM; and Member FGS
Ph.D. University of Colorado, Boulder 1999

PENA, ALEJANDRO. Adjunct Assistant Professor, Department of Dental Educational Services SD
D.D.S. University of California, San Francisco 1982

PENG, WEI-PING PENNY. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1999

PENNIECOOK, TRICIA Y. Adjunct Assistant Professor, School of Public Health PH; Assistant Professor, Department of Preventive Medicine SM
M.P.H. University of Montemorelos, Mexico 1996
M.D. University of Montemorelos, Mexico 1994

PEREA, SAMANTHA E. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2004

PEREAU, MELISSA J. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2004

PEREIRA, VALERIA R. S. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Universidade Federal de Santa Catarina, Brazil 1985

PEREYRA-SUAREZ, ROBERT. Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. Loma Linda University SM 1976

PERRY, CHRISTOPHER C. Assistant Professor, Department of Basic Sciences SM Department of Pharmaceutical and Administrative Sciences SP; and Member FGS
Ph.D. University of Liverpool, England, UK 1999

PERSICHINO, JON G. Associate Professor, Department of Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2003

PESAVENTO, RICHARD D. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. University of California, Irvine 1980

PETERS, JUDITH MILLER. Associate Professor, School of Nursing SN
Ed.D. Loma Linda University SE 1968

PETERS, WARREN R. Associate Professor, Department of Preventive Medicine SM; Assistant Professor, School of Public Health PH
M.D. Loma Linda University SM 1969

PETERSEN, ANNE BERIT. Assistant Professor, School of Nursing SN; and Member FGS
M.P.H. Loma Linda University PH 2006
Ph.D. University of California, San Francisco 2015

PETERSEN, DARRELL K. Assistant Professor, Department of Pathology and Human Anatomy SM
Dr.P.H. Loma Linda University PH 2016

PETERSEN, DENISE K. Assistant Clinical Professor, School of Nursing SN
M.S.N. Grand Valley State University, Michigan 1999

PETERSEN, ERIK J. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Medical College of Virginia 2003

PETERSON, DONALD I. Emeritus Professor, Department of Neurology SM
M.D. College of Medical Evangelists 1947

PETERSON, GORDON WILLARD. Professor, Department of Neurology SM and Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 1974

PETERSON, JOHN ERIC, JR. Emeritus Professor, Department of Pediatric Dentistry SD
D.D.S. Loma Linda University SD 1970

PETTI, GEORGE HYACINTH, JR. Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1962

PEVERINI, RICARDO L. Associate Professor, Department of Pediatrics SM

M.D. Loma Linda University SM 1984

PFEIFFER MOSLEY, TERESE R. Instructor, Department of Radiation Technology AH
M.A. Fresno Pacific University 2011

PHAM, PETER H. Assistant Professor, Department of Radiology SM and Department of Basic Sciences SM
M.D. University of California, Los Angeles 2006

PHAN, SON. Assistant Professor, Department of Radiology SM
M.D. Univrsity of Vermont 2003

PHATAK, ANITA V. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles 2011

PHATAK, PRASHANT V. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles School of Medicine 1999

PHILLIPS, LISA. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1993

PHILLIPS, RAYLENE M. Associate Professor, Department of Pediatrics SM
M.D. University of California, Davis School of Medicine 2005

PHILLIPS, SUZANNE E. Assistant Professor, Department of Earth and Biological Sciences SM; and Associate Member FGS
Ph.D. Loma Linda University GS 2003

PHIPATANAKUL, WESLEY P. Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1998

PIEDRA, ISABELLA. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. Universidad del Valle, Columbia 1990

PIERSON, CRYSTAL A. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2005

PIERSON, KENNETH D. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University, SD 2000

PINDER, JAMES. Associate Professor, Department of Pharmaceutical and Administrative Sciences SP
J.D. William Howard Taft University, California 2008

PIVONKA-JONES, JAMIE. Assistant Professor, Department of Pediatrics SM
Ph.D. Loma Linda University SST

PLANTAK, ZDRAVKO. Professor, School of Religion SR
Ph.D. King's College, University of London, United Kingdom 1994

POHOST, GERALD M. Professor, Department of Medicine SM
M.D. University of Maryland 1967

POLLARD, PRUDENCE E. Associate Clinical Professor, School of Public Health PH
Ph.D. Western Michigan University 1993

POLYCARPE, MARTINE Y. Adjunct Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2001

POOMPRAKOBSRI, KIDDEE. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2012

PORTER, CORWIN. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2000

PORTNOFF, LUIZA. Clinical Instructor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 2014

POTHIER, PATRICIA KATHLEEN. Amerita Associate Professor, School of Nursing SN
Ph.D. University of San Diego 2001

POTTER, MINDY J. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2010

POTTS, MICHAEL L. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. Loma Linda University SD 1975

POWELL, STEVEN R. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1987

POWER, GORDON G. Professor, Department of Basic Sciences SM and Department of Gynecology and Obstetrics SM
M.D. University of Pennsylvania School of Medicine 1961

PRATTE, JOHN E. Assistant Clinical Professor, Department of Endodontics SD
D.D.S. University of Southern California 1987

PRENDERGAST, THOMAS J. Associate Clinical Professor, School of Public Health PH
M.S. University of North Carolina 1972
M.D. Washington University School of Medicine 1966

PRESTON, WILLIAM. Associate Professor, Department of Radiation Medicine SM
Ed.D. University of Rochester, New York 1974

PRIESTER, TIFFANY C. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2004

PRIETTO, CARLOS A. Clinical Professor, Department of Orthopedic Surgery
M.D. University of California, Los Angeles 1973

PRIETTO, MIGUEL P. Assistant Clinical Professor, Department of Orthopedic Surgery
M.D. University of California, Irvine 1978

PROCHAZKA, ERNEST J. Associate Clinical Professor, Department of Preventive Medicine SM
M.D. University of Vienna, Austria 1983

PROCTOR, GEORGE JASON. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University of Virginia 1993

PROUSSAEFS, PERIKLIS THEODORE. Associate Clinical Professor, Department of Restorative Dentistry SD

D.D.S. University of Athens School of Dentistry, Greece 1993

PRZEKOP, ALLISON A. Assistant Professor, Department of Pediatrics SM
D.O. Western University of Health Sciences, California 1999

PUDER, DAVID J. Assistant Professor, Department of Psychiatry SM and Department of Medicine SM
M.D. Loma Linda University SM 2010

PUERTO, SOFIA. Assistant Clinical Professor, School of Nursing SN
Ph.D. Columbia Pacific University 1993

PUESCHEL ROBIN. Assistant Professor, School of Nursing SN
D.N.P. Brandman University, California 2014

PUNJABI, ANIL P. Associate Clinical Professor, Department of Oral and Maxillofacial Surgery SD

D.D.S. University of Southern California 1990
M.D. Case Western Reserve University 1993

PURI, NISHANT. Adjunct Assistant Professor, Department of Medicine SM
M.B.B.S. Government Medical College, India 2003

PURSLEY, DONALD G. Adjunct Associate Professor, School of Public Health PH
D.B.A. George Washington University, Washington D.C. 1978

PURUSHOTHAM, WINOLA R. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2003

PUVVULA, LAKSHMI K. Assistant Professor, Department of Medicine SM
M.B.B.S. Guntur Medical College, India 1987

PYKE, JANELLE. Assistant Professor, School of Public Health PH
M.A. Loma Linda University SE 1986

QI, CHRISTINA H. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2010

QIN, HAIXIA. Associate Professor, Department of Medicine SM
B.M. Xi'an Jiaotong University, China 2001
Ph.D. Medical College of Georgia 2010

QIN, XUE ZHONG. Associate Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. West Virginia University 1992

QIU, HONGYU. Associate Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. Huazhong University of Science and Technology, China 2001
M.D. Tongji Medical University, China 1986

QUIGLEY, JEFFREY E. Instructor, Department of Surgery SM
D.O. Western University of Health Sciences, California 2011

QUIGLEY, ROBERT L. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1974

QUIJANO, CAROLYN R. T. Clinical Instructor, Department of Nutrition and Dietetics AH
M.S. Loma Linda University AH 2011

QURESHI, SONEA I. Assistant Professor, Department of Pediatrics SM
M.B.B.S. King Edward Medical University, Pakistan 1995

RACINE, JUDY K. Instructor, Department of Orthopedic Surgery SM
M.S.N. Azusa Pacific University 2000

RACKAUSKAS, GULNARA. Assistant Professor, Department of Medicine SM
M.D. Kaunas University of Medicine, Lithuania 1986

RADOVICH, PATRICIA ANN. Assistant Clinical Professor, School of Nursing SN
M.S.N California State University, Long Beach 1995

RAGHAVAN, MURLI. Assistant Professor, Department of Medicine SM
M.B.B.S. Armed Forces Medical College, Pune, India 1975

RAGHAVAN, RAVI. Professor, Department of Pathology and Human Anatomy SM
M.B.B.S. University of Calicut, India 1980
M.D. University of Madras 1987

RAHMAN, MAISARA I. Assistant Clinical Professor, Department of Family Medicine SM
M.D. American University of the Caribbean 2005

RAHMANIAN, SAMIRA. Assistant Professor, Department of Medicine SM
M.D. Kerman University of Medical Sciences, Iran 2010

RAIS, SHIRLEY MARIE. Associate Professor, University Libraries
M.L.S. San Jose State University 1992

RAISZADEH, MOUSSA. Assistant Professor, Department of Radiology SM
Pharm.D. University of Tabriz, Iran 1971

RAJARAM, SUJATHA. Associate Professor, School of Public Health PH; and Member FGS
Ph.D. Purdue University, Indiana 1993

RAKOSKI, DOUGLAS R. Assistant Professor, Department of Occupational Therapy AH
O.T.D. Creighton University, Nebraska 2014

RAMAL, EDELWEISS R. Emerita Associate Professor, School of Nursing SN; and Member FGS
Ph.D. Andrews University 2002

RAMBHAROSE, JOHN ANTHONY. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1989

RAMIREZ, DANNY M. Assitant Clinical Professor, Division of General Dentistry SD
D.D.S. University of California, San Francisco 2008

RAMOS, MANFRED L. Assistant Professor, Department of Familyt Medicine SM
D.O. New York Institute of Technology College of Osteopathic Medicine 2007

RAMSINGH, DAVINDER. Associate Professor, Department of Anesthesiology SM
M.D. Augusta University 2006

RANDHAWA, MANJIT S. Assistant Clinical Professor, School of Public Health PH; Assistant Professor, Department of Preventive Medicine SM
M.D. University of Szeged, Hungary 2006

M.P.H. Loma Linda University PH 2013

RANZOLIN, LEO S. JR. Professor, School of Religion SR; and Member FGS
Th.D. Boston University 2001

RAO, RAVINDRA. Professor, Department of Pediatrics SM
M.B.B.S. Karnataka University MR Medical College, India 1975

RASI, ALFREDO. Associate Professor, Department of Cardiothoracic Surgery SM
M.D. Buenos Aires Medical School, Argentina 1961

RATY, LAURA. Assistant Professor, School of Nursing SN
B.S. Loma Linda University SN 2007

RAU, THOMAS J. Assistant Professor, Department of Radiology SM
M.D. Rosalind Franklin University of Medicine and Science, Illinois 2007

RAUSER, MICHAEL EDWARD. Associate Professor, Department of Ophthalmology SM
M.D. University of Maryland 1990

RAVAL, RONAK N. Assistant Professor, Department of Anesthesiology SM
M.D. New York Medical College 2009

RAWSON, RICHARD L. Adjunct Assistant Professor, School of Public Health PH
M.B.A. California State University, Bakersfield 1990

RAY, ANDREA O. Associate Professor, Department of Plastic and Reconstructive Surgery SM
M.D. Hahnemann School of Medicine, Philadelphia, Pennsylvania 1994

RAZA, ANWAR S. Professor, Department of Pathology and Human Anatomy SM
M.B.B.S. SIND Medical College, Pakistan 1983

RAZZOUK, ANEES J. Professor, Department of Cardiothoracic Surgery SM and Department of Pediatrics SM
M.D. Loma Linda University SM 1982

REA, BRENDA L. Assistant Professor, Department of Family Medicine, Department of Preventive Medicine SM, and School of Public Health PH
Dr.P.H. Loma Linda University PH 2003
M.D. Loma Linda Universith SM 2011

REA, RONALD MILTON. Assistant Professor, Department of Physical Therapy AH
D.Sc.P.T. Andrews University 2011

REDDY, H. RAJENDER. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. Osmania University, India 1981

REDDY, VENKATARAMANA. Assistant Clinical Professor, Department of Medicine SM
M.D. Andhra University Medical College 1997

REESE, LEROY A. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1972

REEVES, MARK E. Professor, Department of Surgery SM, Department of Medicine SM, and Department of Basic Sciences SM
M.D. Loma Linda University SM 1992
Ph.D. University of California, Los Angeles 1990

REEVES, MICHELLE E. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1986

REIBLING, E. Ellen. Associate Professor, Department of Emergency Medicine SM and Department of Basic Sciences SM
Ph.D. University of California, Irvine 2004

REID, ERIC W. Assistant Professor, Department of Communication Sciences and Disorders AH
M.S. Loma Linda University AH 2012

REINSMA, KATHRYN R. Adjunct Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2012

REISCHE, SUSAN E. Assistant Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1989

RETAMOZO, BONNIE J. Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 2005

REYES-PADILLA, RUTH D. Clinical Instructor, Department of Radiation Technology AH
M.S. Loma Linda University AH 2016

REYNOLDS, LOWELL W. Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1991

REZNICHENKO, ALEKSANDR A. Adjunct Assistant Professor, Department of Surgery SM
M.D. Russian State Medical University 1986

RHEE, JOON W. Clinical Instructor, Department of Preventive Medicine SM; Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2004
Ph.D. Loma Linda University GS 1998
M.D. Loma Linda University SM 1998

RHINER, MICHELLE I. Assistant Professor, Department of Family Medicine SM
D.N.P. Western University of Health Sciences 2015

RIBINA, MARIA NIEVES G. Instructor, Department of Pathology and Human Anatomy SM
M.H.S. West Virginia University 2013

RICE, DWIGHT D. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1996

RICE, GAIL TAYLOR. Clinical Professor, Department of Allied Health Studies AH
Ed.D. Loma Linda University SE 1983

RICE, T. RICHARD. Professor, School of Religion SR; and Member FGS
Ph.D. University of Chicago Divinity School 1974

RICHARDS, BRANDIE. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2019

RICHARDS, DOUGLAS C. Assistant Clinical Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Oral Roberts University , Oklahoma 1989

RICHARDS, ERIN E. A. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2010

RICHARDS, SUSAN CLONINGER. Associate Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 1984

RICHARDSON, PAUL L. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1972
M.S.Ed. University of Southern California 1974

RIEDEL, BARTH B. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 2005

RIESEN, SHARON K. Associate Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1982

RIESENMAN, JOHN P. Associate Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1981

RIGSBY, RHODES LANE. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1987

RIPLEY, KAREN. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2006

RIPPETOE, JAMES B. Instructor, Department of Radiation Technology AH
M.A.M. University of Redlands 2009

RIPPLE, WILLIAM J. Adjunct Professor, School of Public Health PH
Ph.D. Oregon State University 1984

RITCHIE, GLEN C. Instructor, Department of Anesthesiology SM
M.S. Loma Linda University SN 2014

RITER, HOLLI C. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1998

RIVERA, GERARD-BANJOE. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2011

RIVERA, JORGE L. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1979

RIZKALLA, SUZANNE S. Assistant Clinical Professor, Department of Medicine SM
M.D. Ain Shams University, Egypt 1985

ROATH, RODNEY MARK. Instructor, Department of Clinical Laboratory Science AH
M.B.A. California State University, San Bernardino 1991
Ph.D. Claremont Graduate University 2017

ROBERTS, LISA R. Professor, School of Nursing SN, School of Behavioral Health BH; and Member FGS
Dr.P.H. Loma Linda University PH 2011

ROBERTS, RANDALL LEE. Professor, School of Religion SR
D.Min. Fuller Theological Seminary 1996

ROBERTS, WILBUR EUGENE. Adjunct Professor, Department of Orthodontics SD
Ph.D. University of Utah School of Medicine 1969
D.D.S. Creighton University School of Dentistry 1967

ROBINSON, MAGDA L. Assistant Clinical Professor, Department of Family Medicine SM
M.D. Universidad de Montemorelos, Mexico 1973

ROBLES, ANTONIO E. Professor, Department of Surgery SM
M.D. Buenos Aires University, Argentina 1972

ROCHE, SUSAN. Associate Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 1993
M.S. University of California, Los Angeles 1997

ROCKWOOD, NICHOLAS J. Assistant Professor, Division of Interdisciplinary Studies BH
Ph.D. The Ohio State University 2019

RODDY, SARAH M. Associate Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1980

RODRIGUEZ SANCHES, JORGE J. Visiting Professor, Department of Psychiatry SM
M.D. Universidad de Camagüey 1972
Ph.D. Universidad de La Habana 1990

ROE, PHILLIP. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2003

ROESE, HEATHER A. Assistant Professor, Department of Occupational Therapy AH
O.T.D. Loma Linda University AH 2014

ROFAEL, RAFIK R. Assistant Professor, Division of General Dentistry SD
D.D.S. Cairo University Dental School 1971

ROGERS, MARK. Clinical Instructor, Department of Cardiopulmonary Sciences AH
B.S. Loma Linda University AH 1988

ROGERS, REBECCA L. Assistant Professor, School of Nursing SN
D.N.P. Samuel Merritt University, California 2017

ROGERS, THOMAS CHARLES. Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1983

ROGGENKAMP, CLYDE L. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1970
M.S.D. Indiana University 1973
M.P.H. Loma Linda University PH 2005

ROGSTAD, DANIEL K. Assistant Professor, Department of Medicine and Department of Medical Education SM
Ph.D. Loma Linda University SM 2008
M.D. Loma Lina University SM 2009

ROJAS, HEATHER L. Associate Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 2003

ROMAN, MAHER ABDELSAYED. Assistant Professor, Department of Medicine SM

M.D. Cairo University, Egypt 1984

ROMANO, THOMAS J. Assistant Professor, Department of Medicine SM
M.D. Yale University 1973

RONNEY, ALEXIS M. Instructor, Department of Otolaryngology and Head and Neck Surgery SM
Au.D. Illinois State University 2020

ROOS, PHILIP J. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1976

ROQUIZ, DANIEL A. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2011

ROSARIO, CAROLAN R. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1988

ROSENFELD, JEFFREY. Professor, Department of Neurology SM
Ph.D. University of Connecticut 1983
M.D. University of Maryland 1990

ROSENQUIST, ROBERT C., JR. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1977

ROSENTHAL, MARTIN G. Assistant Professor of Surgery SM
M.D. Ben-Gurion University of the Negev, Israel 2011

ROSS, TERI HAINES. Instructor, Department of Clinical Laboratory Science AH
M.S. Loma Linda University IDS 2007

ROSTAMIAN, SHARIS N. Assistant Professor, Department of Pediatrics SM
Psy.D. Loma Linda University ST 2010

ROTH, ARIEL A. Adjunct Professor, Department of Earth and Biological Sciences SM
Ph.D. University of Michigan 1955

ROTH, PATRICIA J. Assistant Clinical Professor, Department of Psychiatry SM
Ph.D. Trinity School of Graduate Studies, British Columbia 2000

ROTH, WILLIAM G. Associate Professor, Department of Psychiatry SM
Psy.D. Biola University, Los Angeles, California 1986

ROUSE, GLENN ALLEN. Associate Professor, Department of Radiology SM and Department of Radiation Technology AH
M.D. Loma Linda University SM 1976

ROUSE, TERRI LYNNE. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.A.M. University of Redlands 2011

ROW, PAUL K. Adjunct AssistaProfessor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1999

ROWSELL, EDWARD H. Assistant Professor, Department of Pathology and Human Anatomy SM and Department of Clinical Laboratory Science AH
M.D., Ph.D. Loma Linda University SM, GS 1994

RUBINSTEIN, RICHARD A. Adjunct Associate Professor, Department of Endodontics SD
D.D.S., M.S. University of Michigan 1971, 1973

RUCKLE, HERBERT C. Professor, Department of Urology SM
M.D. Loma Linda University SM 1986

RUDOMETKIN, NATHAN J. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2001

RUDOY, ELENA M. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2007

RUIZ, CYNTHIA CHAVEZ. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1981

RUNDLE, CHARLES H. Associate Research Professor, Department of Medicine SM
Ph.D. University of Alabama 1996

RUNGCHARASSAENG, KITICHAI. Professor, Department of Orthodontics SD; and Member FGS
D.D.S. Chulalongkorn University, Thailand 1991
M.S. Loma Linda University GS, SD 1998, 2006

RUTEBUKA, OBED BASHORA. Assistant Professor, School of Public Health PH
Ph.D. Loma Linda University GS 1996

RYNEARSON, R. DAVID. Associate Professor, Department of Orthodontics SD
D.D.S. Loma Linda University SD 1971
M.S. Loma Linda University GS 1987

SAATY, HANS P. Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 1982

SABATÉ, JOAN. Professor, School of Public Health PH, Department of Medicine SM; and Member FGS
M.D. Universitat Autònoma de Barcelona, Catalonia 1978
Dr.P.H. Loma Linda University PH 1989

SABSOOK, CRISTINA. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. California State University, San Bernardino 2010

SACAY, GERGETTE D. Instructor, Department of Medicine SM
M.S. Loma Linda University SN 2011

SADANAND, VENKATRAMAN. Associate Professor, Department of Neurosurgery SM
M.D. University of Toronto 1997

SADJADI, SEYED-ALI. Associate Professor, Department of Medicine SM
M.D. University of Tehran Medical School, Iran 1972

SAHASRANAM, PREM. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. Madras Medical College 1999

SAHAY, LEENA. Assistant Professor, Department of Medicine SM
M.B.B.S. University of Delhi, India 1993

SAHEBA, NEETA C. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Grant Medical School, Bombay, India 1982

SAHL, ERIK F. Assistant Professor, Department of Periodontics SD; and Member FGS
D.D.S. Loma Linda University SD 2006
M.S.D. Loma Linda University SD 2011

SAHNEY, SHOBHA. Associate Professor, Department of Pediatrics SM
M.B.B.S. Lady Hardinge Medical College of Delhi University, India 1969

SAINI, ARVIND. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. University of Pennsylvania 2005
M.B.A. University of Pennsylvania 2005

SAKALA, ELMAR P. Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1973

SAKR, ANTOINE. Assistant Professor, Department of Medicine SM
M.D. Lebanese University 2000

SALAMAT, AREZOU. Assistant Professor, Department of Occupational Therapy AH
M.O.T. Pacific University, Oregon 2000

SALARY-MITCHELL, TISHA L. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2001

SALVADOR, HERMINIA S. Associate Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Far Eastern University, Philippines 1961

SAMARDZIJA, MICHAEL R. Assistant Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University GS 1994
J.D. University of San Diego, California 2001

SANCHEZ-KAZI, CHERYL. Associate Professor, Department of Pediatrics SM
M.D. University of the Philippines 1986

SANDBERG, LAWRENCE. Clinical Research Professor, Department of Pathology and Human Anatomy SM, Department of Basic Sciences SM, and Department of Medicine SM
Ph.D. University of Oregon School of Health Sciences 1966

SANDE LOPEZ, LINETTE M. Assistant Professor, Department of Pediatrics SM
M.D. University of Puerto Rico School of Medicine 2005

SANDY, GISELLA L. Adjunct Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1998

SANFORD, MICHAEL A. Assistant Clinical Professor, Department of Urology SM
M.D. New York Medical College 1994
B.S. Loma Linda University AH 1983

SANTANA, RUBEN R. Clinical Instructor, Department of Restorative Dentistry SD
D.D.S. Loma Linda University SD 2002
D.M.D. University of the Philippines, Philippines 1985

SANTOS, EDRIEL. Clinical Instructor, School of Public Health PH
B.S. Universidade Adventista de Sao Paulo, Brazil 1995

SARLATI, FATANEH F. Assistant Professor, Department of Radiology SM
M.D. Shahid Beheshti University of Medical Sciences, Iran 1992

SARPY, NANCY LOUISE. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1993

SAUKEL, G. WILLIAM. Associate Professor, Department of Pathology and Human Anatomy SM
M.D. Medical University of South Carolina 1980

SAUNDERS, DAVID A. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2006

SAUNDERS, GREGORY E. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1985
M.P.H. Loma Linda University PH 2005

SAVORY, MARY ANN. Instructor, Department of Emergency Medicine SM
M.S. Loma Linda University GS 1985

SAWYER MACKNET, DANIELLE C.A. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 2003

SCARIATI, PAULA D. Associate Clinical Professor, Department of Preventive Medicine SM
D.O. New York College of Osteopathic Medicine 1989

SCHAEPPER, JOHANNES. Assistant Professor, Department of Orthotics and Prosthetics AH
Ph.D. Loma Linda University BH 2018

SCHARF, KEITH. Assistant Professor, Department of Surgery SM; and Member FGS
D.O. Lake Erie College of Osteopathic Medicine 2005

SCHARF, SHIVANI R. Assistant Professor, Department of Medicine SM
D.O. Lake Erie College of Osteopathic Medicine 2005

SCHARFFENBERG, JOHN A. Adjunct Professor, School of Public Health PH
M.D. Loma Linda University SM 1948

SCHATZSCHNEIDER, MEGAN M. Assistant Clinical Professor, School of Nursing SN
M.S. Loma Linda University SN 2013

SCHERER, MICHAEL D. Assistant Clinical Professor, Department of Restorative Dentistry SD
D.M.D. Nova Southeastern University, Florida 2007
M.S. Ohio State University 2012

SCHERGER, JOSEPH E. Clinical Professor, Department of Family Medicine SM
M.D. University of California, Los Angeles 1975
M.P.H. University of Washington 1978

SCHILL-DEPEW, AMY E. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2004

SCHILLING, KRISTEN A. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2018

SCHLAERTH, KATHERINE R. Clinical Instructor, Department of Physician Assistant Sciences AH

M.D. State University of New York Health Sciences, Buffalo 1968

SCHOENE, HERMAN R. Associate Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Buffalo, New York 1956

SCHUBERT, CHRISTIANE C. Assistant Professor, Department of Medical Education SM, Department of Social Work and Social Ecology BH; and Member FGS
Ph.D. Loma Linda University 2008

SCHUBERT, KEITH E. Adjunct Professor, Department of Basic Sciences SM
Ph.D. University of California, Santa Barbara 2003

SCHULTE, REINHARD W. Professor, Department of Basic Sciences SM; Associate Professor, Department of Radiation Technology AH
M.D. Cologne University, Germany 1984

SCHULTZ, GERALD. Associate Clinical Professor, Department of Ophthalmology SM
M.D. New York Medical College 1963

SCHWAB, ERNEST ROE III. Associate Professor, Department of Allied Health Studies AH
Ph.D. Loma Linda University GS 1989

SCHWAB, PATTY. Assistant Professor, School of Nursing SN
B.S. Loma Linda University 2007

SCHWARTZ, BRIAN P. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1989

SCHWARTZ, LYNDETTA R. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1982

SCOTT, LOREEN KAY. Clinical Instructor, Department of Cardiopulmonary Sciences AH
B.A. California State University, San Bernardino 1996

SEALY, DIADREY-ANNE T. Adjunct Assistant Professor, School of Public Health PH
Ph.D. University of Georgia 2012

SEATON RIBADU, NICHOLA, Assistant Professor, Counseling and Family Science BH
D.M.F.T. Loma Linda University BH 2008

SEAVEY, TIMOTHY. Assistant Professor, Department of Radiation Technology AH
Ed.D. Pepperdine University, California 2020

SEHEULT, CRAIG A. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 2009

SEHEULT, ROGER D. Assistant Clinical Professor, Department of Medicine SM and Department of Physician Assistant Sciences AH
M.D. Loma Linda University SM 2000

SEHGAL, GURMEET K. Instructor, University Libraries
M.L.S. Texas Women's University 2005

SEIBERLING, KRISTIN A. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM and Department of Basic Sciences SM
M.D. Northwestern University, Illinois 2002

SELIM, KHALED. Associate Professor, Department of Medicine SM
M.B.Ch.B. Cairo University 1978

SELLECK, EMILIE CHANG. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 2009

SERABYN, CYNTHIA L. Assistant Professor, Department of Medicine SM
D.O. College of Osteopathic Medicine of the Pacific 1991

SERRAO, STEVE. Assistant Professor, Department of Medicine SM
M.B.B.S. Manipal University, India 2002
M.P.H. Loma Linda University PH 2004

SETON, GILLIAN LEE. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2008

SEVANESIAN, DEZIREH. Adjunct Assistant Professor, Department of Dental Anesthesiology SD
D.D.S. Herman Ostrow School of Dentistry, University of Southern California 2008

SHABAHANG, SHAHROKH. Associate Clinical Professor, Department of Endodontics SD
D.D.S. University of the Pacific 1987
M.S. Loma Linda University GS 1997
Ph.D. Loma Linda University GS 2002

SHAFFER, AUDREY JEANNE. Assistant Clinical Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.A. Central Michigan University 1982

SHAH, AALOK D. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.D. Northwestern University, Illinois 2002

SHAH, HUMA I. Adjunct Assistant Professor, School of Public PH
Dr.P.H. Loma Linda University PH 2011

SHAH, MANOJKUMAR C. Associate Professor, Department of Pediatrics SM
M.B.B.S. University of Baroda, India 1978

SHAH, NITIN. Professor, Department of Anesthesiology SM
M.D. Baroda Medical College 1979

SHAH, PRAFUL C. Assistant Clinical Professor, Department of Pediatrics SM
M.B.B.S. Grant Medical College, India 1976

SHAH, SHIVANG H. Assistant Professor, Department of Medicine SM
M.B.B.S. South Gujarat University, India 2005
M.P.H. University of Southern Mississippi 2008

SHAIN, LINDA J. Instructor, Department of Clinical Laboratory Science AH
B.S. Loma Linda University AH 1981

SHAKESPEARE, BRENT E. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1988

SHANKEL, TAMARA MICHELLE. Associate Professor, Department of Pediatrics SM Department of Medicine SM, and Department of Medical Education SM
M.D. Loma Linda University SM 1988

SHANNON, KEVIN C. Associate Professor, Department of Family Medicine SM and Department of Preventive Medicine SM
M.D. University of Illinois College of Medicine 1985

SHAREEF, TAHSEEN N. Assistant Clinical Professor, Department of Medicine SM
M.D. Medical College of Pennsylvania 1993

SHARIP, AKBAR. Associate Professor, Department of Preventive Medicine SM and School of Public Health PH
M.P.H. University of California, Los Angeles 2003
M.D. Xian Medical University, China 1995

SHARKEY, JEANNINE. Adjunct Assistant Professor, School of Nursing SN
M.S.N. California State University, Long Beach 1995

SHARMA-ARORA, AKANKSHI A. Adjunct Assistant Professor, School of Public Health PH
M.H.A. Loma Linda University PH 1998

SHARP, BRIAN D. Assistant Professor, Department of Communication Sciences and Disorders AH
Ph.D. Loma Linda University AH 2013

SHARP, LORRA M. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Southern California 2005

SHATTUCK, O. HOWARD. Instructor, Department of Cardiothoracic Surgery SM
B.S. The Johns Hopkins University 1977

SHAVALIAN, BEHNAM. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Temple University, Pennsylvania 2010

SHAVLIK, DAVID JOSEPH. Assistant Professor, School of Public Health PH
M.S.P.H. Loma Linda University PH 1997

SHAW, KATHRYN J. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. University of Southern California 1983

SHEDD, JOANNA. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2013

SHELDON, RICHARD L. Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1968

SHELIM, CHEARY. Assistant Professor, School of Nursing SN
D.N.P. Loma Linda University SN 2018

SHENG, MATILDA. Associate Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. Virginia Polytechnic Institute and State University 1996

SHAPARD, MICHAEL F. Assistant Clinical Professor, Department of Orthpedic Surgery SM
M.D. University of California, Los Angeles 1996

SHEPHERD, MICHAEL D. Assistant Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1980

SHERIDAN, ALLAN. Assistant Professor, Department of Orthodontics SD
D.D.S. Case Western Reserve University, Cleveland, Ohio 1964
M.S. Case Western Reserve University 1968

SHERIDAN, FRANK P. Assistant Clinical Professor, Department of Pathology and Human Anatomy SM
M.B.Ch.B. University College at Dublin, Ireland 1971

SHERMAN, MARK D. Assistant Professor, Department of Ophthalmology SM
M.D. Albert Einstein Medical College 1985

SHERWIN, THOMAS S. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1989

SHETH, RITA. Associate Professor, Department of Pediatrics SM
M.D. Bombay University, Mumbai, India 1991

SHI, WEI-XING. Professor, Department of Pharmaceutical and Administrative Sciences SP, Department of Basic Sciences SM; and Member FGS
Ph.D. Yale University School of Medicine 1990

SHIE, JOHN M. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Ohio State University 1983

SHIH, GARY W. Assistant Professor, Department of Anesthesiology SM
M.D. Chicago Medical School 2007

SHIN, DONGSOO. Assistant Professor, Department of Surgery SM
M.D. Kyungpook National University, Korea 1965

SHIU, WILFRED W. Assistant Clinical Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 1990
M.P.H. Loma Linda University SH 1994

SHOOK, JAMES E. Associate Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1977

SHRADER, JOHN A. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1979

SHU, STANFORD K. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1992

SIAPCO, BENJAMIN J. Instructor, Department of Clinical Laboratory Science AH
M.S. Loma Linda University GS 1971

SIAPCO, GINA S. Associate Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2004

SICCAMA, MELISSA D. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2004

SIDDIGHI, SAM. Associate Professor, Department of Gynecology and Obstetrics SM; Assistant Professor, Department of Basic Sciences SM
M.D. New York Medical College 2001

SIDDIQUI, DANISH S. Assistant Professor, Department of Medicine SM
M.B.B.S. Maharashtra University of Health Sciences, India 1995

SIDDIQUI, SABIHA S. Assistant Professor, Department of Family Medicine SM
M.B.B.S. Osmania University, India 1972

SIDHAR, RAMAN M. Assistant Professor, Department of Medicine SM
M.D. Academy of Medicine in Lublin 2000

SIEGERT, SCOTT W. Assistant Clinical Professor, Department of Pharmacy Practice SP
M.B.A. University of Illinois, Chicago 2006
Pharm.D. De Paul University, Chicago 2010

SILBERSTEIN, JEANNE F. Assistant Clinical Professor, School of Public Health PH
M.S. University of Hawaii 1984

SILER, SHAUNNA. Assistant Professor, School of Nursing, SN
Ph.D. Loma Linda University SN 2017

SILSTON, STEPHEN MICHAEL. Assistant Professor, Department of Periodontics SD
D.D.S. Indiana University 1971
M.Sc.D. Boston University 1973

SILVA, VASTHI VIVIAN. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1979

SILVESTRIN, TORY L. Associate Professor, Department of Endodontics SD
D.D.S. University of Washington, Seattle 2012

SILVET, HELME. Assistant Professor, Department of Medicine SM
M.D. Tartu University, Estonia 1993

SIMENTAL, ALFRED A., JR. Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1995

SIMENTAL, DENNIS A. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2009

SIMMS, PAUL B. Adjunct Assistant Professor, School of Public Health PH
M.P.H. University of Michigan 1993

SIMON, LAUREN MERYL. Associate Professor, Department of Family Medicine SM
M.D. Hahnemann University, Philadelphia 1990

SIMON-FAYARD, ELBA E. S. Professor, Department of Pediatrics SM
M.D. Buenos Aires Medical School, Argentina 1979

SIMPSON, CHERYL J. Professor, Department of Counseling and Family Science BH
Ph.D. University of Oregon 1980

SINCLAIR, RYAN G. Assistant Professor, School of Public Health PH
Ph.D. Tulane University, New Orleans 2006

SINGH, HARPREET. Adjunct Associate Professor, School of Nursing SN
M.D. JMF ACPM Medical School, India 2002

SINGH, JASPREET. Assistant Professor, Department of Radiology SM and Department of Pediatrics SM
M.D. University of California, Irvine 2007

SINGH, PRAMIL. Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 1999

SINGHVI, AJEET RAJ. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. SMS Medical School, University of Rajasthan, Rajasthan 1973

SIVANANDAM, AMBIKA. Assistant Professor, Department of Medicine SM
M.B.B.S. Madras Medical College, India 1983

SKEF, WASSEEM. Assistant Professor, Department of Medicine SM
M.D. Weill Cornell Medicine, Qatar 2012

SKORETZ, LYNNETTA E. S. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1995

SKUBIC, JOHN W. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of California, Los Angeles 1980

SLAGTER, KRISTEN. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. Loma Linda University GS 2002

SLATER, JAMES B. Adjunct Assistant Professor, Department of Radiology SM
Ph.D. University of Southern California 1983

SLATER, JERRY D. Professor, Department of Radiation Medicine SM and Department of Basic Sciences SM
M.D. Loma Linda University SM 1982

SLATER, LEE J. Lecturer, Department of Oral and Maxillofacial Surgery SD
M.S. Indiana University 1982
D.D.S. University of California, Los Angeles 1975

SLJUKA, KATHERINE E. Clinical Instructor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 2000

SLOAN, MELINDA E. Instructor, Department of Anesthesiology SM
M.S.N. University of California, Los Angeles 2011

SLOOP, R. RICHARD. Adjunct Associate Professor, Department of Neurology SM
M.D. Loma Linda University SM 1986

SMITH, BRUCE E. Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 1992
M.D. University of Texas Health Science Center 1975

SMITH, DELIGHT S. Assistant Clinical Professor, Department of Dental Hygiene SD
B.S. Dental Hygiene SD 1999

SMITH, DOUGLAS C. Emeritus Professor, Department of Radiology SM
M.D. Loma Linda University SM 1966

SMITH, DUSTIN DAVID. Professor, Department of Emergency Medicine SM; Associate Professor, Department of Basic Sciences SM
M.D. Texas Technical University Health Sciences Center 1998

SMITH, JASON C. Associate Professor, Department of Radiology SM; Assistant Professor, Department of Basic Sciences SM

M.D. Loma Linda University SM 1996

SMITH, JODI O. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1994

SMITH, ROBERT T. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1981

SMITH, ROBIN D. Assistant Clinical Professor, School of Public Health PH; Assistant Professor, Department of Preventive Medicine SM
Ph.D. University of Texas, Austin 2000

SNIDER, DOUGLAS H. Adjunct Assistant Professor, Department of Endodontics SD
D.D.S. Loma Linda University SD 1983

SODERBLOM, ROBERT E. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1963

SOEPRONO, FRED F. Associate Professor, Department of Dermatology SM
M.D. Loma Linda University SM 1973

SOLAROGLU, IHSAN. Adjunct Research Professor, Basic Sciences SM
M.D. Eskieshir Osmangazi University, Turkey 1996

SOLOMON, NAVEENRAJ L. Associate Professor, Department of Surgery SM
M.D. Loma Linda University SM 2003

SONG, HAE-YOUNG A. Assistant Professor, Department of Medicine SM
M.D. University of Washington, Seattle 1997

SONG, KI (KEITH) Y. Assistant Clinical Professor, Department of Dental Educational Services SD
D.D.S. Loma Linda University SD 1990

SONNE, JANET L. Adjunct Professor, Department of Psychology BH
Ph.D. University of California, Los Angeles 1981

SORAJJAKOOL, SIROJ. Professor, School of Religion SR; Adjunct Professor, Department of Counseling and Family Science BH; and Member FGS
Ph.D. Claremont School of Theology 1999

SORIANO CASTELL, SALVADOR S. Associate Professor, Department of Pathology and Human Anatomy SM and Department of Basic Sciences SM; Member FGS
Ph.D. University of Glasgow, UK 1994

SORRELS, RONALD L. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1973

SOTO-WEGNER, UBALDO A. Assistant Research Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. Catholic University of Chile 1994

SOWERS, LAWRENCE C. Adjunct Professor, Department of Basic Sciences SM
Ph.D. Duke University, North Carolina 1983

SPEARMAN, CHARLES B. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
M.S. University of Southern California 1994

SPENCER-HWANG, RHONDA K. Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University 2009

SPECHT, N. LENNARD. Assistant Professor, Department of Medicine SM and Department of Cardiopulmonary Sciences AH
M.D. Loma Linda University SM 1983

SPENCER-HWANG, RHONDA K. Associate Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2009

SPENCER-SAFIER, MICHELLE M. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Michigan 1995

SPENCER-SMITH, E. LAURENCE. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1982

SPRENGEL, JEAN E. Assistant Clinical Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1981

SRIKUREJA, DANIEL P. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2010

SRIKUREJA, WICHIT. Adjunct Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1997

SRINIVASAN, B. DOBLI. Adjunct Associate Professor, Department of Ophthalmology SM
M.D. Columbia University 1967

SRISKANDARAJAH, MALATHY. Assistant Professor, Department of Medicine SM
M.D. University of Colombo, Sri Lanka 1979

STAACK, ANDREA. Associate Professor, Department of Urology SM
M.D. Humboldt University Charite, Berlin, Germany 1999

STACEY, D. GRAHAM CHARLES. Associate Professor, Department of Dental Education Services SD
Ph.D. Loma Linda University GS 1999

STANDISH, TIMOTHY G. Adjunct Associate Professor, Department of Earth and Biological Sciences SM
Ph.D. George Mason University 1994

STAPLES-EVANS, HELEN MURIEL. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1984

ST. CLAIR, JENNIFER C. Assistant Professor, Department of Communication Sciences and Disorders AH
M.S. Loma Linda University GS 1999

STEELE, ROBERT C. Associate Professor, Department of Emergency Medicine SM
M.D. Wayne State University, Michigan 1996

STEINMANN, JOHN C. Assistant Clinical Professor, Department of Orthopedic Surgery SM
D.O. College of Osteopathic Medicine of the Pacific 1986

STEPHAN, RYAN E. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration
B.S. Loma Linda University AH 2015

STEPHANOS, SELAM. Assistant Professor, School of Nursing SN
B.S. Oakwood University, Alabama 1993
M.P.H. Loma Linda University PH 1997

STEPHENS, JONELLE A. Emerita Professor, Department of Dental Hygiene SD
Ed.S. Loma Linda University SE 1982

STEPIEN, BETTY. Assistant Professor, Department of Medicine SM
M.D. University of California, Los Angeles Medical School 1999

STEVENS, WESLEY T. Assistant Professor, Department of Pathology and Human Anatomy SM and Oral and Maxillofacial Surgery SD
M.D. Loma Linda University SM 2000

STEWART, CHARLES EUGENE III. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D. Loma Linda University SM 1970

STEWART, STEVEN C. Clinical Professor, Department of Urology SM
M.D. Loma Linda University SM 1971

STEWART, SYLVIA DIANNE. Assistant Professor, School of Nursing SN
Ph.D. Claremont Graduate School 1993

STIER, GARY R. Professor, Department of Anesthesiology SM and Department of Medicine SM
M.D. Loma Linda University SM 1983

STINNETT, RANDY M. Assistant Professor, Department of Family Medicine SM
Psy.D. Loma Linda University ST 2010

STOLETNIY, LISET N. Associate Professor, Department of Medicine SM
M.D. Facultad de Medicina Montevideo, Uruguay 1985

STORFJELL, JUDITH L. Adjunct Professor, School of Nursing SN
Ph.D. University of Michigan 1987

STOTTLEMYER, DEBRA D. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1986

STRAND, PETER F. Assistant Professor, Department of Orthodontics SD
D.D.S. University of California, Los Angeles 1972

STREELMAN, MATTHEW T. Clinical Instructor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 2011

STRILAEFF, DYONNE R. Instructor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2004

STRINGER, DALE E. Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of Iowa 1972

STROMBERG, ANN H. Clinical Professor, School of Public Health PH
Ph.D. Cornell University, New York 1980
M.P.H. Loma Linda University PH 2005

STRONG, DONNA DEE. Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. University of California, Los Angeles 1977

STRONG, RICHARD MERLE. Associate Professor, Department of Medicine SM
M.D. University of California, Irvine 1975

STRUM, SCOTT RUSSELL. Associate Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 1990

STRUTZ, JUDITH M. Associate Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1985

STUDER, KAREN R. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 2010

STULTZ, DAVID B. Assistant Professor, Department of Medicine SM
M.D. University of Cincinnati College of Medicine 2000

SWEENEY, THOMAS J. Assistant Professor, Department of Medicine SM and School of Nursing SN
D.N.P. University of Colorado, Colorado Springs 2011

TAN, JOHN C. Assistant Professor, Department of Pediatrics SM
Ph.D. Loma Linda University SM 2018

SU, JUI-MIN. Assistant Professor, Department of Restorative Dentistry SD
M.S. University of Texas Health Sciences Center, Houston 2001
D.D.S. National Yang-Ming University, Taiwan 1996

SU-ERICKSON, DIANA B. Clinical Instructor, Department of Occupational Therapy AH
B.S. Loma Linda University AH 1978

SULAIMAN SHAMMO, RAGHAD J. Assistant Professor, Division of General Dentistry SD
B.D.S. Baghdad University, Iraq 1999

SUN, CHAO HUANG. Assistant Clinical Professor, Department of Medicine SM
M.D. Kaohsuing Medical College, Taiwan 1979

SUN, CHRISTINE H. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2005

SUN, JENNY C. Assistant Professor, Division of General Dentistry SD
D.D.S. University of California, Los Angeles 1985

SUN, RICHARD S. Associate Professor, Department of Basic Sciences SM; Assistant Professor, Radiation Medicine SM and Department of Pharmaceutical and Administrative Sciences SP
Ph.D. National Yang-Ming University, Taiwan 2002

SUPRONO, MONTRY S. Assistant Professor, Department of Restorative Dentistry SD
D.D.S., M.S.D. Loma Linda University SD 2007, 2011

SUTHAR, MUKESH B. Assistant Professor, Department of Ophthalmology SM
M.D. University of Southern California 1993

SUTJITA, MADE. Associate Professor, Department of Medicine SM
M.D. University of Udayana, Indonesia 1980

SUTTON, ANTHONY C. Assistant Professor, Department of Physician Assistant Sciences AH

M.S.M. Western Michigan University 2009

SUTTON, MARK S. Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1990

SWABB, RICHARD JOHN. Assistant Professor, Department of Medicine SM
M.D. College of Medicine and Dentistry at New Jersey 1978

SWEENEY, THOMAS J. Assistant Professor, Department of Medicine SM
D.N.P. University of Colorado, Colorado Springs 2011

SWEN, R. WESLEY. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2004

SWENSON, TERRY R. Assistant Professor, School of Religion SR
D.Min. George Fox University Evangelical Seminary 2009

SYED, HASAN M. Associate Professor, Department of Orthopedic Surgery SM
M.D. University of California, Los Angeles 2004

SYMS, JAMES M. Assistant Professor, Department of Physical Therapy AH
D.Sc. Loma Linda University AH 2008

SY-MUNOZ, JENNY T. Associate Professor, Division of General Dentistry SD
D.D.S. Indiana University School of Dentistry 1989

TABIBIAN, BENJAMIN. Assistant Professor, Department of Medicine SM
D.O. Touro University, Nevada 2010

TABISULA, BRADEN MICHAEL B. Assistant Professor, Department of Health Informatics, Information Mangement, and Administration AH
M.B.A. University of Redlands 2012

TABO, MANABU. Adjunct Assistant Professor, Department of Restorative Dentistry SD
B.D.S. Nippon Dental University, Japan 2004

TABRIZI, MARYAM B. Assistant Professor, Department of Surgery SM
M.D. University of Tennessee Health Science Center, Memphis 2008

TABRIZIANI, HOSSEIN. Assistant Professor, Department of Medicine SM
M.D. Iran University of Medical Sciences 1995

TABUENCA, ARNOLD D. Professor, Department of Surgery SM
M.D. Rosario National University, Argentina 1981

TADIARCA, DREW S. Assistant Professor, Department of Medicine SM and Department of Pediatrics SM
M.D. Loma Linda University SM 2012

TAGGE, DERYA U. Associate Professor, Department of Surgery SM
M.D. University of Michigan 1987

TAGGE, EDWARD P. Professor, Department of Surgery SM and School of Behavioral Health BH
M.D. Loyola-Strizh Medical School, Chicago, Illinois 1982

TAMARES, SHANALEE G. Assistant Professor, University Libraries
M.L.S. California State University, San Jose, California

TAMAYOSE, TERI S. Adjunct Assistant Professor, School of Public Health PH
Ed.D. Pepperdine University 2003

TAMBA, STEVEN M. Instructor, Department of Emergency Medicine SM
M.S.N. University of California, Los Angeles 2019

TAMBUNAN, DANIEL J. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1992

TAMESIS, RICHARD R. Associate Professor, Department of Ophthalmology SM
M.D. University of the Philippines, 1983

TAN, CATHERINE A. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1992

TAN, DANIEL E., JR. Emeritus Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1975

TAN, GORDON L. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2011

TAN, JOHN C. Assistant Professor, Department of Pediatrics SM
Ph.D. Loma Linda University, SM 2018

TAN, LAREN D. Associate Professor, Department of Medicine SM; Assistant Clinical Professor, Department of Cariopulmonary Sciences AH
M.D. Loma Linda University SM 2009

TAN, LIONEL G. Assistant Professor, Department of Medicine SM
M.D. University of Illinois, Chicago 2007

TAN, MATTHEW S. C. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1969

TAN, ROBERT. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific, Stockton 1998

TAN, SHIRLEY L. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1971

TAN, SHIRLEY M. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1988

TANG, HONG-MING. Assistant Clinical Professor, Department of Endodontics SD
D.D.S. Yang-Ming University 1985

TANG, JIPING. Professor, Department of Basic Sciences SM; and Member FGS
M.D. Chongqing University of Medical Science, China 1988

TANG, THU T. Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 1994

TANG, XIAOLEI. Adjunct Associate Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. University of Arizona 1997
M.D. Wannan Medical College 1983

TARIN, LUCILA. Assistant Professor, Department of Family Medicine SM
M.D. Medical College of Wisconsin 2000

TARR, JOHN D.F. Clinical Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1955

TARVER, CHRISTOPHER C. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Texas A & M University Health Science Center 2012

TASSONE, HEATHER M. Assistant Professor, Department of Emergency Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2003

TATARYN, RODERICK W. Lecturer, Department of Endodontics SD
D.D.S. Loma Linda University SD 1989
M.S. Loma LInda University GS 1994

TAVAKOLI, SHAHRIYAR. Assistant Professor, Department of Medicine SM
M.D. Universidad Central del Caribe, Puerto Rico 1988
M.H.A. University of Phoenix, Southern California 2020

TAVAKOLI-AHMADY, HAMIDEH. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. Western University of Health Sciences, Pomona, California 2000

TAYLOR, BARRY L. Emeritus Professor, Department of Basic Sciences SM
Ph.D. Case Western Reserve University, Cleveland, Ohio 1973

TAYLOR, BERNARD A. Clinical Professor, School of Religion SR
Ph.D. Hebrew Union College 1989

TAYLOR, DAVID L. JR Emeritus Professor, School of Religion SR
D.Min. Vanderbilt University, Tennessee 1977

TAYLOR, DESMYRNA RUTH. Assistant Clinical Professor, Department of Physical Therapy AH
M.P.T. Loma Linda University AH 1995

TAYLOR, ELIZABETH ANN JOHNSTON. Professor, School of Nursing SN; and Member FGS
Ph.D. University of Pennsylvania 1992

TAYLOR, GUY D. Assistant Professor, Department of Orthodontics SD
D.D.S. West Virginia University 1967
M.S. Western Virginia University 1971

TAYLOR, L. PARNELL. Emeritus Professor, Division of General Dentistry SD
D.D.S. University of Nebraska 1980

TAYLOR, THOMAS W., JR. Instructor, Department of Cardiopulmonary Sciences AH
B.S. University of Redlands 1993

TAYYARAH, MAJID. Assistant Clinical Professor, Department of Cardiothoracic Surgery SM
M.D. New York University School of Medicine 1997

TEASLEY, LAURA A. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2000

TEEL, ROBERT W. Emeritus Professor, Department of Physiology and Pharmacology SM
Ph.D. Loma Linda University GS 1972

TEICHMAN, SIEGMUND. Professor, Department of Medicine SM
M.D. Loma Linda University SM 1968

TEJADA-DE-RIVERO, DAVID A. Associate Professor, School of Public Health PH
M.P.H. University of North Carolina 1958
M.D. University of Chile 1956

TELLER, DOUGLAS W. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1981

TERRILL, JUSTIN K. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2015

TERUYA, THEODORE H. Professor, Department of Surgery SM
M.D. University of Hawaii at Manoa 1985

TESTERMAN, JOHN K. Associate Clinical Professor, Department of Family Medicine SM and Department of Psychology BH
M.D. Loma Linda University SM 1980
Ph.D. University of California at Irvine 1971

TESTERMAN, NANCY S. Assistant Professor, School of Nursing SN
M.S. Loma Linda University GS 1971

THAKKER, JAYINI S. Assistant Professor, Department of Oral and Maxillofacial Surgery SD
D.D.S. University of California, San Francisco 2007
M.D. University of Florida, Gainsville 2011

THELANDER, KEIR J. Assistant Professor, Department of Surgery SM
M.D. Indiana University School of Medicine 1999

THEODORE, SHARON. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. University of California, San Francisco Medical School 2000

THINN, MIE MIE. Assistant Professor, Department of Medicine SM
M.B.B.S. Institute of Medicine, Rangoon, Burma 1994

THIO, HOK-MING. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1993

THOMAS, JASON S. Assistant Clinical Professor, Department of Psychiatry SM
M.D. American University of the Caribbean 1999

THOMAS, LARRY L. Assistant Clinical Professor, School of Public Health PH
M.D. Loma Linda University SM 1974

THOMAS, MARK E. Assistant Professor, Department of Emergency Medicine SM
D.O. College of Osteopathic Medicine of the Pacific 1989

THOMAS, TAMARA L. Professor, Department of Emergency Medicine SM, Department of Pediatrics SM, and Department of Medical Education SM
M.D. Loma Linda University SM 1987

THOMAS, WILSON G. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2013

THOMAZIN, GLEN A. Assistant Clinical Professor, Department of Preventive Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2003

THOMPSON, DAVID CARL. Assistant Professor, Department of Surgery SM
M.D. University of Pittsburgh 1973

THOMPSON, GARY J. Assistant Professor, Department of Medicine SM

D.O. Western University of Health Sciences, Pomona, California 2001

THOMPSON, KEVIN STUART. Associate Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1987

THOMPSON, RALPH J., JR. Emeritus Professor, Department of Surgery SM
M.D. Loma Linda University SM 1951

THOMPSON, TERESA L. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1990

THOMSEN, CALVIN J. Assistant Professor, School of Religion SR and School of Public Health PH
Ph.D. Loma Linda University FGS 2008

THOMSEN, C. TORBEN. Clinical Professor, School of Public Health PH
Ph.D. Michigan State University 1973

THOMSEN, LANE C. Emeritus Professor, Department of Oral Diagnosis, Radiology, and Pathology SD
D.D.S. Loma Linda University SD 1965

THORP, ANDREA W. Associate Clinical Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.D. Loma Linda University SM 2001

THORPE, DONNA G. Associate Professor, Department of Allied Health Studies AH; Assistant Professor, School of Public Health PH; and Member FGS
Dr.P.H. Loma Linda University PH 2006

TIEU, LINH A. Assistant Professor, Department of Pediatrics SM
D.O. Western University of Health Sciences, Pomona, California 2009

TINSLEY, CYNTHIA H. Assistant Professor, Department of Pediatrics SM
M.D. John A. Burns School of Medicine, Hawaii 1985

TIRTAMAN-SIE, CONNY. Assistant Professor, Department of Medicine SM
M.D. Erasmus University, Netherlands 1985

TITO, DAVID D. Assistant Professor, Department of Emergency Medicine SM
M.D. University of California, Los Angeles 1991

TIWARI, BHOODEV. Assistant Clinical Professor, Department of Medicine SM
M.B.B.S. Sardar Patel Medical College, India 1988

TO, DUC COAN. Assistant Professor, Department of Medicine SM
M.D. Albany Medical College 2006

TOHM, DONALD G. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1984

TOLEDO, GERARDO A. M. Assistant Clinical Professor, Department of Endodontics SD
D.D.S. Universidad Nacional de Cordoba, Argentina 1993
M.A. Loma Linda University GS 2002

TOMIHAMA, ROGER T. Associate Professor, Department of Radiology SM
M.D. University of Hawaii at Manoa 2002

TOMLIN, JASON A. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 2000

TONG, KAREN ANGELA. Associate Professor, Department of Radiology SM and Department of Basic Sciences SM
M.D. University of British Columbia, Canada 1990

TONSTAD, SERENA. Adjunct Professor, School of Public Health PH; Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 1979
Ph.D. University of Oslo, Norway 1990

TONSTAD, SIGVE K. Professor, School of Religion SR; Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 1979
Ph.D. University of St. Andrews 2005

TOOMA, TOM SAEED. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1979

TORABINEJAD, MAHMOUD. Professor, Department of Endodontics SD
D.M.D. Dental School University of Tehran, Iran 1971
M.S.D. University of Washington 1976
Ph.D. University of London, England, UK 1995

TORQUATO, JOHN L. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 1995

TORRALBA, KARINA D. Associate Professor, Department of Medicine SM
M.D. University of Santo Tomas Faculty of Medicine and Surgery 1996

TORRES, ABEL. Professor, Department of Dermatology SM and Department of Basic Sciences SM; Associate Professor, School of Public Health PH
M.D. Mt. Sinai School of Medicine, New York 1979

TORRES, F. JOSE. Assistant Professor, Division of General Dentistry SD
D.D.S. Javieriana University, Colombia 1990
M.S.D. Indiana Univerity 2002

TORRES, SAMUEL E. Assistant Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1976

TORREY, ROBERT R., JR. Assistant Professor, Department of Urology SM
M.D. Loma Linda University SM 1971

TOWNSEND, DENISE J. Assistant Professor, Department of Medicine SM
M.D. University of Florida 1987

TRABIN, JOSHUA M. Assistant Professor, Department of Medicine SM
M.D. University of Miami School of Medicine SM

TRAN, COURTNEY V. Instructor, School of Nursing SN
M.S.N. West Coast University, Orange County 2020

TRAN, HUYENTRAN N. Associate Professor, Department of Pharmacy Practice SP
Pharm.D. Loma Linda University SP 2010

TRAN, KENNY T. Adjunct Assistant Professor, Department of Endodontics SD
D.D.S. University of Missouri, Kansas City 2008
M.S.D. Loma Linda University SD 2012

TRAN, LOUIS P. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1997

TRAN, NANCY A. Assistant Professor, Department of Medicine SM
D.O. Philadelphia College of Ostepathic Medicine, Pennsylvania 2016

TREIMAN, STEPHEN. Assistant Professor, Department of Pediatrics SM
M.D. University of Texas at Houston Medical School 1997

TRENKLE, DARCY K. Assistant Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 2011

TRICA, LOREDANA E. Instructor, Department of Periodontics SD
B.S. Loma Linda University SD 2009

TRIPLETT, ALICIA M. Assistant Professor, Department of Clinical Laboratory Science AH
M.A. Central Michigan University 2011

TRIPPON, MYRNA. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 2012

TROTT, JAMES R. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1982
M.S. California State Polytechnic University, Pomona 1986

TRUONG, GIANG SINH T. Associate Clinical Professor, Department of Pediatrics SM
M.D. University of California, Irvine 2006

TRUONG, TRINH. Assistant Professor, Department of Pediatrics SM
M.D. University of Wisconsin 2001

TRUONG, VINCENT V. Assistant Professor, Department of Neurology SM
M.D. Ross University 2004

TRUPP, DIANA L. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 1982

TSAI, CHRISTOPHER K.L. Assistant Clinical Professor, Department of Urology SM
M.D. Loma Linda University SM 1994

TSAI, HSIU-CHIN. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.D.S. National Yang Ming University, Taiwan 1985

TSAI, JAMES Y. Assistant Professor, Department of Medicine SM
M.D. St. George University, Grenada 1997

TSAO, BRYAN E. Associate Professor, Department of Neurology SM
M.D. Loma Linda University SM 1996

TSAO, JUNA. Assistant Professor, Department of Preventive Medicine SM
M.D. Loma Linda University SM 1996

TSENG, PHILIP H. Assistant Professor, Department of Neurology SM
M.D. Rosalind Franklin University of Medicine and Science 2009

TUBURAN, SMYRNA P. Adjunct Assistant Professor, Department of Radiology SM
M.D. Loma Linda University SM 2008

TUDTUD-HANS, LEAH ANGELICA. Associate Professor, Department of Medicine SM
M.D. University of the Philippines, Philippines 1979

TULLY, RICHARD J. Associate Professor, Department of Radiology SM
M.D. University of Chicago 1968

TURAY, DAVID. Adjunct Associate Professor, Department of Surgery SM
M.D. Universidad de Montemorelos, Mexico 1999

TURNER, RODNEY L. Assistant Clinical Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1984

UNDERWOOD, MATTHEW B. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1992

UNIAT, JOHN S. Assistant Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1984

UNTERNAEHRER-HAMM, JULIA J. Assistant Professor, Department of Basic Sciences SM
Ph.D. Yale University 2004

UNWALLA, KHUSHRO B. Assistant Clinical Professor, Department of Psychiatry SM
M.D. Kasturba Medical College, India 1977

UPPALA, PADMA P. Associate Clinical Professor, School of Public Health PH; and Associate Research Professor, Department of Surgery SM
Ph.D. Loma Linda University GS 1991

URBAN, ISTVAN. Adjunct Assistant Professor, Department of Restorative Dentistry SD
D.M.D. SOTE School of Dentistry, Hungary 1991
M.D. SOTE School of Medicine, Hungary 1996

URBAN, LORI L. Instructor, Department of Family Medicine SM
M.S. Andrews University, Michigan 2004

URSALES, ANNA LEIGH. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2009

VADI, MARISSA G. Assistant Professor, Department of Anesthesiology SM
M.D. University of California, San Francisco 2007

VAEZAZIZI, REZA. Assistant Clinical Professor, Department of Emergency Medicine SM
M.D. Rosalind Franklin University of Medicine and Science, Illinois 1997

VALADEZ, BARBARA H. Instructor, Department of Periodontics SD
A.S. Cerritos College 1980

VALENTINI, PASCAL. Adjunct Associate Professor, Department of Restorative Dentistry SD
D.D.S. University of Paris, France 1981

VALENZUELA, LINDSEY H. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2006

VALENZUELA, P. ESTHER. Assistant Professor, Department of Dental Education Services SD
M.B.A. University of Redlands 2001
M.A. La Sierra University 1987

VAN CLEVE, LOIS H. Emerita Professor, School of Nursing SN

Ph.D. Claremont Graduate School 1985

VANDERBEEK, CHRISTOPHER. Clinical Instructor, Oral and Maxillofacial Surgery SD
D.D.S. Creighton University 2011

VAN DYK, TORI R. Assistant Professor, Department of Psychology BH
Ph.D. University of Nebraska, Lincoln 2016

VANNIX, DAVID L. Assistant Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1986

VAN PUTTEN, DOUGLAS J. Assistant Professor, Department of Opthalmology SM
M.D. Loma Linda University SM 1985

VAN STRALEN, DAVED W. Assistant Professor, Department of Pediatrics SM
M.D. University of California, Irvine 1984

VAUGHAN, DARRELL L. Adjunct Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1973

VAZQUEZ, MARCELO E. Associate Professor, Department of Radiation Medicine SM, Department of Basic Sciences SM; and Member FGS
M.D., Ph.D. National University of La Plata Medical School 1984, 1990

VEGA, ARTURO R. Assistant Professor, Department of Medicine SM
B.M. Universidad Nacional Mayor de San Marcos 1989

VERCIO, CHAD J. Assistant Professor, Department of Pediatrics SM and Department of Medicine SM
M.D. Loma Linda University SM 2005

VERDE, E. RAY. Associate Professor, Department of Psychiatry SM
M.D. Loma Linda University SM 1988

VERLINDEN, WILLIAM C. Clinical Instructor, Department of Oral and Maxillofacial Surgery SD
D.D.S. Loma Linda University SD 2015

VERMA, ASHOK K. Associate Clinical Professor, Department of Medicine SM
M.B.B.S. Medical College Patiala, India 1975

VERMEERSCH, DAVID. Professor, Department of Psychology BH; and Member FGS
Ph.D. Brigham Young University, Idaho 1998

VICTOR, NOEL S. Assistant Clinical Professor, Department of Surgery SM
M.D. Madras Medical College, India 1989

VICTOROVIC, DANILO. Assistant Professor, Department of Neurology SM
M.D. University of Belgrade, Serbia 2005

VIDOR, IRA A. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. The Chicago Medical School 2003

VIECELLI, RODRIGO F. Associate Professor, Department of Orthodontics SD; and Member FGS
D.D.S. Universidade Federal de Rio Grande do Sul, Brazil 2000
Ph.D. Indiana University 2009

VILLA, PATRICIA. Assistant Clinical Professor, Department of Social Work and Social Ecology BH
M.S.W. California State University, Dominguez Hills 2010

VILLALVAZO, HUMBERTO J. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Vella Vista Hospital, Puerto Rico 2005

VIXIE, CURTIS E. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1989

VLKOLINSKY, ROMAN. Assistant Research Professor, Department of Basic Sciences SM and Department of Radiation Medicine SM
Ph.D. Slovak Academy of Sciences, Republic of Slovak 1999

VOJDANI, ARISTO. Adjunct Associate Professor, Department of Preventive Medicine SM
Ph.D. Bar-Ilan University, Israel 1976

VOLK, MICHAEL L. Associate Professor, Department of Medicine SM
M.D. University of Rochester 2001
M.S. University of Michigan, Ann Arbor 2008

VOTH, MARCUS T. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2001

VU, VY N. Assistant Professor, Department of Radiology SM
M.D. Creighton University 1994

VYHMEISTER, EDWIN E. Emeritus Associate Professor, Department of Surgery SM
M.D. University of Concepcion, Chile 1963

VYSKOCIL, GINA M. Assistant Professor, Department of Allied Health Studies AH
Ed.D. California State University, San Bernardino 2018

WADHWANI, CHANDUR. Adjunct Assistant Professor, Department of Restorative Dentistry SD; and Member FGS
B.D.S. University College London, United Kingdom 1986
M.S.D. University of Washington 2004

WAGNER, DAVID K. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Southern California 1986

WAGNER, ROBERT J., JR. Associate Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1969

WAI, PHILIP Y. Associate Professor, Department of Surgery 2001
M.D. Georgetown University, DC 2001

WALKER, RANDALL R. Assistant Professor, Department of Counseling and Family Sciences BH
M.S. California State University, Fullerton 1983

WALL, NATHAN R. Associate Professor, Department of Basic Sciences SM; Assistant Professor, Department of Radiation Medicine, Department of Surgery; and Member FGS
Ph.D. Wayne State University, Michigan 2000

WALLACE, DESIREE. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1996

WALLACE, DESIREE R. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1996

WALLACE, G. CARLETON. Associate Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1956

WALLEN, JASON M. Assistant Professor, Department of Cardiothoracic Surgery SM
M.D. McGill University, Montreal, Canada 2001

WALTER, MICHAEL H. Clinical Professor, Department of Medicine SM
M.D. Loma Linda University SM 1973

WALTER, ROBERT D. Associate Professor, Division of General Dentistry SD; and Associate Member FGS
D.D.S. Loma Linda University SD 1999
M.S.D. University of Washington 2009

WALTERS, E. LEA. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1994

WALTERS, JAMES W. Professor, School of Religion SR
Ph.D. Claremont Graduate University 1979

WALTHALL, WILLIAM E. Assistant Clinical Professor, Department of Physical Therapy AH
M.Div. Biola University 1983

WANG, CHARLES. Professor, Department of Basic Sciences SM; and Member FGS
M.D. Tongji Medical University, China 1983
M.P.H. Tongji Medical University, China 1988
Ph.D. University of Washington, Seattle 1999

WANG, HUGH N. Adjunct Associate Professor, Department of Restorative Dentistry SD
D.D.S. Indiana University School of Dentistry 1984

WANG, JUN. Professor, Department of Pathology and Human Anatomy SM
M.D. Wannan Medical College, China 1982

WANG, NING. Associate Professor, Department of Radiation Medicine SM; Associate Clinical Professor, Department of Radiation Technology AH
Ph.D. Shanghai Institute of Optics and Fine Mechanics 1997

WARD, DAVID C. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2008

WARNER, KIM. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. University of California, Los Angeles 1990

WASEMILLER, MICHAEL A. Assistant Professor, Department of Periodontics SD
D.D.S. Loma Linda University SD 2005

WASHKE, DEBORAH L. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2002

WASS, ERIKA N. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. Belmont University, Tennessee 2012

WAT, LINDA IRENE. Associate Professor, Department of Anesthesiology SM
M.D. Loma Linda University SM 1982

WAT, PAMELA J. Assistant Professor, Department of Pathology and Human Anatomy SM and Department of Clinical Laboratory Science AH
M.D. Loma Linda University SM 1986

WATKINS, AI-MAE. Assistant Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1993

WATKINS, BARRY E. Associate Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1993

WATKINS, HUBERT C. Associate Clinical Professor, Department of Dermatology SM
M.D. Loma Linda University SM 1962

WATKINS, JOHN S. Assistant Clinical Professor, School of Public Health PH
M.P.H. San Diego State University 1987

WATSON, TIMOTHY D. Assistant Clinical Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2000

WATTS, KYLIE J. Associate Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. University of Sydney, Australia 2001

WEBER, RUTH S. Emerita Associate Professor, School of Nursing SN
Ed.D. Loma Linda University SE 1991

WEI, KAIMIN A. Associate Professor, Department of Gynecology and Obstetrics SM
Ph.D., M.D. Indiana University 1990

WEISSER, STANLEY C. Associate Clinical Professor, Department of Pharmacy Practice SP
Pharm.B. University of Connecticut 1963

WEISSMAN, JILL F. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 1989

WEITZEIL, MICHAEL L. Instructor, Department of Pathology and Human Anatomy SM
M.S. West Virginia University 2015

WELCH, MARK A. Assistant Professor, Department of Medicine SM and Department of Psychiatry SM
D.O. Western University of Health Science, Pomona, California 2003

WELLHAUSEN, SYLVIE. Assistant Clinical Professor, Department of Preventive Medicine SM
D.C. Los Angeles Department of Chiropractic 1989

WENGER, ROGER S. Instructor, Department of Psychiatry SM
Psy.D. Pepperdine University 2003

WENIGER, JENNIFER L. Associate Professor, Division of Interdisciplinary Studies BH
Ph.D. California Southern University 2003

WERGEDAL, JON E. Research Professor, Department of Medicine SM and Department of Basic Sciences SM
Ph.D. University of Wisconsin 1963

WERNER, LEONARD S. Professor, Department of Medicine SM, Department of Medical Education SM, and Department of Basic Sciences SM
M.D. University of Oklahoma 1978

WESTERBERG, MARYELLEN. Assistant Clinical Professor, School of Public Health PH and Department of Nutrition and Dietetics AH
Dr.P.H. Loma Linda University PH 1988

WEYMAR, L. KRISTA J. Assistant Professor, Department of Dental Education Services SD
M.B.A. University of Redlands 2011

WHANG, STEVE. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1988

WHITE, DAWN M. Instructor, Department of Psychiatry SM
M.D. Ohio State University College of Medicine and Public Health 1999

WHITEHOUSE, JERALD WAYNE. Assistant Clinical Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 1977

WHITT, COLLEEN A. Adjunct Associate Professor, Department of Dental Hygiene SD
M.S. Loma Linda University AH 2010

WHYTE, RICARDO J. Assistant Professor, Department of Psychiatry SM
M.D. University of Connecticut 2004

WIAFE, SETH A. Assistant Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2004

WICK, BRYAN M. Assistant Clinical Professor, Department of Psychiatry SM
M.D. University of Kansas School of Medicine 2004

WIEG, THOMAS. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1980

WIESSEMAN, GEORGE J. Associate Clinical Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1947

WIETLISBACH, CHRISTINE M. Clinical Instructor, Department of Occupational Therapy AH
M.P.A. California State University, San Bernardino 2000

WILBER, LORETTA J. Assistant Professor, School of Public Health PH and Department of Preventive Medicine SM
M.D. Loma Linda University SM 1999

WILD, KATHI. Assistant Professor, School of Nursing SN
M.S. Loma Linda University SN 1979

WILEY, JAMES R. Associate Clinical Professor, Department of Physician Assistant Sciences AH
M.S. Loma Linda University AH 2008

WILKINS, KRISTI J. Associate Professor, Department of Dental Hygiene SD
M.A. Loma Linda University GS 2002

WILKINSON, JOESEPH M. Instructor, School of Nursing SN
B.S. Loma Linda University SN 1983

WILLIAMS, ANGELA C. Instructor, Department of Medicine SM
M.D. Meharry Medical College, Nashville, Tennessee 2009

WILLIAMS, DAVE A. Assistant Professor, Department of Preventive Medicine SM; Assistant Clinical Professor, School of Public Health PH
M.P.H. Loma Linda University PH 2000
M.D. Montemorelos University, Mexico 1990

WILLIAMS, LINDA M. Assistant Professor, Department of Pharmaceutical and Administrative Sciences SP
M.S. Grand Canyon University 2009

WILLIAMS-READE, JACQUELINE M. Associate Professor, Department of Counseling and Family Science BH; and Associate Member FGS
Ph.D. East Carolina University 2011

WILSON, APRIL E. Assistant Professor, Department of Preventive Medicine SM and School of Public Health PH
M.D. Loma Linda University SM 2006

WILSON, CHRISTINE. Assistant Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University AH 2009

WILSON, CHRISTOPHER G. Associate Professor, Department of Basic Sciences SM and Department of Pediatrics SM
Ph.D. University of California, Davis 1996

WILSON, DONALD R. Adjunct Assistant Professor, Department of Pathology and Human Anatomy SM
M.D. University of Sydney, Australia 1960

WILSON, HILARY L. Assistant Professor, Department of Ophthalmology SM
M.D. University of California, San Francisco 2002

WILSON, SAMUEL G. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 1984

WILSON, SEAN. Associate Professor, Department of Basic Sciences SM, Department of Medicine SM, and Department of Pharmaceutical and Administrative Sciences SP
Ph.D. University of California, Davis 1998

WILSON, THADDEUS E. Assistant Professor, Department of Physical Medicine and Rehabilitation SM
M.D. Loma Linda University SM 2006

WILSON, WILLIAM J. Assistant Clinical Professor, Department of Physician Assistant Sciences AH
M.D. University of Kansas 2005
M.P.A. Loma Linda University AH 2014

WINDEMUTH, RYAN S. Assistant Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2001

WINER, MYRON S. Associate Professor, Department of Restorative Dentistry SD
D.D.S. University of Illinois 1953

WINSLOW, BETTY J. Emerita Professor, School of Nursing SN
Ph.D. University of Colorado Health Sciences Center 1994

WINSLOW, GERALD R. Professor, School of Religion SR and School of Public Health PH
Ph.D. Graduate Theological Union, Berkeley, California 1979

WINSLOW, SARAH S. L. Adjunct Assistant Professor, Department of Family Medicine SM
M.D. Loma Linda University SM 2008
M.P.H. Loma Linda University PH 2012

WITHERS, SHELLY A. Associate Professor, Department of Dental Hygiene SD
M.S. Loma Linda University 2007

WITTMAN, MARK. Associate Professor, Department of Anesthesiology SM
M.D. Northwestern University 1980

WOHLMUTH, CINNA T. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM
M.D. Loma Linda University SM 1985

WOLDESILASIE, TEWODROS T. Assistant Professor, Department of Surgery SM
M.D. Addis Ababa University, Ethiopia 2002

WOLFE, DAVID JACK. Assistant Professor, Department of Endodontics SD
D.D.S. University of California, Los Angeles 1979

WOLFRAM, KLAUS D. Associate Professor, Department of Peridontics SD
D.D.S. Loma Linda University SD 1971
M.S. Loma Linda University GS 1973

WOLFSEN, JAMES L. Assistant Clinical Professor, Department of Radiology SM
M.D. Loma Linda University SM 1966

WOLGEMUTH, KEITH S. Associate Professor, Department of Communication Sciences and Disorders AH
Ph.D. University of Memphis 1995

WOLK, BRIAN J. Assistant Professor, Department of Emergency Medicine SM
M.D. Tufts University School of Medicine, Massachusetts 2007

WON, JOHN B. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 2005
M.S. Loma Linda University SD 2012

WONG, ANDREW S. Assistant Clinical Professor, Department of Orthopedic Surgery SM
M.D. University of Michigan 2003

WONG, BRIAN A. Assistant Professor, Department of Medicine SM
M.D. Loma Linda University SM 2002

WONG, DAVID T. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1993

WONG, EDWARD. Assistant Clinical Professor, Department of Pharmacy Practice SP
Pharm.D. University of the Pacific 1979

WONG, KELVIN L. Assistant Professor, Department of Emergency Medicine SM
M.D. University of Pittsburgh 2005

WONG, RAYMOND Y. Associate Professor, Department of Medicine SM
M.D. Loma Linda University SM 1979

WONG, SAMMY S. Assistant Professor, Department of Medicine SM
M.D. Howard University, Washington, D.C. 1997

WONG, VALARIE Y. Assistnat Clinical Professor, Department of Pediatrics SM
M.D. Baylor College of Medicine, Texas 1994

WONGWORAWAT, M. DANIEL. Professor, Department of Orthopedic Surgery SM
M.D. Loma Linda University SM 1996

WOO, MICHAEL K. Assistant Professor, Department of Medicine SM
M.D. Albert Einstein College of Medicine, New York 1998

WOODSON, ALAN B. Assistant Clinical Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1987

WOODWARD, CLARICE W. Emerita Professor, School of Nursing SN
M.S. University of California, Los Angeles 1963

WOOSLEY, KYNDRA J. Assistant Professor, Department of Nutrition and Dietetics AH
M.S. Loma Linda University 2011

WREN, DAVID G. Instructor, Department of Health Informatics, Information Mangement, and Administration AH
M.H.A. Loma Linda University PH 1988

WRESCH, ROBERT R. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1969

WRIGHT, DOLORES. Professor, School of Nursing SN; and Member FGS
D.N.Sc. Widener University, Pennsylvania 2000

WRIGHT, KENNETH R. Professor, Department of Pathology and Human Anatomy SM
Ph.D. Loma Linda University GS 1992

WROE, ANDREW. Professor, Department of Radiation Medicine SM
Ph.D. University of Wollongong, Australia 2007

WU, SIDNEY S. C. Assistant Professor, Department of Pediatrics SM and Department of Medicine SM
M.D. Loma Linda University SM 2000

WU, YEN-YING. Assistant Professor, Department of Radiology SM
M.D. University of Southern California 2006

WURANGIAN-CAAN, NELIA C. Associate Professor, University Libraries
M.L.S. University of Western Ontario, Canada 1981

WYATT, MELVA S. Assistant Professor, Department of Pediatric Dentistry SD
D.D.S. University of San Carlos de Guatemala Dental School 1985

WYCLIFFE, N. DAN. Associate Professor, Department of Radiology SM and Department of Basic Sciences SM
M.B.B.S. University of Dhaka, Bangladesh 1972

WYSOCKI, GWENDOLYN A. Assistant Clinical Professor, School of Nursing SN
M.N. University of California, Los Angeles 1993

XIAO, DALIAO. Professor, Department of Basic Sciences SM
Ph.D. Loma Linda University GS 2004

XING, WEIRONG. Assistant Research Professor, Department of Medicine SM
Ph.D. McGill University, Quebec, Canada 2002

XU, HELEN X. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM
M.D., M.S. Zhejiang University, China 1986, 1991
M.D. Zhejiang University, China 1986

YACOUB, IGNATIUS I. Emeritus Professor, Department of Social Work and Social Ecology BH
Ph.D. Claremont Graduate School 1976

YAMADA, ROBERT K. Assistant Clinical Professor, Department of Family Medicine SM
M.D. University of California, San Francisco 1985

YAMANISHI, J. FRANK. Assistant Clinical Professor, Department of Surgery SM
M.D. Loma Linda University SM 1985

YAMZON, JOCELYN M. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2004

YANG, GARY Y. Professor, Department of Radiation Medicine SM and Department of Basic Sciences SM
M.D. The Chicago Medical School 1995

YANG, JOANNA JIEHONG. Assistant Professor, School of Nursing SN
D.N.P. The University of Alabama at Birmingham and Huntsville 2013

YANG, LINDA L. Assistant Professor, Department of Pediatrics SM
M.D. University of California, Irvine 1985

YANNI, GEORGE S. Associate Professor, Department of Pediatrics SM
M.D. Ain Shams University at Cairo, Egypt 1981

YEE, JARED M. Assistant Professor, Department of Neurology SM
M.D. Creighton University, Nebraska 2015

YELLON, STEVEN M. Professor, Department of Basic Sciences SM and Department of Gynecology and Obstetrics SM
Ph.D. University of Connecticut 1981

YEO, INHWAN. Associate Professor, Department of Radiation Medicine SM; Assistant Clinical Professor, Department of Radiation Technology AH
Ph.D. Georgia Institute of Technology 1996

YI, ALEX C. Associate Professor, Department of Radiology SM
M.D. Loma Linda University SM 2002

YI, ZANE G. Assistant Professor, School of Religion SR
Ph.D. Fordham University 2013

YOCHIM, JI M. Assistant Professor, Department of Pediatric Dentistry SD
Ph.D. University of Southern California 2003
D.M.D. Nova Southeastern University 2009

YOMTOUBIAN, CARMELA. Assistant Professor, Department of Emergency Medicine SM
M.D. New York Medical College 2009

YONG, PAMELA A. Instructor, Department of Nutrition and Dietetics AH
M.P.H. Loma Linda University PH 1989

YOO, JANIE H. Assistant Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 2006

YOO, PAUL H. S. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 2008

YOON, STUART S. Adjunct Assistant Professor, Department of Dental Education Services SD
D.D.S. Loma Linda University SD 1998

YOUNG, LILY L. Clinical Instructor, Department of Physical Therapy AH
M.A. Hong Kong Union College, People's Republic of China 1976

YOUNG, LIONEL W. Professor, Department of Radiology SM and Department of Pediatrics SM
M.D. Howard University, Washington, D.C. 1957

YOUNG, PETER SIU-YEE. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1988

YOUNG, RICHARD A. Assistant Professor, Division of General Dentistry SD
D.D.S. Loma Linda University SD 1985

YOUNG, TIMOTHY P. Associate Professor, Department of Emergency Medicine SM
M.D. Loma Linda University SM 2004

YOUNG-SNODGRASS AMY D. Assistant Professor, Department of Pediatrics SM
M.D. Loma Linda University SM 2001

YOUNGBERG, WESLEY S. Assistant Clinical Professor, School of Public Health PH and Department of Preventive Medicine SM
Dr.P.H. Loma Linda University PH 1988

YOW, WARREN SHIUWING. Associate Professor, Division of General Dentistry SD
D.M.D. Washington University 1983

YU, JACK N. Associate Professor, Department of Family Medicine SM
M.D. Boston University 1984

YU, MINHO. Assistant Professor, Department of Medicine SM
D.O. Western University of Health Sciences, Pomona, California 2004

YUAN, XIANGPENG. Assistant Professor, Department of Otolaryngology and Head and Neck Surgery SM and Department of Basic Sciences SM
Ph.D. The Fourth Military Medical University, China 1996

YUHAN, ROBERT M. Assistant Clinical Professor, Department of Surgery SM

M.D. Northwestern University Medical Center, Chicago 1990

YUNE, JUNCHAN J. Assistant Professor, Department of Urology SM
M.D. Seoul National University 2000

YUSUFALY, YASMIN A. Assistant Professor, Department of Medicine SM
M.B.B.S. Dow Medical College, Pakistan 1984

YVANOVICH, ANTHONY R. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH
M.P.A. Loma Linda University AH 2006

ZAHEER, SALMAN. Assistant Professor, Department of Cardiothoracic Surgery SM
M.B.B.S. Aga Khan University, Pakistan

ZAMAN, MANILA. Assistant Clinical Professor, Department of Medicine SM
M.D. Medical College of Virginia 1994

ZAMORA, ZELNE LU. Assistant Professor, School of Nursing SN
D.N.P. University of San Diego 2010

ZANE, ERNEST SUI SUNG. Associate Professor, Department of Ophthalmology SM
M.D. College of Medical Evangelists 1956

ZANE, STEVEN E. Assistant Clinical Professor, Department of Ophthalmology SM
M.D. Loma Linda University SM 1990

ZAPPIA, JANE NEWMAN. Instructor, Department of Clinical Laboratory Science AH
B.S. University of Central Florida 1977

ZAWISTOWSKI, DEBRA A. Assistant Professor, Department of Dental Hygiene SD
B.S. Loma Linda University SD 2005

ZDROJEWSKI, JOHN F. Assistant Clinical Professor, Department of Dermatology SM
M.D. SUNY Upstate College of Medicine, Syracuse, New York 1973

ZEGAR, ZEGAR Y. Assistant Clinical Professor, Division of General Dentistry SD
B.D.S. University of Baghdad College of Dentistry 2004
D.D.S. Loma Linda University SD 2013

ZHANG, JOHN H. Professor, Department of Basic Sciences SM, Department of Anesthesiology SM, Department of Neurosurgery SM, and School of Nursing SN
Ph.D. University of Alberta, Canada 1992
M.D. Chongqing University of Medical Science, China 1983

ZHANG, LUBO. Professor, Department of Basic Sciences SM; and Member FGS
Ph.D. Iowa State University 1986

ZHANG, WU. Professor, Department of Dental Education Services SD; and Member FGS
M.D. Norman Bethane University of Medical Sciences, China 1977

ZHANG, XIAO-BING. Assistant Research Professor, Department of Medicine SM, Department of Basic Sciences SM; and Member FGS
Ph.D. East China University of Science and Technology 1999

ZHANG, ZHIWEI. Associate Professor, Department of Medicine SM and Department of Basic Sciences SM
M.D. Sun Yat-Sen University of Medical Sciences, China 1984

ZHAO, XUEREN. Assistant Professor, Department of Radiology SM
M.D. Capital University of Medical Sciences, China 1986

ZHAO, YAN S. Associate Professor, Department of Medicine SM
M.D. Beijing Medical University, China 1993
Ph.D. University of Southern California 2000

ZHONG, ZHE. Assistant Professor, Department of Dental Education Services SD
B.D.S. Capital Medical University 2005
Ph.D. Peking University 2010

ZIMMERMAN, KIMBERLY R. Assistant Professor, Department of Emergency Medicine SM and Department of Pediatrics SM
M.D. Bush Medical College, Chicago 1983

ZMAJ, KRISTINE B. Assistant Professor, Department of Surgery SM
M.D. Loma Linda University SM 1998

ZOGRAFOS, KARA N. Adjunct Assistant Professor, School of Public Health PH
Dr.P.H. Loma Linda University PH 2007

ZOUGH, FARNOOSH. Assistant Professor, Department of Pharmacy Practice SP
Pharm.D. University of Southern California 2011

ZOUROS, ALEXANDER. Associate Professor, Department of Neurosurgery SM and Department of Pediatrics SM
M.D. Dalhousie University, Canada 1996

ZUCCARELLI, ANTHONY J. Emeritus Professor, Department of Basic Sciences SM
Ph.D. California Institute of Technology 1974

ZUCKERMAN, LEE M. Assistant Professor, Department of Orthopedic Surgery SM
M.D. Albert Einstein College of Medicine 2003

ZUPPAN, CRAIG W. Professor, Department of Pathology and Human Anatomy SM
M.D. Loma Linda University SM 1980

ZUPPAN, KRISTEL J. Assistant Clinical Professor, Department of Physical Therapy AH
D.P.T. Loma Linda University 2008

# GENERAL INFORMATION

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| Michael D. Hogue, Pharm.D. | Dean | School of Pharmacy |

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|---|---|---|
| Helen Hopp Marshak, Ph.D. | Dean | School of Public Health |
| Leo Ranzolin, Jr., Th.D. | Dean | School of Religion |

# School Administrations, Committees, and Affiliations

## Key to codes

| | |
|---|---|
| AH | School of Allied Health Professions |
| BH | School of Behavioral Health |
| SD | School of Dentistry |
| SM | School of Medicine |
| SN | School of Nursing |
| SP | School of Pharmacy |
| PH | School of Public Health |
| SR | School of Religion |
| FGS | Faculty of Graduate Studies |

School of Allied Health Professions

## Administration—AH

### General Administration

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JOYCE W. HOPP, Ph.D., Dean Emerita
LEE BERK, Dr.P.H., Associate Dean, Research Affairs
G. CHARLES DART, JR., Ph.D., M.B.A., Associate Dean, Student Affairs
ERNEST SCHWAB, M.S., Ph.D., Associate Dean, Academic Affairs
KENT CHOW, M.B.A., Assistant Dean, Finance
EVERETT B. LOHMAN, D.Sc., Assistant Dean, Graduate Academic Affairs, Research Affairs
RASHA ABDRABOU, Dr.P.H., M.P.H., Director, Assessment and Program Review
MELISA AREE, M.A., Director, Alumni and Communication
RAJAE AREE, Director, Computer Services
YOLANDA MARTINEZ, M.A.M., Director, Portfolio
DONNA THORPE, Dr.P.H., Director, School Institutional Research and Accreditation
KAREN WESTPHAL, M.A., Director, Student Affairs and Recruitment
YVONNE WREN, Manager of Alumni and Recruitment
TIMOTHY SEAVEY, Ed.D., M.A.M., Coordinator, General Education
SAVANNAH MLOT, B.S., Development Officer

### Academic departments

#### Allied Health Studies

CRAIG R JACKSON, J.D., M.S.W., Chair, Department of Allied Health Studies
TERRY D. DOUGLAS, Ph.D., Program Director for Doctor of Philosophy, Rehabilitation Science
ARTHUR MARSHAK, M.S., Ed.D., Program Director for Master of Science and Certificate, Health Professions Education

#### Cardiopulmonary Sciences

DAVID LOPEZ, Ed.D., Chair, Department of Cardiopulmonary Sciences;
ABDULLAH ALISMAIL, M.S., Program Director for Master of Science in Respiratory Care and Polysomnography Certificate; Director of Clinical Education for Bachelor of Science, Respiratory Care
LAREN D. TAN, M.D, FCCP, Medical Director for Master of Science in Respiratory Care

RICHARD NELSON, M.D., Program Director for entry-level Bachelor of Science, Respiratory Care
ALAN ALIPOON, M.S., Program Director for postprofessional Bachelor of Science, Respiratory Care

#### Clinical Laboratory Science

RODNEY M. ROATH, Ph.D., M.B.A., MT (ASCP), Chair, Department of Clinical Laboratory Science
ALICIA M. TRIPLETT, M.A., MLS (ASCP)$^{CM}$, Program Director for Bachelor of Science, Clinical Laboratory Science; Clinical Coordinator for Bachelor of Science, Clinical Laboratory Science
TERI J. ROSS, M.S., MT (ASCP) SBB, Program Director for Certificate, Phlebotomy
PAUL C. HERRMANN, M.D., Ph.D., Medical Director for Clinical Laboratory Science and Phlebotomy

#### Communication Sciences and Disorders

TERRY D. DOUGLAS, Ph.D., Chair, Department of Communication Sciences and Disorders
KAREN MAINESS, Ph.D., Program Director for Master of Science and Transitional; Credential Advisor
JENNIFER ST. CLAIR, M.S., Director for Clinical Education
KEITH WOLGEMUTH, Ph.D., CCC-A, Program Director for Doctor of Speech-Language Pathology

#### Health Informatics, Information Management, and Administration

DEBRA HAMADA, Ed.D., M.A., Chair, Department of Health Informatics, Information Management, and Administration
BRADEN TABISULA, M.B.A., Program Director for Master of Science, Health Informatics
PAULINE CALLA CABANADA, M.B.A., Recruitment Coordinator for Health Information Administration Program; Program Director for Bachelor of Science and Post-B.S. Certificate, Health Information Administration
KARLA LAVIN WILLIAMS, Dr.P.H., Program Director for Bachelor of Science, Health-Care Administration
RYAN STEPHAN, D.B.A. (c), M.A., Program Director for Certificate, Coding Specialist

#### Nutrition and Dietetics

EDWARD BITOK, Dr.P.H., RDN, Chair, Department of Nutrition and Dietetics; Program Director for Coordinated Program in Nutrition and Dietetics
LESLEY ANNE FOSTER-NICHOLAS, Dr. P.H., RDN, Clinical Coordinator, Department of Nutrition and Dietetics

#### Occupational Therapy

LIANE H. HEWITT, Dr.P.H., CHES, OTR/L, Chair, Department of Occupational Therapy
HEATHER JAVAHERIAN-DYSINGER, O.T.D., OTR/L, Program Director for Master of Occupational Therapy
JULIE D. KUGEL, O.T.D., OTR/L, Program Director for Doctor of Occupational Therapy
AARON MOESSER, M.O.T., OTR/L, Academic Coordinator for Fieldwork Education, Occupational Therapy

#### Orthotics and Prosthetics

JOHANNES SCHAEPPER, Ph.D., M.S., CPO, Chair, Department of Orthotics and Prosthetics
AILEEN KINGSLEY, M.S., CPO, Program Director for Master of Science in Orthotics and Prosthetics

#### Physical Therapy

LAWRENCE E. CHINNOCK, PT, Ed.D., M.B.A., Chair, Department of Physical Therapy; Program Director for entry-level Doctor of Physical Therapy
EVERETT B. LOHMAN III, PT, D.Sc., OCS, Program Director for Postprofessional Doctor of Physical Therapy, and Ph.D.
RICHARD J. HUBBARD, PT, M.P.T., D.Sc., OCS, Program Director for Physical Therapist Assistant
JENNIFER RAE RUBIO, PTA, B.S., Director of Clinical Education for Physical Therapist Assistant
THERESA M. JOSEPH, PT, D.P.T., M.B.A., NCS, Director of Clinical Education for entry-level Doctor of Physical Therapy

HENRY GARCIA, PT, D.Sc., OCS, Director of Clinical Education for entry-level Doctor of Physical Therapy

**Physician Assistant Sciences**

CATHERINE OMS, Dr.P.H., PA-C, Chair, Department of Physician Assistant Sciences

COURTNEY MARQUEZ, M.P.A., PA-C, Program Director for Master of Physician Assistant Sciences

MARK MILLIRON, M.Sc., M.P.A., PA-C., Didactic Director for Master of Physician Assistant Sciences

KRISTIN BATLA, M.S., PA-C, Clinical Director for Master of Physician Assistant Sciences

WESSAM LABIB, M.D., M.P.H, Medical Director for Master of Physician Assistant Sciences

LAUREN BOLDA, M.P.A., PA-C, Clinical Coordinator for Master of Physician Assistant Sciences

ERIN GYSBERS, M.P.A.S., PA-C, Didactic Coordinator for Master of Physician Assistant Sciences

RASHA ABDRABOU, Dr.P.H., M.P.H., Director of Assessment for Master of Physician Assistant Sciences

**Radiation Technology**

LAURA L. ALIPOON, Ed.D., Chair, Department of Radiation Technology

MICHAEL F. IORIO, M.P.A., Ph.D., Associate Chair, Department of Radiation Technology; Program Director for Master of Science in Radiation Sciences

J. ROBERT CRUISE, M.S.R.S., Program Director for Cardiac Electrophysiology Technology

BRIGIT C. MENDOZA, M.A.M., Program Director for Master of Science in Radiation Sciences, Radiologist Assistant

KATHRYN COCKRILL, M.S., Program Director for Certificates in Special Imaging (CT, MRI and CVI); Assistant Program Director for Bachelor of Science, Radiation Sciences

RAYNOLD HO, M.S., M.B.A., Program Director for Bachelor of Science, Nuclear Medicine Technology

JOSEPH HEWES, M.B.A., Assistant Program Director for Associate in Science, Medical Radiography

ERIN N. MARSHALL, B.S., Program Director for Bachelor of Science, Diagnostic Medical Sonography, and Cardiac Certificate

CAROL A. DAVIS, Dr.P.H., Psy.D., Program Director for Certificate, Medical Dosimetry; Bachelor of Science, Radiation Therapy Technology

BALDEV PATYAL, Ph.D., Program Advisor for Medical Dosimetry

ALVIN HENSEL, M.D., Medical Advisor for Medical Radiography

GLENN A. ROUSE, M.D., Medical Director for Bachelor of Science, Diagnostic Medical Sonography

DAVID GENTRY, M.D., Medical Director for Bachelor of Science, Nuclear Medicine Technology

TIMOTHY SEAVEY, Ed.D., Second Associate Chair, Department of Radiation Technology; Program Director for Bachelor of Science, Radiation Sciences

WILL EDMUNDS, M.Ed., Program Director for Associate in Science, Medical Radiography

## Committees—AH

### Administrative Council

Craig Jackson, Chair
Alan Alipoon
Laura Alipoon
Melissa Aree
Lee Berk
Edward Bitok
Lawrence Chinnock
Kent Chow
Charles Dart
Terry Douglas
Debra Hamada
Liane Hewitt
Everett Lohman
David Lopez
Catherine Oms
Helen Martinez Wendtland
Rodney Roath
Johannes Schaepper
Ernest Schwab
Timothy Seavey
Donna Thorpe
President*

* ex officio

### Admissions Committee

Laura Alipoon
Edward Bitok
Larry Chinnock
Charles Dart
Terry Douglas
Debra Hamada
Liane Hewitt
Craig Jackson
Everett Lohman
David Lopez
Dana McCree, Chair
Rodney Roath
Johannes Schaepper
Ernie Schwab

### Clinical Coordinators Committee

Brian Sharp, Chair
Rajae Aree
Kristin Batla
Janine Benner
Lauren Bolda
Lesley Ann Foster-Nicholas
Raynold Ho
Craig Jackson
Theresa Joseph
Kenneth Nelson
Aaron Moesser
Valerie Mosqueda
Kristine Richard
Suzette Parades Sanchez
Ernie Schwab
Jennifer St. Clair
Ryan Stephan
Monica Tovar
Alicia Triplett

### Faculty Council

Mike Iorio Chair
Vacant, Chair-Elect
Alan Alipoon, Past Chair
James Rippetoe, Secretary
Lamitra Baez
Laura Evans
Gayle Haider
Jeremy Hubbard
Ralph Ibarra
Yolanda Martinez

Mark Milliron
Rodney Roath (Parliamentarian)
Heather Roese
Kyndra Woosley

# School of Behavioral Health

## Administration—BH

BEVERLY J. BUCKLES, D.S.W., Dean

ADAM L. ARÉCHIGA, Psy.D., Dr.P.H., Associate Dean for Academic and Student Affairs
MIRIAM A. DOMINGO, M.B.A., Associate Dean for Finance and Administration
SUSANNE B. MONTGOMERY, Ph.D., Associate Dean for Research Affairs

## Department chairs—BH

BEVERLY BUCKLES, D.S.W., Chair, Social Work and Social Ecology
KIMBERLY R. FREEMAN, Ph.D., Executive Associate Chair, Social Work and Social Ecology
DAVID A. VERMEERSCH, Ph.D., Chair, Psychology
KENDAL C. BOYD, Ph.D., Associate Chair, Psychology
WINETTA OLOO, Ph.D., Chair, Counseling and Family Sciences
MICHELLE MINYARD-WIDMANN, M.S., CCLS., Associate Chair, Counseling and Family Sciences

## Committees—BH

### Academic Council

Adam Aréchiga, Chair
Kenny Boyd
Beverly Buckles
Miriam Domingo
Kim Freeman
Diana Krueger
Talolo Lepale
Grace Lee
Zephan Lister
Michelle Minyard-Widman
Mary Moline
Susanne Montgomery
Holly Morrell
Winetta Oloo
Larry Ortiz
Nichola Seaton-Ribadu
David Vermeersch
Randall Walker

### Executive Committee

Beverly Buckles, Chair
Adam Aréchiga
Kenny Boyd
Miriam Domingo
Kim Freeman
Diana Krueger
Michelle Minyard-Widman
Susanne Montgomery
Winetta Oloo
David Vermeersch

## Clinical affiliates—BH

Advent Health Orlando
Albany Psychology Internship Consortium, VA Albany Medical College
Alternative Options Counseling Center
American Family Children's Hospital
Anaheim School, Anaheim
Arroyo High School, San Bernardino
Assessment and Treatment Services Center
Aurora Behavioral Health Care

BHC Alhambra Hospital
Bold Recovery, Los Angeles
Boys and Girls Club, Redlands
Brain Wellness Institute, Newport Beach

California Counseling Clinics, Santa Barbara
Canyon Ridge Hospital, Chino
Care Counselors, Redlands
Casa Pacifica Clinical Services
Catholic Charities Psychological Services
Cedars-Sinai Medical Center, Los Angeles
Center for Integrated Family and Health Services, Covina
Chaffey College, Rancho Cucamonga
Cherokee Health System
Child and Family Guidance Center, Northridge
Child Welfare Training, Riverside
Children's Hospital of Alabama
Children's Hospital, Los Angeles
Children's Hospital of Orange County
Children's Hospital of Philadelphia
Children's Hospital and Clinics of Minnesota
Children's Hospital and Health System, Wisconsin
Children's Memorial Hermann Hospital
Citrus Counseling Services, Redlands
City of Hope, Duarte
Community Hospice of Victor Valley, Apple Valley
Concern Outreach, Santa Ana
Cottage Children's Medical-Center
County of Santa Clara, Santa Clara Valley Medical Center

Desert/Mountain Children's Center
Dignity Health Northridge Hospital Medical Center
Discovery Counseling Center
Doctors Hospital of West Covina, West Covina
Duke University Health System (Children's Hospital & Health Center)

East Valley SELPA

FAITHS Program
Family Services Association, Riverside
Family Solutions Collaborative, Ontario
Forest Institute of Professional Psychology
Foster Family Network, San Bernardino
Fountain Valley Regional Hospital

Goldsmith Psychological Services, Claremont
Growing Fit

Harbor-UCLA Medical Center, Los Angeles
Hathaway-Sycamores – Child and Family Services
Health and Human Services Department of Aging, San Bernardino County, San Bernardino
The Help Group, Sherman Oaks
Helping Hearts, Ontario
Hesperia Unified School District, Hesperia
Highlander Children's Services, Riverside
Hoag Memorial Hospital, Newport Beach
Huntington Memorial Hospital, Pasadena

Illinois School of Professional Psychology
Inland Regional Center, Colton
Inland Valley Recovery Services

Jerry L. Pettis Memorial VA Medical Center, Loma Linda
JFK Memorial Hospital, Indio
Jurupa Unified School District, Riverside

Kaiser Permanente Hospital, Riverside
Kaiser Permanente Medical Care Program, Psychiatry Department
Kaiser Permanente, Santa Clara Medical Center

Lackland Air Force Base, San Antonio, TX
LCS Behavioral Health, Rancho Cucamonga
Le-Bonheur Children's Hospital
Loma Linda Academy, Loma Linda
Loma Linda University Adult Day Services, Loma Linda
Loma Linda University Behavioral Medicine Center
Loma Linda University. Children's Hospital, Child Life Department
Loma Linda University Department of Psychology, Clinic
Loma Linda University Marriage and Family Therapy Clinic
Loma Linda University Medical Chaplain's Office, Loma Linda
Loma Linda University MEND Program
Loma Linda University Neuropsychology Department, Loma Linda
Loma Linda University Psychiatric Medical Group, Loma Linda
Los Angeles City Department of Child Assessment Center
Los Angeles County Child Services
Los Angeles Department of Mental Health
Lucile Packard Children's Hospital, Stanford
Lutheran Social Services, Apple Valley

Mass General Hospital for Children
Mattel-Children's Hospital UCLA Chase Child Life Program
M.D. Anderson Cancer Center
Memorial Sloan-Kettering Cancer Center (NY)
Miller Children's and Women's Hospital, Long Beach
Moreno Valley Community Hospital, Moreno Valley
Morongo Inland Health, Banning

Northridge Hospital Medical Center
NYU Winthrop Hospital

Oasis Counseling Center, Victorville
Office of Aging, Riverside
Office of Aging, San Bernardino
Ontario Montclair School District
Orange County Department of Child Services

Pacific Clinics Institute
Patton State Hospital, Highland
Pediatric Neuroassessment Program
Phoenix Children's Hospital

Rady Children's Hospital
Redlands Community Hospital, Redlands
Redlands Unified School District, Redlands
Rim Family Services, Sky Forest
River Oak County Adult Protection Service
Riverside Community College District, Riverside
Riverside Department of Social Services, Riverside
Riverside/San Bernardino County Indian Health Inc, San Jacinto
Riverside University Health System, Behavioral Health

SACH-Norton Mental Health Clinic,
San Bernardino City Unified School District, San Bernardino
San Bernardino County Department of Behavioral Health
San Bernardino Department of Social Services, San Bernardino
San Bernardino Public Defender, San Bernardino
San Diego Hospice and Palliative Care, San Diego
San Jacinto Unified School District
Santa Ana College Health and Wellness Center Psychology Services, Santa Ana
Seattle Children's Hospital
Senior Care Network, Glendora
Serenity Infant Care Homes
Sharper Future
Shasta County Mental Health Services
Silence Aloud Inc., Moreno Valley
Simms/Mann UCLA Center for Integrative Oncology, Los Angeles
Southern Arizona VA Health Care System
Spokane Mental Health Psychology Services
St. Anne's Hospice, Glendale
Su Casa, Artesia
Sutter Children's Center **An agreement is drafted for **each** student*

UC Davis Children's Hospital
UCI Health Sciences Program, Irvine
UCLA Health System
UCLA Semal, Lost Angeles
UCSD Regional Burn Center
UCSF Benioff Children's Hospital, Oakland
UCSF Benioff Children's Hospital, San Francisco
University of Riverside
USCD VA Psychology Internship Program

VA Los Angeles Ambulatory Care Center
VA Sierra Nevada Health Care System
Valenta Mental Health
Verdugo Hills Hospital, Glendale
Veterans Affairs Hospital, Loma Linda
Village of Child Hope, Beaumont
Vitas Innovative Hospice Care, San Bernardino

Warm Springs Counseling Center, Boise, ID
Wayfinder Family Services, Los Angeles
West End Valley Counseling, Ontario
Western Youth Service, Fullerton
White Memorial Medical Center
Wilford Hall Medical Center, Lackland Air Force Base

Yale New Haven Health
Youth Service Center, Riverside
Yucaipa Guidance, Redlands

# School of Dentistry

## Administration—SD

ROBERT A. HANDYSIDES, D.D.S., Dean

STEVEN G. MORROW, D.D.S, M.S., Associate Dean, Advanced Education
PAUL L. RICHARDSON, D.D.S., M.S.Ed., Associate Dean, Clinic Administration
YIMING LI, D.D.S., Ph.D., Associate Dean, Research
ESTHER FORDE, RN, M.A., M.B.A., Assistant Dean, Admissions and Student Affairs
MARK ESTEY, D.D.S., Associate Dean, Academic Affairs
JOHN C. BURDICK, M.B.A., Associate Dean, Finance and Administration

## Committees—SD

**Administrative Bodies**

Administrative Council
Executive Committee
Faculty Council

**Standing Committees**

Academic Review Committee
Admissions Committee
Clinical Quality Assurance Committee
Curriculum Committee
Dental Research Committee
Faculty Promotions Committee
Outcomes Assessment Committee
Program Directors' Committee

**Reference Committees**

Awards Committee
Clinic Activities/Materials, Instruments, and Student Issue Committee
Communicable Disease Control and Prevention/Infection Control Committee
Dental Hygiene Advisory Committee
Dental Hygiene Curriculum Subcommittee
Diversity Committee
Faculty Development Committee
Faculty Professional Standards Committee
Nominating Committee
Safety Committee
Service Learning Committee
Spiritual Life and Wholeness Committee
Student Professional Standards Conduct Committee
Teaching and Learning Committee

# School of Medicine

## Administration—SM

TAMARA L. THOMAS, M.D., Dean and Executive Vice President for Medical Affairs, LLUH; Vice Dean, Academic Affairs
TAMARA M. SHANKEL, M.D., Senior Associate Dean for Medical Student Education
SARAH M. RODDY, M.D., Associate Dean for Admissions and Recruitment
HENRY L. LAMBERTON, Psy.D., Associate Dean for Student Affairs
ALICE A. WONGWORAWAT, M.B.A., Associate Dean for Finance and Administration
PENELOPE J. DUERKSEN-HUGHES, Ph.D., Associate Dean for Basic Sciences and Translational Research
KEVIN A. CODORNIZ, M.D., Associate Dean for Clinical Education
RICARDO L. PEVERINI, M.D., Vice Dean for Clinical Affairs; Associate Dean for Clinical Faculty
LYNDA DANIEL-UNDERWOOD, M.D.,PhD., Associate Dean for Curriculum Evaluation and Learner Assessment
Vacant, Associate Dean for Educational Quality and Outcomes
RICARDO L. PEVERINI, M.D., Associate Dean for Clinical Faculty
LAWRENCE LOO, M.D., Assistant Dean for Continuing Medical Education; Associate Dean for Faculty Development
Vacant, Assistant Dean for Faculty Practice Affairs
KHIET D. NGO, DO, Assistant Dean for Curricular Innovation
Vacant, Assistant Dean for Development
LEROY E. REESE, M.D., Associate Dean for Los Angeles Programs
DANIEL W. GIANG, M.D., Associate Dean for Graduate Medical Education
JAMES M. PAPPAS, M.D., Associate Dean for Quality and Patient Safety
HANSEL M. FLETCHER, Ph.D., Assistant Dean for Graduate Student Affairs
ELAINE A. HART, M.D., Assistant Dean for Regional Campuses
SUSAN RANZOLIN, B.S.N., Assistant Dean for Admissions
DWIGHT C. EVANS, M.D., Assistant Dean for Veterans Affairs
MARTIE E. PARSLEY, Ph.D., Assistant Dean for Residency Curriculum
AMY C. HAYTON, M.D., Assistant Dean for Student Affairs and Wellness
M. DANIEL WONGWORAWAT, M.D., Assistant Dean for Career Advisement
RESA L. CHASE, M.D., Assistant to the Dean for Basic Science Curriculum
DAISY D. De LEON, Ph.D., Assistant to the Dean for Diversity
LINDA J. MASON, M.D., Assistant to the Dean for Medical Staff Affairs
RHODES L. RIGSBY, M.D., Special Assistant to the Dean for Administration
JAY MILLER, M.B.A., Director of Records and Student Services
DENISE M. SOUDER, R.N., EdD, Director, Academic Support Services

## Committees—SM

Academic Review Committee
Admissions Committee
Basic Science and Translational Research Executive Committee
Basic Science Faculty Advisory Council
Clinical Academic Leadership Committee
Clinical Faculty Executive Committee
Clinical Science Faculty Advisory Council
Competency Committee
Continuing Medical Education Committee
Curriculum Committee
Dean's Administrative Council
Executive Committee
LLUFMG Board of Directors
Medical School Performance Evaluation Committee
Professionalism Committee
Promotions Committee
Scholarship and Financial Aid Committee
Spiritual Life and Wholeness Committee
Student Technology Committee
Tenure Committee

# School of Nursing

## Administration—SN

ELIZABETH BOSSERT, Ph.D., RN, Dean
SHAWN COLLINS, Ph.D., D.N.P., CRNA, Associate Dean for Academic Affairs and Graduate Nursing
BRANDIE RICHARDS, D.N.P., FNP-C, CCRN, Associate Dean for Undergraduate Nursing
JOANN SHAUL, M.S., CPA, Assistant Dean for Finance and Administration
ELLEN D'ERRICO, Ph.D., RN, Director, M.S. Nurse Administration Program and Ph.D. Program
LISA HIGHTON, M.S., RN, Director, Undergraduate Postlicensure Program
ANDREIA LOFTHOUSE, M.B.A., Executive Director, Student and Alumni Relations
VANESSA JONES-OYEFESO, Dr.P.H., M.S.N.A., CRNA, Director, Nurse Anesthesia Program
ERIC MOLINA, D.N.A.P., M.S.N.A., CRNA, Assistant Director, Nurse Anesthesia Program; Director of Admissions for Nurse Anesthesia Program
ANNE BERIT PETERSEN, Ph.D., M.P.H., APRN, CNS, CHES, Director, Global Nursing
LISA ROBERTS, Dr.P.H., FNP-BC, CHES, RN, Director, Research

## Councils and committees

### Faculty Council
Faculty-voted chair
All full-time and part-time faculty

### M.S./D.N.P. Council
Gloria M. Huerta, D.N.P., FNP, RN, Chair
All full-time and part-time M.S. and D.N.P. faculty

### RN to B.S. Council
Lisa Highton, M.S., RN, Chair

### Ph.D. Council
Ellen D'Errico, Ph.D., RN., NEA-BC, Chair
All full-time and part-time Ph.D. faculty

### Undergraduate Faculty Council
Brandie Richards, D.N.P., FNP-C, CCRN, Associate dean, Chair
All full-time and part-time undergraduate faculty

### Standing faculty committees
Admissions
Curriculum
Diversity
Faculty Affairs
Rank and Tenure
Research
Spiritual Life and Wholeness
Today's Nursing Technology (TNT)

## Clinical facilities—SN

Ace Pediatrics, Hemet
Adventist Health, Roseville (corporate office)
- Adventist Medical Center, Oregon
- Castle Medical Center, Hawaii
- Central Valley General Hospital, Hanford
- Feather River Hospital, Paradise
- Glendale Adventist Medical Center, Glendale
- Hanford Community Medical Center, Hanford
- Redbud Community Hospital, Clearlake
- St. Helena Hospital, St. Helena
- Simi Valley Hospital, Simi Valley
- Sonora Regional Medical Center, Sonora
- South Coast Medical Center, Laguna Beach
- Tillamook County General Hospital, Oregon
- Ukiah Valley Medical Center, Ukiah
- Walla Walla General Hospital, Washington
- White Memorial Medical Center, Los Angeles

Adventist Health System/Sunbelt, Florida
Allied Professional Nursing Care, Upland
Alvord Unified School District, Riverside
Antelope Valley Community Clinic, Lancaster
Apex Urgent Care Center, Inc. Beaumont
Arrowhead Regional Medical Center, Colton
- ARMC Fontana Family Medical Clinic, Fontana
- ARMC McKee Family Health Clinic, San Bernardino
- ARMC Westside Family Health Center, Rialto

Asian American Resource Center, San Bernardino
Beaver Medical Clinic, Redlands

California State University, San Bernardino
Carcamo, Dr. Mario, Riverside
CareMore Health Plan, Cerritos
Carino-Gateb, Dr. Zosima, Indio
Community Health Systems, Inc.
- Cedars-Sinai Medical Center, Los Angeles
- Central Neighborhood Health Foundation, Los Angeles

Dignity Health, West, Pasadena
- Bakersfield Memorial Hospital, Bakersfield
- Community Hospital of SB
- Mercy Hospital
- Mercy Southwest Hospital
- Northridge Hospital Medical Center, Northridge
- St. Bernadine Medical Center, San Bernardino
- St. John's Regional Medical Center
- St. John's Pleasant Valley Hospital

Charter Hospice, Colton
Children's Hospital, Los Angeles
Children's Hospital of Orange County, Orange
Children's Primary Care Medical Group, Inc., San Diego
Choice Medical Group, Apple Valley
- Choice Medical Group, Hesperia
- Choice Medical Group, Victorville

Citrus Valley Health Partners, Covina
Citrus Valley Medical Associates Norco
- Citrus Valley Family Practice, Corona
- Citrus Valley Pediatric & Family, Norco
- Citrus Valley Urgent Care, Corona
- Compton Family Practice, Corona
- Norco Medical Group & Urgent Care, Norco

City of Colton Early Childhood Education, Colton
- Cooley Ranch School
- Paul J. Rogers School
- Reche Canyon School
- Sierra Vista School
- Wilson School

City of Hope National Medical Center, Duarte
Clinica Msr. Oscar Romero, Los Angeles
- Boyle Heights/East Los Angeles
- Pediatrics, Los Angeles

Clinica Salud & Familia, Pomona
Coachella Valley Volunteers in Medicine, Indio
College Medical Center, Long Beach
Community Health System, Moreno Valley
- Arlanza Family Health Center, Riverside
- Eastside Health Center, Riverside
- Eisenhower Medical Center, Rancho Mirage
- Fallbrook Family & Women's Health Center, Fallbrook
- Inland Empire Community Health Center, Bloomington
- Moreno Valley Family Health Center, Moreno Valley

Companion Hospice, Riverside
Compassus, Colton
Coram Healthcare, Ontario
Cornerstone Community Health, San Bernardino
Corona Regional Medical Center, Corona
County of Riverside Department of Community Health, Riverside
- Banning Neighborhood Health Clinic
- Corona Neighborhood Health Clinic
- Hemet Neighborhood Health Clinic
- Indio Neighborhood Health Clinic
- Lake Elsinore Neighborhood Health Clinic
- Palm Springs Neighborhood Health
- Riverside Neighborhood Health Clinic
- Roberts, Laura, MD

Rubidoux Neighborhood Health Clinic
County of Riverside Department of Public Health, Riverside

Delta Hospice of California, Chino
Desert Valley Hospital, Victorville
Desert Valley Medical Group, Inc., Victorville
Desert VIP Urgent Care, Palm Springs
Desert VIP Urgent Care, Rancho Mirage
Dignity Health Urgent Care Centers, Fontana and Highland
Dogon Behavioral Medical Group Inc., Riverside
Dr. Mike's Walk-In Clinic, Hesperia

Eisenhower Medical Center, Rancho Mirage
Empire Medical Center, San Bernardino
Etiwanda School District, Etiwanda

Fallbrook Health Center Family Practice and Urgent Care, Fallbrook
Farrohi, MD, Farideh, Northridge
Foothill Pediatrics, Upland
Fullerton College, Fullerton

Garden Pediatrics, Redlands
GK Urgi Care, Inc., Hemet
Hemet Unified School District, Hemet
Hi-Desert Medical Center, Joshua Tree
Hi Desert Memorial Healthcare District, Yucca Valley
Hoag Memorial Hospital Presbyterian, Newport Beach
Hospice of the North Coast, Carlsbad
Infinity Medical Group, Apple Valley
Inland Pain Specialists, Laguna Niguel
Inscriptions Children's Clinic, Wildomar
In Your Best Interest, Redlands
Ultimate Medical Practice, Highland
Jurupa Unified School District, Riverside

Kaiser Permanente, Fontana
Kaiser Permanente, Riverside
Kaiser Permanente Southern California
Inland Valley Care and Rehabilitation Center
Kanakriyeh, Dr. Mohammed, Pediatric Cardiology Specialist, San Bernardino
Keen Medical Group, Inc., Hesperia
Kern Medical Center, Bakersfield
Kids & Teens Medical Group, Pasadena
Kim, Dr. Dong, Moreno Valley
New Start Well Being Clinic
Knollwood Psychiatric Hospital and Chemical Dependency Center, Riverside

La Sierra University Church, Riverside
Lake Elsinore Family Care Center, Lake Elsinore
Lakewood Regional Medical Center, Ladewood
Lam, Richard C., MD, Inc., Temecula
Las Palmas OB/GYN, Rancho Mirage
Palm Springs OB/GYN
Life Connect Medical, Rancho Mirage
Linda Valley Care Center and Linda Valley Villa, Loma Linda
Loma Linda Academy Childrens Center, Loma Linda
LLUH Facilities:
Loma Linda University Behavioral Medicine Center, Redlands
Loma Linda University Children's Hospital, Loma Linda
Loma Linda University East Campus Hospital, Loma Linda
Loma Linda University Family Medical Group, Loma Linda
Loma Linda University Health Care, Loma Linda
Loma Linda University Medical Center, Loma Linda
Loma Linda University Medical Center, Murrieta
Loma Linda University Medical Center Adult Day Health Services, Loma Linda
Loma View Pediatric Medical Clinic, San Bernardino

Mackey, Dr. Timothy, Riverside
Manzoor Kazi Medical Associates, Palm Desert
Memorial Care Saddleback Medical Center, Laguna Hills
Mission Healthcare, San Diego
Mokabberi, Rasoul, MD., Santa Ana
Moreno Valley Urgent Care, Moreno Valley
Mountains Community Hospital, Lake Arrowhead
Mukergee, Dr. Kamana, Riverside
Mukherjee, Dr. Ashis, San Bernardino
Inland Heart and Vascular Medical Associates

Namita, Mohideen, MD, Pediatric Clinic, Upland
New Hope Free Clinic, Redlands
Newport Huntington Medical Group, Huntington Beach
Nhan Hoa Comprehensive Health Care Clinic, Garden Grove
Ontario-Montclair School District, Ontario
Orangecrest Medical Group, Riverside

Physicians for Healthy Hospitals, Inc.
GK URGI Care, Inc. dba San Jacinto Medical Clinic/Urgent Care
Menifee Valley Medical Center, Menifee
Raja, Manikanda G., MD, Hemet
Physicians' Hospital of Murrieta, LLC, Murrieta
Pinnacle Medical Group, Fontana
Planned Parenthood of the Pacific Southwest, San Diego
Planned Parenthood, Carlsbad
Planned Parenthood, Moreno Valley
Planned Parenthood, Riverside
Pomona Community Health Center, Pomona
Premium Care Clinic, Loma Linda
Primary Medical Group, Ventura
Providence Health System – Southern California, Torrance

Rahman, Jamal, MD, Montclair
Raincross Medical Group, Riverside
Ramos, Dr. Jasmine, Palm Desert
Rancho Family Medical Group, Temecula
Recovery Innovations, Inc., Perris
Redlands Community Hospital, Redlands
Redlands Community Hospital Outreach Clinic, Redlands
Redlands Healthcare, Redlands
Reyes, Dr. Patricia, LaQuinta
Rising Stars Business Academy, Moreno Valley
Riverside Community College District
Moreno Valley College, Moreno Valley
Norco College, Norco
Riverside City College, Riverside
Riverside Community Hospital, Riverside
Riverside County Department of Mental Health, Riverside
Riverside Medical Clinic, Riverside (corporate)
Riverside Medical Clinic, Riverside (4 locations)
Riverside Medical Clinic, Corona
Riverside Mission Pediatric Medical Group, Riverside
Riverside University Health System-Medical Center, Riverside
Robinson, Dr. Magda, San Bernardino

Ross Legacy Medical Group, Mission Viego

SAC Health System, San Bernardino
Salhab, Rene, MD, Inc. Upland
San Antonio Regional Hospital, Upland
San Bernardino City Unified School District, San Bernardino
San Bernardino County Department of Public Health, San Bernardino
Ontario Clinic
Redlands Clinic
San Bernardino Clinic
Victor Valley Clinic, Hesperia
San Bernardino Medical Orthopaedic Group
San Bernardino Physicians Assoicates, San Bernardino
Schwartz, Dr. Stanley H., Inc., Moreno Valley
Sharp Healthcare, San Diego
Sherman Indian High School, Riverside
Shriners Hospital for Children, Los Angeles
Sierra Neuroscience Institute, Glendale
SOAR Charter Academy, San Bernardino
South Coast Medical Group, Aliso Viejo
Southern California Emergency Medicine, San Bernardino
Southland Integrated Servies, Inc., Santa Ana
St. Joseph Hospital, Orange
St. Jude Medical Center, Fullerton
St. Jude Cancer Center, Fullerton
St. Jude Heritage Medical Group, Fullerton
St. Jude Brea Mobile Site, San Bernardino
Spanish Hills Medical Group, Oxnard
Sumalangcay, Godofreda B., MD, San Bernardino
Symonett Family Medical Center, Colton

Team Nurses Home Health Services, Inc., San Bernardino
Temecula Valley Family Medicine, Temecula
Tenet Health System Desert, Inc. (Desert Regional Medical Center), Palm Springs
Times for Change Foundation, San Bernardino
Total Care Walk-In Clinic, Eastvale
Totally Kids, Loma Linda

United Family Care, Fontana
United Family Care, Rialto
United Family Care, San Bernardino
UREACH, Loma Linda

VA Hospital, Loma Linda
VA Long Beach Healthcare System, Long Beach
Valentine Medical Clinic, Riverside
Valley Women Care, Indio
Veronica's Home of Mercy, Mary's Mercy Center, Inc, San Bernardino
Victor Valley Pediatrics, Victorville
Visiting Nurse Association and Hospice of Southern California, Claremont

Well-One Health Inc., Perris
White Memorial Medical Center, Los Angeles
Wholistic Kids & Families, Santa Monica

# School of Pharmacy

## Administration—SP

MICHAEL D. HOGUE, Pharm.D., FAPhA, FNAP, Dean
KYLE M. SOUSA, Ph.D., Associate Dean for Academic Affairs
ALAN C. CONNELLY, M.B.A., Associate Dean for Finance and Administration
LINDA M. WILLIAMS, M.S., Associate Dean for Student Affairs and Admissions
WILLIE DAVIS, Ph.D., Assistant Dean for Academic Success
NANCY E. KAWAHARA, Pharm.D., M.S.Ed., Assistant Dean for Co-Curriculum and Mentorship
ALIREZA HAYATSHAHI, Pharm.D., Chair, Department of Experiential and Continuing Education
VICTORIA MASKIEWICZ, Ph.D., Chair, Department of Pharmaceutical and Administrative Sciences

## Committees—SP

Academic Standing and Professionalism
Admissions
Curriculum
Diversity, Equity, and Inclusion
Executive
Program Assessment
Promotion and Tenure

## Affiliated/Clinical Facilities—SP

AdventHealth Celebration
AdventHealth Orlando
Adventist Health Bakersfield
Adventist Health Feather River Hospital
Adventist Health Glendale
Adventist Health Hanford
Adventist Health Ukiah Valley
AIDS Healthcare Foundation-AHF Pharmacy, Westside
Albertsons/Vons Corporation
Ambrosia Healthcare
American Pharmacist Association (APhA)
Antelope Valley Hospital
Arrowhead Regional Medical Center
Avanir Pharmaceuticals

B&B Pharmacy (Norwalk Village, Inc.)
Bonita Family Pharmacy

Cal-Med Pharmacy
Cardinal Health #00032
Cedars-Sinai Medical Center
Central Best Pharmacy
Central Valley General Hospital
Cherokee Indian Hospital
Children's Hospital of Orange County
Chino Valley Medical Center
City of Hope
Community Health Group
Community Hospital of San Bernardino
Corona Regional Medical Center
Corona Valley Pharmacy
Costco Wholesale Company
CVS Caremark/CVS Coram

Department of State Hospitals - Patton
Desert Hospital Outpatient Pharmacy
Desert Oasis Health Care
Dib Pharmaceutical Inc., DBA Better Life Pharmacy

Enloe Medical Center
Evolve Pharmacy Solutions
Evergreen Rx Pharmacy

Federal Correctional Complex, Victorville

Gojji Health
GVHC PMQ Merced Pharmacy
GVHC PMQ W. Modesto Pharmacy

Hanford Community Medical Center
Hemet Valley Medical Center
Hi-Desert Medical Center
Hinas Home Care Pharmacy
Hoag Memorial Hospital Presbyterian
Hollywood Presbyterian Medical Center
Huguley Memorial Hospital Texas

Inland Empire Health Plan
Inland Pharmacy

JWCH Clinic PMQ Pharmacy 1

Kaiser Permanente Southern California
Kettering Medical Center

La Botica Pharmacy

Lakeland Healthcare
Lifetime Value Pharmacy
Loma Linda University Health
Loma Linda University Pharmacy at SAC Health
Los Alamitos Medical Center

Med specialties RX
MedWatchers
Mercy Medical Center Redding (Dignity Health)

Newport Bay Hospital
Newport Lido Pharmacy

Orange Plaza Pharmacy

Parkview Medical Plaza Pharmacy
Parkview Medical Plaza Pharmacy LTC
PharMedQuest Pharmacy Services
PHI Health Community Pharmacy
Pomona Valley Hospital Medical Center

Radiance Pharmacy
Ralph Grocery
Rawson-Neal Psychiatric Hospital
Redlands Community Hospital
Riley's Pharmacy
RIS Rx
Rite Aid Corporation
Riverside Community Hospital
Riverside University Health System
Riverwalk Healthmart Pharmacy
Robinson's Pharmacy
Rxall Pharmacy

Sahmyook Medical Center
Salinas Valley Memorial Medical Center
Sal Pharmacy
Samaritan Medical Tower Pharmacy
Sam's Club
San Gorgonio Medical Center
SCAN Health Plan
Simi Valley Hospital
Smart Care Pharmacy
St. John Medical Center
St. Jude Medical Center
Super Care Health
Sutter Health – Sutter Lakeside Hospital

Torrance Memorial Medical Center

University of California, Irvine Medical Center
Uplift Pharmacy Consulting Services
U.S. Food and Drug Administration

VA Greater Los Angeles Healthcare System
VA Loma Linda Healthcare System
Valencia Pharmacy
Valencia Pharmacy at Henry Mayo
Valley Care Pharmacy
Valley Children's Hospital
Veteran Home of California West Los Angeles

Walgreens Corporation
Wal-Mart Corporation
Waterman Pharmacy
White Memorial Medical Center

Your Drug Store, Inc.
Yuma Regional Medical Center

# School of Public Health

## Administration

HELEN HOPP MARSHAK, Ph.D., Dean
DWIGHT BARRETT, Ed.D., Executive Associate Dean
DONNA L. GURULE, Dr.P.H., Associate Dean for Academic Administration
KARL M. McCLEARY, Ph.D., Associate Dean for Strategy
WENDY SARAVIA-GENOVEZ, M.S., Assistant Dean for Student Support

## Center Directors

DONNA L. GURULE, Dr.P.H., Executive Director, Center for Teaching and Learning
KARL M. McCLEARY, Ph.D., Executive Director, Center for Health Strategy and Innovation
JOAN SABATÉ, Dr.P.H., Executive Director, Center for Nutrition, Healthy Lifestyle, and Disease Prevention
PRAMIL SINGH, Dr.P.H., Director, Center for Health Research

## Committees

Academic Council
Administrative Committee
Admissions Committee
Alumni Engagement Committee
Awards and Traineeship Committee
Diversity Committee
Doctoral Programs Committee
Faculty Rank, Promotion and Tenure Committee
Field Practicum Committee
Marketing and Recruitment Committee
Master's Programs Committee
Research Committee
Student Association
Student Success Committee

## Affiliated institutions

Adventist Development and Relief Agency, Washington, DC
Adventist University of the Philippines, Putingkahoy, Silang, Cavite, Philippines
American Cancer Society (Inland Empire), Riverside
Asian Health Project, T.H.E. Clinic, Los Angeles
Atlantic Union College, South Lancaster, MA

Baptist Hospital, Care Unit Chemical Dependency Program and Center for Health Promotion, Nashville, TN

California Conference of Directors of Environmental Health, Cameron Park
California Department of Public Health, Sacramento
California State University, Health Science Department, San Bernardino
California State University, San Bernardino
Castle Medical Center, Kailua, HI
Centers for Disease Control and Prevention, Atlanta, GA
Centinela National Athletic Health Institute, Los Angeles
Clinica de Medicina Deportiva del Caribe, Santurce, Puerto Rico
Cooper Aerobic Center, In-Residence Program, Dallas, TX
County of Orange, Health Care Agency, Santa Ana
County of San Bernardino, Health Department, San Bernardino
County of San Diego, Department of Health Services, San Diego

Dine College, New Mexico
Drinking Driver Program Services, San Bernardino

Eisenhower Medical Center, Rancho Mirage
El Progreso del Desierto, Inc., Coachella

Foothill AIDS Project, San Bernardino

General Dynamics, Ontario
Guam SDA Clinic

Health Resources and Services Administration
Hinsdale Sanitarium and Hospital, Hinsdale, IL

Inland Empire Health Plan
Inland AIDS Project, Riverside
Institute of Stress Medicine, Denver, CO
Inter-American Division of Seventh-day Adventists, Miami, FL

Jerry L. Pettis Memorial Veterans Administration Hospital, Loma Linda

Kahili Mountain School, Kauai, HI
Kaiser Foundation Hospitals (Southern California Kaiser Permanente Medical Center), Fontana

Loma Linda University Medical Center East Campus, Loma Linda
Loma Linda University Medical Center, Loma Linda
Los Angeles County Department of Health Services, Los Angeles

Martin Luther King, Jr./Charles Drew Medical Center, Los Angeles

Native American Coalition, Temecula

People's Choice, Inc., San Bernardino
Pomona Unified School District, Pomona
Portland Adventist Medical Center, Portland, OR

Redlands Community Hospital, Redlands
Riverside County, Department of Public Health, Riverside
Riverside-San Bernardino County, Indian Health, Inc.

San Bernardino County Department of Environmental Health Services, San Bernardino
San Bernardino County Medical Center, San Bernardino
San Bernardino County Public Health Department, San Bernardino
San Diego State University, San Diego
San Joaquin Hospital, Bakersfield
School of Public Health, Adventist University of the Philippines, Putingkahoy, Silang, Cavite, Philippines
Scripps Clinic and Research Foundation, Green Hospital, La Jolla
Sid Richardson Cardiovascular Rehabilitation Institute, Methodist Hospital, Houston, TX
St. Helena Hospital and Health Center, Deer Park
State of California, Department of Public Health, Sacramento

Taiwan Adventist Hospital, Taipei, Taiwan

University of California Berkeley, Berkeley
University of California Center for Health Promotion, Riverside
University of California Los Angeles, Los Angeles
University of Hawaii, Honolulu, HI

Washington Adventist Hospital, Takoma Park, MD
Westminster Medical Group, Westminster
World Vision, International, Monrovia

# School of Religion

## Administration—SR

Leo S. Ranzolin Jr., Th.D., Dean
- Zane Yi, Ph.D., Associate Dean for Academic Affairs
- Saul Barcelo, Ph.D., Director, Center for Whole Person Care: Integrating Faith and Healing
- Gerald R. Winslow, Ph.D., Director, Center for Christian Bioethics
- Whitney Braun, Ph.D., Program Director for Master of Arts, Bioethics
- Angela Li, Ph.D., Program Director for Master of Science in Chaplaincy
- Zane Yi, Ph.D., Program Director for Master of Arts, Religion and Society

## Committees—SR

### Center for Christian Bioethics

Dean of School of Religion, Chair
Faculty of School of Medicine, Vice Chair
Director of Center for Christian Bioethics
Dean of School of Allied Health Professions
Dean of School of Behavioral Health
Dean of School of Dentistry
Dean of Faculty of Graduate Studies
Dean of School of Medicine
Dean of School of Nursing
Dean of School of Public Health
Dean of School of Pharmacy
Provost of Loma Linda University
LLUH Vice President for Mission and Culture
Representatives-at-large (2)
*Ex officio officers*:
President of Loma Linda University
CEO of Loma Linda University Health

### Center for Whole Person Care: Integrating Faith and Healing

LLUH Vice President for Mission and Culture, Chair
Dean of the School of Religion, Vice chair
Director of the Center for Spiritual Life and Wholeness, Secretary
Associate Dean of the School of Religion
LLUH Vice President for Educational Affairs

LLUH Vice President for Research Affairs
LLUH Vice President for Wellness
Vice President for Enrollment and Student Services
Deans
School of Allied Health Professions
School of Behavioral Health
School of Dentistry
School of Medicine
School of Nursing
School of Pharmacy
School of Public Health
Faculty of Graduate Studies
Director of Campus Ministries Department
Director of LLUMC Chaplaincy Department
Director of LLUMC Employee Spiritual Care Department
Representative from the LLU School of Religion
Chief nursing officer for LLUH System
Representative from LLUMC Faith and Health Initiative
Representative(s) from the community

### Rank and Tenure
Gerald Winslow, Chair
Erik Carter
Janice De-Whyte
Jon Paulien
Zdravko Plantak

### Admissions Committee
Associate Dean, Chair
Director of Bioethics Program
Director of Chaplaincy Program
Director of Religion and Society Program
Finance Coordinator, School of Religion

# Faculty of Graduate Studies

## Administration—GS

RONALD CARTER, Ph.D., Interim Director

## Committees—GS

### Graduate Council
Ronald Carter, Chair
Kristopher Boyle
Willie Davis
Ellen D'Errico
Stephen Dunbar
Liane Hewitt
Ana Krpalek
Leroy Leggitt
Everett Lohman III
Iris Mamier
Cameron Neece
Kerby Oberg
Winetta Oloo
Larry Ortiz
Janelle Pyke
Sujatha Rajaram
Leo Ranzolin
Richard Rice
Erin Seheult
Chris Wilson

### Nominating Committee
Ronald Carter, Chair
Kristopher Boyle
Willie Davis
Everett Lohman III
Sujatha Rajaram
Ken Wright

### Academic Variances Committee
Ronald Carter, Chair
Erik Carter
Mark Johnson
Bradford Martin
Janelle Pyke

### Admissions Review Committee
Ronald Carter, Chair
Noha Daher
Lida Gharibvand
Suzie Phillips
Salvador Soriano
Dolores Wright

# Accreditation Status

## The University

Founded as College of Evangelists 1905-06. Chartered as College of Medical Evangelists by the state of California December 13, 1909. Accredited by Northwest Association of Secondary and Higher Schools April 7, 1937. Accredited by WSCUC (WASC Senior College and University Commission) (prior to January 1962, Western College Association) February 24, 1960. Became Loma Linda University July 1, 1961. Professional curricula attained accreditation as follow below.

## The professions

### Faculty of Graduate Studies

The Graduate School began in 1954 with accreditation through University accreditation. It continued through 2004 and restructured as the Faculty of Graduate Studies in 2005. The Faculty of Graduate Studies convenes graduate faculty from research-intensive programs and functions as a peer-review body to ensure the quality of academic programs.

### School of Allied Health Professions

CARDIAC ELECTROPHYSIOLOGY TECHNOLOGY: Started in 2011. Initial accreditation March 21, 2015, by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

CLINICAL LABORATORY SCIENCE (formerly Medical Technology): Started in 1937. Approved by the Council on Medical Education of the American Medical Association since August 28, 1937. Currently accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Currently approved by the California Department of Public Health, Laboratory Field Services as of 2015.

COMMUNICATION SCIENCES AND DISORDERS: Approved by the American Speech-Language-Hearing Association June 1, 1991. The Master of Science degree in communication sciences and disorders approved by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA) as of March 2012.

DIAGNOSTIC MEDICAL SONOGRAPHY: Started in 1976 as diagnostic medical sonography. Approved by the Joint Review Committee on Education in Diagnostic Medical Sonography October 24, 1985.

HEALTH INFORMATION ADMINISTRATION: Started as medical records administration in 1963. Currently approved by the Commission on Accreditation for Health Informatics and Information Management Education.

MEDICAL RADIOGRAPHY: Started in 1941 as radiological technology. Approved by the Council on Medical Education of the American Medical Association November 19, 1944. Currently approved by the Joint Review Committee on Education in Radiologic Technology and the California State Department of Public Health as of 2015.

NUCLEAR MEDICINE TECHNOLOGY: Started in 1970. Approved by the Council on Medical Education of the American Medical Association June 23, 1973. Currently approved by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology as of 2016.

NUTRITION AND DIETETICS: Started in 1922 as a certificate program; baccalaureate degree conferred 1932–54; M.S. degree in nutrition and dietetics started in 2008; graduate program offered since 1954. Internship program continuously approved by The American Dietetic Association from 1957 through 1974; reestablishment of baccalaureate degree program authorized October 1971. Since 1974, the Coordinated Program in Dietetics has been granted accreditation by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association. The coordinated program in dietetics is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (formerly CADE of the American Dietetic Association).

OCCUPATIONAL THERAPY: Started in 1959. Initial approval by the Council on Medical Education of the American Medical Association June 10, 1960. Full approval March 30, 1962. Currently approved by the Accreditation Council for Occupational Therapy Education.

PHLEBOTOMY: Started in 1994. Accredited/approved April 1997 by the California Department of Public Health (CDPH), Laboratory Field Services (LFS).

PHYSICAL THERAPIST ASSISTANT: Started in 1989. Currently accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Most recent site visit was 2011.

PHYSICAL THERAPY: Started in 1941. Initially approved by the Council on Medical Education of the American Medical Association June 6, 1942. Currently accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Most recent site visit was 2012.

PHYSICIAN ASSISTANT SCIENCES: Started in 2000. Provisional accreditation granted October 20, 2000, by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Effective January 1, 2001, CAAHEP was succeeded by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA). Accredited December 2011 by ARC-PA.

RADIATION THERAPY: Approved by the Council on Medical Education of the American Medical Association December 1, 1974. Currently approved by the Joint Review Committee on Education in Radiologic Technology.

RESPIRATORY CARE: Started in 1971. Initially approved by the Council on Medical Education of the American Medical Association September 1972; full approval June 1973. Currently approved by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the Committee on Accreditation for Respiratory Care (CoARC) (formerly known as Joint Review Committee for Respiratory Therapy Education [JRCRTE]) as of 2010.

Programs offered through the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

### School of Behavioral Health

School of Behavioral Health programs are accredited through University accreditation and/or through their professional accrediting bodies. Programs offered through the School of Behavioral Health, in conjunction with the Faculty of Graduate Studies, are accredited through University accreditation.

#### Department of Counseling and Family Sciences

MARITAL AND FAMILY THERAPY (M.S.): Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE). The next accreditation renewal occurs in 2025.

MARITAL AND FAMILY THERAPY (D.M.F.T.): Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE). The next accreditation renewal occurs in 2025.

MARITAL AND FAMILY THERAPY (Ph.D.): Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE). The next accreditation renewal occurs in 2025.

PUPIL PERSONNEL SERVICES CREDENTIAL: Assigned the status of "accreditation" through Linda University on June 18, 2008, by the Committee on Accreditation on behalf of the Commission on Teacher Credentialing (State of California). The next Commission visit occurs during the 2023-24 academic year.

**Department of Psychology**

CLINICAL PSYCHOLOGY (Ph.D.): Accredited by the Commission on Accreditation of the American Psychological Association. The next accreditation renewal occurs in 2029.

CLINICAL PSYCHOLOGY (Psy.D): Accredited by the Commission on Accreditation of the American Psychological Association. The next accreditation renewal occurs in 2029.

**Department of Social Work and Social Ecology**

MASTER OF SOCIAL WORK (M.S.W.): Accredited by the Council on Social Work Education to provide master's degree-level education, with the next affirmation to be completed in 2025.

## School of Dentistry

DENTAL HYGIENE: Bachelor of Science degree started in 1959. Approved by the Commission on Dental Accreditation of the American Dental Association since September 7, 1961. Associate in Science degree started in 2011. Approved by the Commission on Dental Accreditation of the American Dental Association since May 2011.

DOCTOR OF DENTAL SURGERY: Started in 1953. Approved by the Commission on Dental Accreditation of the American Dental Association since May 23, 1957.

ENDODONTICS: Started in 1967. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1969.

ORAL AND MAXILLOFACIAL SURGERY: Started in 1964. Approved by the Commission on Dental Accreditation of the American Dental Association since 1967.

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS: Started in 1960. Approved by the Commission on Dental Accreditation of the American Dental Association since May 1965.

PEDIATRIC DENTISTRY: Started in 1993. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1993.

PERIODONTICS: Started in 1961. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1967.

PROSTHODONTICS: Started in 1993. Approved by the Commission on Dental Accreditation of the American Dental Association since February 1995.

Programs offered through the School of Dentistry in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

## School of Medicine

The School of Medicine was started in 1909 and has been approved by the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association since November 16, 1922. Accreditation for the medical education program leading to the M.D. degree is by The Liaison Committee on Medical Education (LCME (http://lcme.org/)). The LCME is jointly sponsored by the Association of American Medical Colleges (AAMC (https://www.aamc.org/)) and the American Medical Association (AMA (http://www.ama-assn.org/ama/)). LCME is recognized by the U.S. Department of Education (http://www.ed.gov/) and World Federation of Medical Education as the reliable authority for the accreditation of medical education programs leading to the M.D. degree. LCME accreditation is a voluntary, peer-reviewed process of quality assurance that determines whether the medical education program meets established standards. This process also fosters institutional and programmatic improvement.

Programs offered through the School of Medicine in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

## School of Nursing

The hospital School of Nursing program began in Loma Linda in 1905 and added the White Memorial Hospital in Los Angeles as an affiliate in 1924. Its college program was accredited by the National Nursing Accrediting Service December 10, 1951, with approval continuing under the National League for Nursing until 2001. The school has been accredited by the Commission on Collegiate Nursing Education (CCNE) since 1999. Initial approval by the California State Board of Health in 1917 was extended until the college program was approved July 1, 1952, by the California Board of Registered Nursing. The master's degree program started in 1957, the Ph.D. degree program in 2002, and the Doctor of Nursing Practice (D.N.P.) degree program in 2010.

## School of Pharmacy

Started in 2002, the Doctor of Pharmacy degree program was first approved by the Accreditation Council for Pharmacy Education (ACPE) on June 23, 2007, and is accredited till 2029.

ACPE is the sole accreditation agency recognized by the U.S. Department of Education to accredit professional degree programs in pharmacy and is located at 135 South LaSalle Street, Suite 4100, Chicago, IL 60603-4810; telephone: 312/664-3575; FAX: 312/664-4652; website: <https://www.acpe-accredit.org (https://www.acpe-accredit.org)> .

## School of Public Health

Started in 1948; reorganized in 1964. Approved by the American Public Health Association June 23, 1967. Currently accredited by the Council on Education for Public Health.

## School of Religion

Started in 1961 as the Division of Religion; organized as School of Religion (1987-1990), Faculty of Religion (1990-2006), School of Religion 2007. Programs accredited through University accreditation.

# Accrediting and Approving Agencies

## The University

Loma Linda University is accredited by the Western Association of Schools and Colleges (WASC) Senior College and University Commission (WSCUC).

985 Atlantic Avenue, Suite 100
Alameda, CA 94501
Phone: 510/748-9001
Fax: 510/748-9797
Website: <https://www.wscuc.org/>
Email: <https://www.wscuc.org/contact (https://www.wscuc.org/contact/)>

WSCUC is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Commission on Recognition of Post-secondary Accreditation.

All entry-level degrees are accredited by their respective professional accrediting associations.

In addition to WSCUC, the following agencies accredit specific University schools or programs:

## School of Allied Health Professions

### Cardiopulmonary Sciences

**Respiratory Care**
Commission on Accreditation for Respiratory Care (CoARC)
264 Precision Blvd.
Telford, TN 37690
Telephone: 817/283-2835
Fax to plain paper: 817/354-8519
Fax to e-mail: 817/354-1063
Website: <http://www.coarc.com>

### Clinical Laboratory Sciences

**Phlebotomy Certificate**
California Department of Public Health (CDPH)
Laboratory Field Services (LFS)
Northern California Office
850 Marina Bay Parkway
Building P, 1st Floor
Richmond, CA 94804-6403
Telephone: 510/620-3800
Website: <http://www.cdph.ca.gov>

**Clinical Laboratory Science (formerly medical technology)**
National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
5600 North River Road, Suite 720
Rosemont, IL 60018
Telephone: 773/714-8880
Fax: 773/714-8886
Website: <http://www.naacls.org>
Email: <info@naacls.org>

California Department of Public Health (CDPH)
Laboratory Field Services (LFS)
850 Marina Bay Parkway
Building P, 1st Floor
Richmond, CA 94804-6403
Telephone: 510/620-3800

### Communication Sciences and Disorders

Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA)
of the American Speech-Language-Hearing Association (ASHA)
2200 Research Boulevard
Rockville, MD 20850-3289
Telephone: 301/296-5700
Fax: 301/571-0457
Website: <http://www.asha.org>
Email: <accreditation@asha.org>

### Health Informatics, Information Management, and Administration

**Health Information Administration**
Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
200 East Randolph Street, Suite 5100
Chicago, IL 60601
Telephone: 312/235-3255
Website: http://www.cahiim.org
Email: info@cahiim.org

Commission on Accreditation of Allied Health Education Programs (CAAHEP)
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
Telephone: 727/210-2350
Fax: 727/210-2354
Website: <http://www.caahep.org>
Email: <caahep@caahep.org>

### Nutrition and Dietetics

**Nutrition and Dietetics Program—B.S.**
**Nutrition and Dietetics Program—M.S.**
Accreditation Council for Education in Nutrition and Dietetics (ACEND)
of the Academy of Nutrition and Dietetics
120 South Riverside Plaza, Suite 2190
Chicago, IL 60606-6995
Telephone: 800/877-1600, ext. 5400
Fax: 312/899-4817
Website: <https://www.eatrightpro.org/acend (https://www.eatrightpro.org/acend/)>
Email: <ACEND@eatright.org>

### Occupational Therapy

The Accreditation Council for Occupational Therapy Education (ACOTE)
ACOTE c/o Accreditation Department
American Occupational Therapy Association (AOTA)
6116 Executive Boulevard, Suite 200
North Bethesda, MD 20852-4929
Telephone: 301/652-2682 or toll free 800/377-8555
Fax: 301/652-7711
Website: <https://acoteonline.org/>
Email: <accred@aota.org>

### Orthotics and Prosthetics

National Commission on Orthotic and Prosthetic Education (NCOPE), in collaboration with the

Commission on Accreditation of Allied Health Education Programs (CAAHEP)
330 John Carlyle Street., Suite 200
Alexandria, VA 22314
Telephone: 703/836-7114
Fax: 703/836-0838
Website: <http://www.ncope.org/>
Email: <info@ncope.org>

### Physical Therapy

Commission on Accreditation in Physical Therapy Education (CAPTE)
3030 Potomac Avenue
Alexandria, VA 22305-3085
Telephone: 800/999-2782
Fax: 703/838-8910
Website: <www.capteonline.org (http://www.capteonline.org/home.aspx)>
Email: accreditation@apta.org

### Physician Assistant Sciences

Accreditation Review Commission on Education for the Physician Assistant (ARC-PA)
12000 Findley Road, Suite 275
Johns Creek, GA 30097
Telephone: 770/476-1224
Fax: 770/476-1738
Website: <http://www.arc-pa.org>
Email: <accreditationservices@arc-pa.org>

### Radiation Technology

#### Cardiac Electrophysiology Technology

Commission on Accreditation of Allied Health Education Programs (CAAHEP)
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
Telephone: 727/210-2350
Fax: 727/210-2354
Website: <http://www.caahep.org/>
Email: <mail@caahep.org> (mail@caahep.org)

#### Medical Radiography—A.S.
#### Radiation Therapy Technology—B.S.

Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 North Wacker Drive, Suite 900
Chicago, IL 60606-2901
Telephone: 312/704-5300
Fax: 312/704-5304
Website: <http://www.jrcert.org>

#### Diagnostic Medical Sonography—B.S.

Commission on Accreditation of Allied Health Education Programs (CAAHEP)
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
Telephone: 727/210-2350
FAX: 727/210-2354
Website: <http://www.caahep.org>
Email: <mail@caahep.org>

Joint Review Committee on Education in Diagnostic Medical Sonography (JRCE-DMS)
1248 Harwood Road
Bedford, TX 76021-4244
Telephone: 817/685-6629
Fax: 817/354-8519
Website: <http://www.jrcdms.org>
Email: <sharonworthing@coarc.com>

#### Nuclear Medicine Technology—B.S.

Joint Review Committee on Nuclear Medicine Technology (JRCNMT)
840 West Danforth Road, B1
Edmond, OK 73003
Telephone: 405/285-0546
Website: <www.jrcnmt.org (https://www.jrcnmt.org/)>
Email: <https://www.jrcnmt.org/contact/>

California Department of Public Health Radiologic Health Branch (RHB)
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414
Telephone: 916/327-5106
Fax: 916/440-7999
Website: <http://www.cdph.ca.gov/programs/Pages/RadiologicHealthBranch.aspx>
Email: <RKubiak@dhs.ca.gov>

## School of Behavioral Health

### Marital and Family Therapy

Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE)
of the American Association for Marriage and Family Therapy (AAMFT)
112 South Alfred Street
Alexandria, VA 22314-3061
Telephone: 703/838-9808
Fax: 703/838-9805
Website: <http://www.aamft.org>
Email: <coamfte@aamft.org>

### Pupil Personnel Services Credential

California Commission on Teacher Credentialing (CTC)
California State Department of Education

### Psychology

Commission on Accreditation (CoA)
of the American Psychological Association (APA)
750 First Street NE
Washington, DC 20002-4242
Telephone: 202/336-5979
Fax: 202/336-5978
Website: <https://www.accreditation.apa.org/>
Email: <education@apa.org>

### Social Work

Commission on Accreditation (COA)
of the Council on Social Work Education (CSWE)
Division of Standards and Accreditation
1600 Duke Street, Suite 500
Alexandria, VA 22314-3457
Telephone: 703/683-8080
Fax: 703/683-8099
Website: <http://www.cswe.org>
Email: <info@cswe.org>

# School of Dentistry

Commission on Dental Accreditation (CODA)
of the American Dental Association (ADA)
211 East Chicago Avenue
Chicago, IL 60611-2678
Telephone: 312/440-250
Fax: 312/440-2915
Website: <http://www.ada.org>
Email: <accreditation@ada.org>

# School of Medicine

### Medicine—M.D.

Liaison Committee on Medical Education (LCME)
sponsored by the Association of American Medical Colleges (AAMC) and the
Council on Medical Education of the American Medical Association (AMA)
655 K Street NW, Suite 100
Washington, DC 20001-2399
Telephone: 202/828-0596
Websites: <http://www.lcme.org>; <http://www.aamc.org>
Email: <lcme@aamc.org>

### Pathologists' Assistant—M.H.S.

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
5600 North River Road, Suite 720
Rosemont, IL 60018-5119
Telephone: 847/939-3597
773/714-8880
Website: <http://www.naacls.org (https://www.naacls.org/)>

# School of Nursing

Commission on Collegiate Nursing Education (CCNE)
of the American Association of Colleges of Nursing (AACN)
655 K Street, NW, Suite 750
Washington, DC 20001
Telephone: 202/463-6930
Fax: 202/785-8320
Website: <http://www.aacn.nche.edu/accreditation (http://www.aacn.nche.edu/accreditation/)>

Council on Accreditation of Nurse Anesthesia Educational Programs (COA)
222 South Prospect Avenue, Suite 304
Park Ridge, IL 60068-4001
Telephone: 847/692-7050
Fax: 847/692-6968
Website: <http://www.aana.com>
Email: <info@aana.com>

California Board of Registered Nursing (BRN)
1747 North Market Boulevard, Suite 150
Sacramento, CA 95834
Telephone: 916/322-3350; 855/526-2262 (toll-free)
Website: <http://rn.ca.gov>
Email: <NEC.BRN@dca.ca.gov (nec.brn@dca.ca.gov)>

# School of Pharmacy

Accreditation Council for Pharmacy Education (ACPE)
190 South LaSalle Street, Suite 2850
Chicago, IL 60603-3499
Telephone: 312/664-3575
Fax: 866/228-2631
Website: <https://www.acpe-accredit.org/>
Email: <csinfo@acpe-accredit.org (http://llucatalog.llu.edu/general-information/accrediting-approving-agencies/csinfo@acpe-accredit.org)>

# School of Public Health

Council on Education for Public Health (CEPH)
1010 Wayne Avenue, Suite 220
Silver Spring, MD 20910
Telephone: 202/789-1050
Fax: 202/789-1895
Website: <http://www.ceph.org>
Email: <jconklin@ceph.org>

## Nutrition

Accreditation Council for Education in Nutrition and Dietetics (ACEND)
of the American Dietetic Association
120 South Riverside Plaza, Suite 2000
Chicago, IL 60606-6995
Telephone: 312/899-0040, ext. 5400 or 800/877-1600, ext. 5400
Fax: 312/899-4817
Website: <http://www.eatright.org/cade (http://www.eatright.org/cade/)>
Email: <education@eatright.org>

# Alumni Associations

## School of Dentistry

Graduates of the School of Dentistry organized the Alumni Association in 1957. Membership is extended to those who have earned degrees at this school. Student membership is extended to students of the school.

Primary purposes of the association are to promote the interests of the school, to secure unity among alumni, to foster alumni attachment to the alma mater, to enlist members as continuing participants in the association and as active participants in Christian activities and interests, to aid members in attaining to the highest ethical and scientific standards in the practice of their profession, and to aid in general charitable and educational purposes. Major interests of the association include:

1. Hosting the Alumni-Student Convention, including continuing education programs, class reunions, and spiritual events.
2. Advancing the Century Club. Members include alumni and others of the dental profession who contribute a qualifying amount annually to promote and support interests of the alumni and the school.
3. Preparing and distributing alumni and school news to faculty and staff members, students, donors, and alumni via the biannual *LLUSD Articulator* and continuous electronic media—such as, digital signage, social media, the Internet, and email communications.
4. Maintaining the online employment opportunities site where dentists and brokers can list practices for sale, associateships, and per diem positions. Students are regularly reminded to browse employment opportunities.

The School of Dentistry Alumni Association has made an ongoing commitment to students at the school by supporting a student loan fund and a scholarship endowment fund, both of which are administered by the University.

## School of Medicine

Graduates of the School of Medicine organized an Alumni Association in 1915 when only two classes totaling 18 members had graduated. The organization has functioned continuously since that time. Membership is extended to alumni who have graduated with the Doctor of Medicine degree from Loma Linda University as well as to graduates of the American Medical Missionary College, operated by the Seventh-day Adventist Church in Battle Creek, Michigan, from 1895 to 1910. Associate membership is extended to students of the School of Medicine, and affiliate membership is extended to faculty members who have earned degrees from other institutions. During the 1986–1987 school year, membership was extended to the basic science faculty.

### Statement of mission and purpose

The Alumni Association provides opportunities for fellowship, scientific exchange, and continuing education among alumni and affiliates. The organization exists to serve the alumni, future alumni (the students), alumni missionaries, and the School of Medicine of Loma Linda University, while promoting excellence in worldwide health care.

CONNECT—For almost 100 years, the Alumni Association has been providing opportunities for members to connect with one another. Events such as the Annual Postgraduate Convention (APC), class reunions, and alumni trips help alumni strengthen bonds with each other. The organization is always looking to improve and will continue to find meaningful ways to connect alumni.

CREATE—The Alumni Association aims to create a community where people work together for the greater good of humanity. Creativity thrives when alumni of similar goals, beliefs, and values combine their talents. Recently, this included creating several funds to support alumni missionaries' needs, the Emergency Student Fund for medical students facing unforeseen expenses, and the Paying It Forward scholarship—where alumni partner with the Alumni Association and the School of Medicine to provide 50 percent tuition scholarships for junior and senior students.

CARE—The Alumni Association is proud of the kind and caring hearts of Loma Linda University medical alumni. Their generosity extends beyond the hospital and clinic, and the organization wishes to thank each of its alumni for all they do to make the world a better place. The Alumni Association invites alumni to consider partnering with them to care for fellow alumni, students, and missionaries in both big and small ways so that their kindness may inspire others.

## School of Nursing

The Loma Linda University School of Nursing Alumni Association (LLUSNAA) works through the School of Nursing. A board of officers and directors carries out the goals and ongoing activities of the association. New members are welcomed into the association at graduation. Associate membership may be extended to graduates of other accredited schools who are members of the profession in good standing, and who share the interests, ideals, and purposes of the Alumni Association.

### Purpose

The purpose of LLUSNAA is to foster alumni unity, mobilize their support, and assist in an organized fashion to encourage continued interest in and commitment to the programs of the School of Nursing. The association promotes the missions of the Seventh-day Adventist Church, the School of Nursing, and the University. The goals of the association are to:

1. Promote communication among alumni of the School of Nursing.
2. Foster the advancement of education and science within the programs of the School of Nursing.
3. Support alumni nurses in mission programs at home and abroad.

# To Communicate with LLU

## Mail

Loma Linda University
11060 Anderson Street
Loma Linda, CA 92350

## Worldwide Web

<llu.edu (http://llu.edu)>

## Phone

Switchboard: 909/558-1000
Area code: 909

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4540 | 44540 | President | 558-0242 | 80242 |
| 558-4787 | 44787 | Diversity | 558-0140 | 80140 |
| 558-4510 | 44510 | Student Affairs; student welfare, housing, visas | 558-7949 | 87949 |
| 558-4955 | 44955 | International Student Services | 558-4879 | 44879 |
| 558-4520 | 44520 | Student Finance | 558-7904 | 87904 |
| 558-4509 | 44509 | Student Financial Aid | 558-4283 | 44283 |
| 558-4508 | 44508 | University Records | 558-0340 | 80340 |
| 558-8770 | 88770 | Student Health Service | 558-0433 | 80433 |
| 558-6028 | 66028 | Student Counseling | 558-6090 | 66090 |
| 558-8348 | 88348 | Campus Chaplain/Campus Ministries | 558-0347 | 80347 |
| 558-4570 | 44570 | University Church | 558-4186 | 44186 |
| 809-1049 | 44270 | Campus Hill Church | 796-1992 | |
| 558-9200 | 39200 | LLU Behavioral Medicine Center | 558-9243 | 39243 |
| 558-6050 | 66050 | Student Assistance Program Spiritual Counseling | 558-6051 | 66051 |

## The schools

### Faculty of Graduate Studies

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-1000, x42021 | 42021 | Magan Hall 108 | No fax | |

### Allied Health Professions

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4599 | 44599 | Admissions | 558-4291 | 44291 |
| 558-4545 | 44545 | Dean's Office | 558-7990 | 87990 |
| 558-4545 | 44545 | Allied Health Studies | 558-7990 | 87990 |
| 558-4932 | 44932 | Cardiopulmonary Sciences | 558-4701 | 44701 |
| 558-4966 | 44966 | Clinical Laboratory Science | 558-0458 | 80458 |
| 558-4998 | 44998 | Communication Sciences and Disorders | 558-4305 | 44305 |
| 558-4976 | 44976 | Health Informatics, Information Management, and Administration | 558-0404 | 80404 |
| 558-4593 | 44593 | Nutrition and Dietetics | 558-0837 | 80837 |
| 558-4628 | 44628 | Occupational Therapy | 558-0239 | 80239 |
| 651-5797 | 15797 | Orthotics and Prosthetics | 558-0459 | 80459 |
| 558-4632 | 44632 | Physical Therapy | 558-0459 | 80459 |
| 558-4634 | 44634 | Physical Therapist Assistant | 558-0466 | 80466 |
| 558-7295 | 87295 | Physician Assistant Sciences | 558-0495 | 80495 |
| 558-4931 | 44931 | Radiation Technology | 558-7965 | 87965 |

## Behavioral Health

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-8722 | 88722 | Admissions | | |
| 558-1900 | 81900 | Records | | |
| 558-4528 | 44528 | Dean | | |

## Dentistry

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4222 | 44222 | New Patient Screening | 558-0730 | 80730 |
| 558-4621 | 44621 | Admissions | 558-0195 | 80195 |
| 558-4683 | 44683 | Dean | 558-0483 | 80483 |
| 558-8624 | 88624 | Advanced Dental Education Programs | 558-0632 | 80632 |
| 558-4621 | 44621 | Dental Program | 558-0195 | 80195 |
| 558-4621 | 44621 | Dental Hygiene Program | 558-0195 | 80195 |
| 558-4621 | 44621 | International Dentist Program | 558-0195 | 80195 |
| 558-4790 | 44790 | SD Student Affairs | 558-0150 | 80150 |
| 558-4600 | 44600 | SD Academic Affairs | 558-0730 | 80730 |

## Medicine

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4462 | 44462 | Medicine | 558-4116 | 44146 |
| 558-4467 | 44467 | Admissions | 558-0359 | 80359 |
| 558-4481 | 44481 | Dean | 558-4146 | 44146 |

## Nursing

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4923 | 44923 | Admissions | 558-0175 | 80175 |
| 558-4517 | 44517 | Dean | 558-0225 | 80225 |
| 558-1000 | 41017 | Finance | 558-0643 | 80643 |
| 558-8061 | 88061 | Graduate | 558-0719 | 80719 |
| 558-1000 | 88060 | Undergraduate | 558-4134 | 84134 |

## Pharmacy

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-1300 | 41300 | Pharmacy | 558-4859 | 44589 |
| 558-1300 | 41300 | Admissions | 558-4859 | 44859 |
| 558-4745 | 44745 | Dean | 558-7973 | 87973 |

## Public Health

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-4546 | 44546 | Public Health | 558-4087 | 44087 |
| 558-4598 | 44598 | Academic Affairs | 558-0471 | 80471 |
| 558-4741 | 44741 | Academic Programs Office | 558-0471 | 80471 |
| 558-1000 ext 82881 | 82881 | Academic Records | 558-4087 | 44087 attn. Records |
| 558-8776 | 88776 | Admissions | 558-4087 | 44087 attn. Admissions |
| 558-4578 | 44578 | Dean | 558-4087 | 44087 attn. Dean |
| 558-7271 | 87271 | Executive Associate Dean | 558-0867 | 80867 |
| 558-8322 | 88322 | Career Center | | |
| 558-4573 | 44573 | Center for Health Strategy and Innovation | 558-0469 | 80469 |
| 558-8750 | 88750 | Center for Nutrition, Healthy Lifestyle, and Disease Prevention | 558-0493 | 40493 |
| 558-4598 | 44598 | Center for Teaching and Learning | 558-0471 | 80471 |

| | | | | |
|---|---|---|---|---|
| 558-7450 | 87450 | Communications | 558-4087 | 44087 attn. Communications |
| 558-4866 | 44866 | Computer Center | 558-0631 | 80631 |
| 558-4664 | 44664 | Finance Office | 558-0845 | 80845 |
| 558-4988 | 44988 | Practicum Office | 651-5421 | 15421 |
| 558-4918 | 44918 | Preventive Medicine Residency, Occupational Medicine, and Addiction Medicine | 558-0451 | 80451 |

### Religion

| Phone: Off-campus | Phone: On-campus | Office | Fax: Off-campus | Fax: On-campus |
|---|---|---|---|---|
| 558-8434 | 88434 | Dean | 558-4856 | 44856 |
| 558-7478 | 87478 | Admissions and Records | 558-4856 | 44586 |
| 558-7478 | 44026 | Bioethics M.A. Program | 558-4856 | 44586 |
| 558-4956 | 15952 | Center for Christian Bioethics | 558-0336 | 80336 |
| 558-7786 | 87786 | Center for Whole Person Care | 558-7988 | 87988 |
| 558-7478 | 44566 | Chaplaincy M.S. Chap. Program | 558-4856 | 44856 |
| 558-7478 | 47008 | Religion and Society M.A. Program | 558-4856 | 44856 |

| | Website | Email |
|---|---|---|
| **Admissions** | <https://home.llu.edu/education/how-apply (https://home.llu.edu/education/how-apply/) > | admissions.gs@llu.edu |
| **International Student and Scholar Services** | <http://go.lluh.org/intlstudent (http://go.lluh.org/intlstudent/) > | |
| **Student Services** | <http://go.lluh.org/studentserv (http://go.lluh.org/studentserv/) > | |
| **University Records** | | registrar@llu.edu |

## The schools

| | Website | Email |
|---|---|---|
| **Allied Health Professions** | <http://llu.edu/allied-health (http://llu.edu/allied-health/) > | |
| Admissions | | sahpadmissions@llu.edu attn. Admissions |
| Cardiopulmonary Sciences | | sahpadmissions@llu.edu attn. CPSC |
| Clinical Laboratory Sciences | | clin.sahp@llu.edu attn. CLSC |
| Communication Sciences and Disorders | | sahpadmissions@llu.edu attn. SPPA |
| Health Information Management | | sahpadmissions@llu.edu attn. HLIN |
| Nutrition and Dietetics | | nutrition@llu.edu attn. DTCS |
| Occupational Therapy | | sahpadmissions@llu.edu attn. OCTH |
| Physical Therapy | | sahpadmissions@llu.edu u attn. PHTH |
| Physical Therapy Assistant | | sahpadmissions@llu.edu attn. PTA |
| Physician Assistant Sciences | | sahpadmissions@llu.edu attn. PAST |
| Radiation Technology | | sahpadmissions@llu.edu attn. RTCH |
| **Behavioral Health** | <http://llu.edu/behavioral-health (http://llu.edu/behavioral-health/) > | admissions.sbh@llu.edu records.sbh@llu.edu |
| **Dentistry** | | |
| Academic Affairs | | sdacademicaffairs@llu.edu |
| Admissions | <http://llu.edu/dentistry (http://llu.edu/dentistry/) > | admissions.sd@llu.edu |
| Graduate Programs | <http://llu.edu/dentistry/gradprograms (http://llu.edu/dentistry/gradprograms/) > | advanceddentaledu@llu.edu |
| Anesthesiology | <http://llu.edu/dentistry/anesthesia/graduateprogram.page > | advanceddentaledu@llu.edu |
| Endodontics | <http://llu.edu/dentistry/endo/graduateprogram.page > | advanceddentaledu@llu.edu |

| | | |
|---|---|---|
| Implant Dentistry | <http://llu.edu/dentistry/implant/graduateprogram.page > | advanceddentaledu@llu.edu |
| Oral and Maxillofacial Dentistry | <http://www.llu.edu/dentistry/oms/graduateprogram.page > | advanceddentaledu@llu.edu |
| Orthodontics | <http://www.llu.edu/dentistry/ortho/graduateprogram.page > | advanceddentaledu@llu.edu |
| Pediatric Dentistry | <http://www.llu.edu/dentistry/pediatrics/graduateprogram.page > | advanceddentaledu@llu.edu |
| Periodontics | <http://www.llu.edu/dentistry/perio/graduateprogram.page > | advanceddentaledu@llu.edu |
| Prosthodontics | <http://www.llu.edu/dentistry/prostho/graduateprogram.page > | advanceddentaledu@llu.edu |
| **Medicine** | <http://www.llu.edu/medicine (http://www.llu.edu/medicine/) > | ledwards@llu.edu |
| **Nursing** | <http://www.llu.edu/nursing (http://www.llu.edu/nursing/) > | nursing@llu.edu |
| **Pharmacy** | <http://www.llu.edu/pharmacy (http://www.llu.edu/pharmacy/) > | |
| Admissions | | admissions.sp@llu.edu |
| **Public Health** | <http://www.llu.edu/public-health (http://www.llu.edu/public-health/) > | |
| Admissions and Academic Records | <http://www.llu.edu/public-health (http://www.llu.edu/public-health/) > | admissions.sph@llu.edu |
| Academic Affairs | | sphacademicaffairs@llu.edu |
| Academic Programs Office | | sph_academicprograms@llu.edu |
| Career Center | | sphcareercenter@llu.edu |
| Communications | | sphcommunications@llu.edu |
| Computer Center | | llusphcc@llu.edu |
| Dean | | sphdean@llu.edu |
| Distance Learning | | distancelearning@llu.edu |
| Executive Associate Dean | | spheadoffice@llu.edu |
| Finance Office | | sphfinance@llu.edu |
| Practicum Office | | llusphpio@llu.edu |
| Public Health Practice | <http://www.llu.edu/publichealth/academic-centers/practice.page > | sphpracticeadmin@llu.edu |
| Recruitment and Marketing | <http://www.llu.edu/public-health (http://www.llu.edu/public-health/) > | sphinfo@llu.edu |
| Writing Center | | sphwritingcenter@llu.edu |
| **Religion** | <http://www.llu.edu/religion/index.page (http://www.llu.edu/religion/) > | |
| Center for Christian Bioethics | <http://www.llu.edu/central/bioethics/index.page (http://www.llu.edu/central/bioethics/) > | bioethics@llu.edu |
| Center for Whole Person Care | <http://www.llu.edu/wholeness (http://www.llu.edu/wholeness/) > | |
| Program Director for M.A. in Bioethics | <http://www.llu.edu/religion/ethics.page > | jwalters@llu.edu |
| Program Director for M.S.Chap. in Chaplaincy | | cgober@llu.edu |
| Program Director for M.A. in Religion and Society | | dlarson@llu.edu |

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