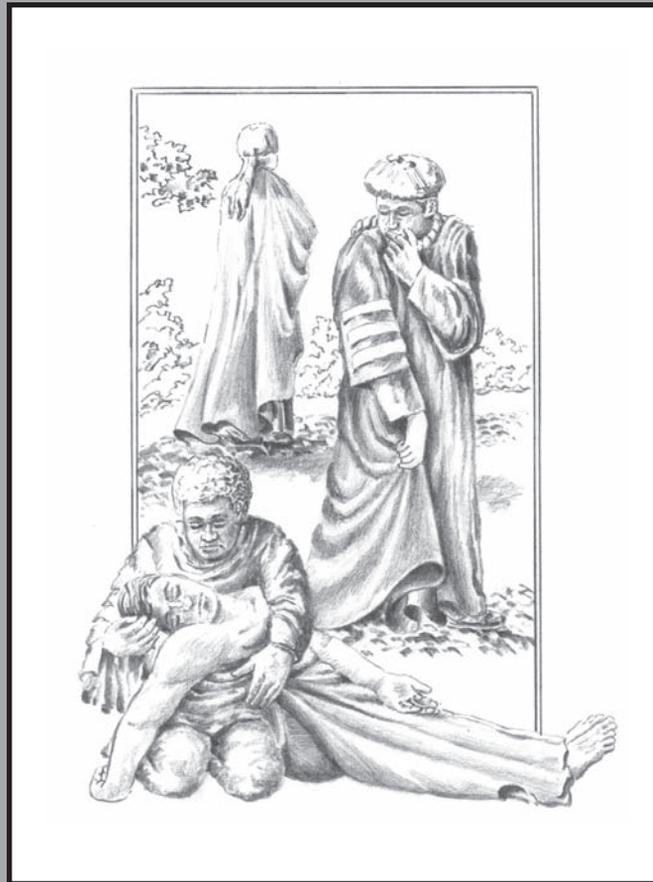


LOMA LINDA UNIVERSITY



GRADUATE SCHOOL

1998 ♡ 2000

**Loma Linda University
Graduate School
Bulletin 1998-2000**

Loma Linda, California

**Cover: The Good Samaritan sculpture, located on the campus mall,
is a graphic representation of the parable told by Jesus in Luke 10:25-37.**

The information in this BULLETIN is made as accurate as is possible at the time of publication. Students are responsible for informing themselves of and satisfactorily meeting all requirements pertinent to their relationship with the University. The University reserves the right to make such changes as circumstances demand with reference to admission, registration, tuition and fees, attendance, curriculum requirements, conduct, academic standing, candidacy, and graduation.

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1998-2000

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Loma Linda University

Loma Linda, California 92350

a health-sciences university

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6 GRADUATE SCHOOL



I

LOMA LINDA UNIVERSITY

University Foundations

Our Mission

Nondiscrimination Policy

Affirmative Action

The Calendar

University Foundations

HISTORY

Loma Linda University has grown out of the institution founded at Loma Linda, California, by the Seventh-day Adventist church in 1905. The original schools — Nursing and Medicine — have been joined by Allied Health Professions, Dentistry, Public Health, the Graduate School, and the Faculty of Religion.

The University, operated by the Seventh-day Adventist church, is committed to the vision of its founders and is sustained by its close association with the church.

Loma Linda University is a Seventh-day Adventist coeducational, health-sciences institution located in inland southern California. It is part of the Seventh-day Adventist system of higher education. Professional curricula are offered by the Schools of Allied Health Professions, Dentistry, Public Health, Medicine, and Nursing. Graduate programs in various biomedical sciences are offered by departments of the schools. The professional curricula of the University are approved by their respective professional organizations.

The most current campus census figures (1997-98 school year) indicate that the core of the combined faculties consists of 943 full-time teachers. Part-time and voluntary teachers, largely clinicians in the professional curricula, bring the total to 2,149. Men and women from as many as 85 nations are represented in the annual enrollment of nearly 3,500.

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 both to 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.

Our Mission

Loma Linda University, a Seventh-day Adventist Christian health-sciences institution, seeks to further the healing and teaching 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, 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.

Nondiscrimination Policy

The University was established by the Seventh-day Adventist church as an integral part of its teaching ministry. It is committed to equal education and employment opportunities for men and women of all races and does not discriminate on the basis of handicap, sex, race, color, or national origin in its educational and 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 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; and 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 USC Secs. 2000e-1, 2000e-2; Sec. 6-15 of Federal Executive Order 11246; 41 CFR Sec. 60-1.5(5); 20 USC 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 I, 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 University expects students and employees to uphold biblical principles of morality and deportment as interpreted by the Seventh-day Adventist church. The University claims exemptions from the provisions of Title IX set forth in 34 CFR Secs. 106.12 (a)(b), 106.21, 106.31, 106.39, 106.40, 106.51, and 106.57.

Affirmative Action

The University routinely monitors its educational and employment practices regarding women, minorities, and the handicapped 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 sex or handicap. Inquiries concerning Title IX may be directed to the affirmative action officer. 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.



The Calendar

1998

JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1-19
8-11
14

22
22-JUL 28
22-SEP 4
22
29

Registration
Final examinations
Conferring of Degrees
SUMMER SESSIONS 1998
Last day to obtain financial clearance
First five-week session: 26 days
Eleven-week session
Instruction begins
Last day to submit Petition for Graduation (Form C)
for Autumn Quarter completion
Last day to enter a course or change from audit to credit/credit to audit (one week after course begins)

JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

3
29

29-SEP 3

Independence Day recess
Last day to submit Petition for Candidacy (Form A)
for Winter Quarter completion
Second five-week session
Last day to withdraw with a W grade
(one week before end of course)
Last day to submit S/U petition
(one week before end of course)

AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

10
28

Certain basic medical science classes commence
Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Summer Quarter completion

SEPTEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

3-4
4
7

8-25
8

8-25
22
24
28

Instruction ends
Registration for post-Summer Quarter session
Labor Day recess
POST-SUMMER QUARTER SESSION
14-day session
Instruction begins
AUTUMN QUARTER 1998
Registration
LLU Faculty convocation
FR Faculty colloquium
Instruction begins

The Calendar

1998

OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1	Campus / Chamber of Commerce Connection
5- 9	Autumn Quarter Week of Devotion
5	Last day to submit Petition for Graduation (Form C) for Autumn and Winter Quarter completion
6	Last day to enter a course or change from audit to credit/credit to audit
13	Last day to withdraw with no transcript record

NOVEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

9	Last day to submit petition for candidacy (Form A) for Spring Quarter completion
25-29	Thanksgiving recess
30	Instruction resumes
30	Last day to withdraw with a W grade or to submit S/U Petition
30-DEC 24	Registration for Winter Quarter

DECEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

11	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Autumn Quarter completion
14-18	Final examinations
18	Autumn Quarter ends
18-JAN 3	Christmas recess
22	Grades due from faculty

The Calendar

1999

JANUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

WINTER QUARTER 1999

4	Last day to obtain financial clearance
4	Instruction begins
9-16	Mission emphasis week
11	Last day to submit Petition for Graduation (Form C) for Spring Quarter completion
12	Last day to enter a course or change from audit to credit/credit to audit
18	Martin Luther King, Jr., Day recess
19	Last day to withdraw with no transcript record
19-22	Student week of spiritual emphasis

FEBRUARY

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

1- 5	African-American History week
9	Last day to submit Petition for Candidacy (Form A) for Summer Quarter completion
15	Presidents' Day recess

MARCH

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1	Last day to withdraw with a W grade or to submit S/U Petition
1-26	Registration for Spring Quarter
12	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certificate of Completion of Requirements for Degree (Form D) to the Graduate School for Winter Quarter completion
15-19	Final examinations
19-28	Spring recess
	SPRING QUARTER 1999
29	Instruction begins

APRIL

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

5- 9	Spring Week of Devotion
5	Last day to submit Petition for Graduation (Form C) for Summer Quarter completion
6	Last day to enter a course or change from audit to credit/credit to audit
13	Last day to withdraw with no transcript record
25-MAY 2	Fine Arts Festival

The Calendar

1999

MAY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

4	Last day to submit Petition for Candidacy (Form A) for Autumn completion
24	Last day to withdraw with a W grade or to submit S/U Petition
31	Memorial Day recess

JUNE

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

1-18	Registration for summer sessions
4	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Spring Quarter completion
7-11	Final examinations
11	Focus on Graduates Vesper Service
11	Spring Quarter ends
12	Baccalaureate Service
13	Conferring of Degrees
15	Grades due from faculty
	SUMMER SESSIONS 1999
21	Instruction begins
28	Last day to submit Petition for Graduation (Form C) for Autumn Quarter completion
	Last day to enter a course or change from audit to credit/credit to audit (one week after course begins)

JULY

S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

5	Independence Day recess
28	Last day to submit Petition for Candidacy (Form A) for Winter Quarter completion

AUGUST

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

9	Certain basic medical science classes commence
27	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Summer Quarter completion

The Calendar

1999

SEPTEMBER

S	M	T	W	T	F	S
			1	2	3	4
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

POST-SUMMER QUARTER SESSION	
2- 3	Registration for post-summer session
6	Labor Day recess
7	Instruction begins for post-summer session
7-24	Registration for Autumn Quarter
AUTUMN QUARTER 1999	
27	Instruction begins

OCTOBER

S	M	T	W	T	F	S
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31						

4- 8	Week of Devotion
4	Last day to submit Petition for Graduation (Form C) for Fall and Winter Quarter completion
5	Last day to enter a course
12	Last day to withdraw with no transcript record

NOVEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

8	Last day to submit Petition for Candidacy (Form A) for Spring Quarter completion
24-28	Thanksgiving recess
29	Instruction resumes
29	Last day to withdraw with a W grade or to submit S/U petition
29-DEC 24	Registration for Winter Quarter

DECEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

10	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Autumn Quarter completion
13-17	Final examinations
17-JAN 2	Christmas recess

2000

JANUARY

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30	31					

	WINTER QUARTER 2000
3	Instruction begins
8-15	Mission Emphasis Week
10	Last day to submit Petition for Graduation (Form C) for Spring completion
11	Last day to enter a course
17	Martin Luther King, Jr., Day recess
18	Last day to withdraw with no transcript record
18-21	Student Week of Spiritual Emphasis

FEBRUARY

S	M	T	W	T	F	S
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27	28	29				

3	Chapel for Black Emphasis Month
8	Last day to submit Petition for Candidacy (Form A) for Summer completion
14	Presidents' Day recess
28	Last day to withdraw with a W grade or to submit S/U Petition
28-MAR 24	Registration for Spring Quarter

MARCH

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

10	Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certificate of Completion of Requirements for Degree (Form D) to the Graduate School for Winter Quarter completion
13-17	Final examinations
17-26	Spring recess
	SPRING QUARTER 2000
27	Instruction begins

The Calendar

2000

APRIL

S	M	T	W	T	F	S
						1
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23	24	25	26	27	28	29
30						

- 3- 7 Week of Devotion
- 3 Last day to submit Petition for Graduation (Form C) for Summer Quarter completion
- 4 Last day to enter a course
- 11 Last day to withdraw with no transcript record

MAY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

- 2 Last day to submit Petition for Candidacy (Form A) for Autumn completion
- 22 Last day to withdraw with a W grade or to submit S/U Petition
- 29 Memorial Day recess
- 30-JUN 16 Registration for Summer Quarter

JUNE

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

- 2 Last day to submit final copy of thesis, publishable paper, or dissertation; signed approvals; and Certification of Completion of Requirements for Degree (Form D) to the Graduate School for Spring Quarter completion
- 5- 9 Final examinations
- 9 Focus on Graduates Vesper Service
- 10 Baccalaureate Services
- 11 Conferring of Degrees

See also the 1999-2000 Calendar supplement, available (before Summer Quarter 1999) from Graduate School Office of Admissions and Records.

II

THE GRADUATE SCHOOL

Letter from the Dean

Philosophy and Objectives

Admissions Information

Programs and Degrees

Student Life

Policies and General Regulations

Financial Information

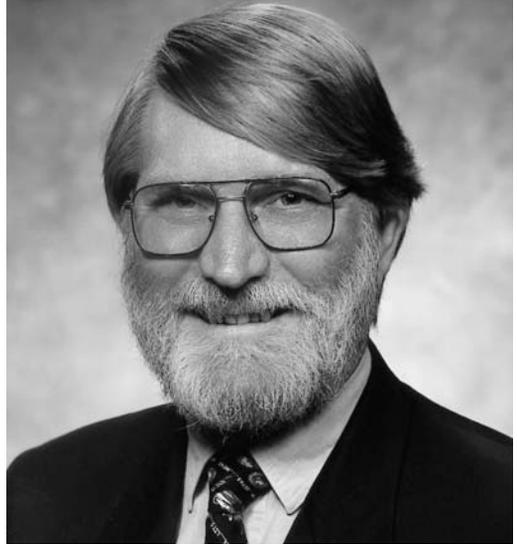
We're glad you have chosen to consider Loma Linda University Graduate School as you make plans to continue your educational goals. This bulletin describes who we are and what we have to offer. It will familiarize you with the philosophy and structure of our programs along with a listing of the participating faculty and their educational backgrounds.

The Graduate School is a diverse entity with programs whose faculty are drawn from all the schools of the University. We embrace the

University mission as articulated in this bulletin and are committed to education, research, and service within the Christian context.

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 Christian principles 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 toll free at 1-800/422-4LLU.



A handwritten signature in black ink, which appears to read 'Barton Rippon'. The signature is fluid and cursive, with a long horizontal line extending to the right.

Barton Rippon, Ph.D.

Dean

Philosophy and Objectives

PHILOSOPHY

In the Graduate School of 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 field of study. They also participate with the faculty in the process by which knowledge is augmented.

OBJECTIVES

The Graduate School attempts 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 careers in the sciences and the health professions.
2. Encouraging development of independent judgment, mastery of research techniques, and contribution to scholarly communication.
3. Relating intellectual achievement to the service of mankind.

Admissions Information

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 Graduate School 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 AND ACCEPTANCE

Where to write

Inquiries regarding application and admission should be addressed to:

Office of Admissions
Graduate School
Loma Linda University
Loma Linda, California 92350

Application procedure

1. Two copies of the graduate application should be filled out and mailed, together with the application fee, to the above address. Applications and all supporting information, transcripts, test results, and references should be submitted at least two months before the beginning of the term for which admission is sought. Some programs require applications to be completed by a much earlier date.
2. Two complete official transcripts of all academic records from all colleges, universities, and professional or technical schools should be provided. It is the applicant's responsibility to arrange to have the transcripts, including official English translations if applicable, sent directly by the registrar of each school attended to the Graduate School Office of Admissions. Transcripts that come via an intermediary are unacceptable.
3. A personal interview is often desirable and should be arranged with the coordinator of the program in which the student wishes to study.

Acceptance procedure

1. When the program which the student wishes to enter has evaluated the application and made its recommendation, the dean of the Graduate School takes official action and notifies the applicant. The formal notice of admission should be presented at registration as evidence of eligibility to enter the Graduate School.

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 by students 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 the Graduate School program.

ADMISSION REQUIREMENTS

A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to the Graduate School. 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 student 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 (3.00) or better in the overall program and in the field of the major. Some students with an overall grade point average between 2.50 and 3.00 may be admitted provisionally to graduate standing, provided the grades of the junior and senior years are superior or there is other evidence of capability.

Graduate Record Examinations

Scores on the general test of the Graduate Record Examination (GRE) are required with applications for admission to many degree programs. Applicants are advised to request information specific to their proposed program of study. Students may address inquiries about these

examinations to Office of Admissions, Graduate School, which can provide application forms and information about special administration of the examination on days other than Saturday.

Application forms for the GRE and information as to examination times and places are furnished by Educational Testing Service, 1947 Center Street, Berkeley, California 94701 (for the West); and P.O. Box 6000, Princeton, New Jersey 08541 (for the East). For GRE publications (including study materials) call 1-800/537-3160. Also visit the GRE website at: <http://www.gre.org> for more information on online registration, sample test questions, frequently asked questions, etc.

When pressure of time makes it impossible to secure the results of the GRE or its alternatives, students seeking admission who have otherwise above-average achievement may be admitted provisionally, subject to review when the required test results are received. In such cases, test results are to be submitted within the first quarter of attendance. Certain programs with limited admissions may require the GRE results prior to acceptance, while some programs require the subject test. Please check student guides from individual programs for further information.

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 analogy test, or the results of a structured interview.

Reentrance

A student who discontinues studies at the University must meet the entrance requirements effective at the time of reentrance, unless a leave of absence has been granted. Fees are required for reentrance applications, and supplementary documents may also be required.

Change of program or degree

Students who are currently enrolled in the Graduate School may request transfer to a different program, or a more advanced degree level, by completing an application form and submitting two letters of reference along with the appropriate fee. Transcripts on file with the University are acceptable.

International students

The admission of students from countries where English is not the first language is limited to those who meet all requirements for admission; submit official English translations of their transcripts; furnish suitable recommendations from responsible persons; pass the Test of English as a Foreign Language (TOEFL) or the Michigan Test of English Language Proficiency (MTELP); and give evidence of ability to meet all financial obligations to the University during the course of study.

Inquiry about the time and place of administration of the tests should be addressed to educational Testing Service at the addresses noted under the section "Graduate Record Examinations."

Scholarships and assistantships for first-year graduate students from abroad are extremely limited; consequently, applicants should assume that they will need to have financial resources sufficient for a full year's study. A deposit must be made to the International Student Affairs Office before immigration documents are furnished.

Exchange visitor

The University program for exchange visitors, through the United States Department of State, may be advantageous for international students. Persons entering the United States on an exchange visitor visa (J-1) are subject to the same regulations on study load and work as are F-1 students. In addition, they are required to have health insurance for themselves and their families. Further information may be obtained from the University Student Affairs Office.

Visa forms

Forms for both the F-1 and the J-1 visas are issued by the adviser in the International Student Affairs Office to a student after acceptance and after financial arrangements have been made with that office.

Student visa

A graduate student entering the United States on a student visa (F-1) must successfully carry a study load of at least 8 units during each quarter of the academic year. The applicant must be prepared to provide such advance deposit as is required by Student Finance and must give assurance that additional funds will be forthcoming to meet school expenses. Fellowships and assistantships for international students are limited, and employment is limited by regulations of the Immigration and Naturalization Service to no more than twenty hours per week.

English competence

All international students are encouraged (particularly those who do not have an adequate score on TOEFL or MTELP or other evidence of English proficiency) to attend an intensive American Language Institute prior to entering their program. Further information about opportunities for such programs can be obtained from the Office of Admissions. Further study of English may be required to assure progress toward the degree.

ADMISSIONS CLASSIFICATIONS

Applicants are admitted to one of the following classifications. For regular or provisional status, applicants must be approved for acceptance by the program in which they propose to study. Others may be permitted to enroll, subject to availability of facilities, and will be classified as nondegree students.

Regular

Regular status is given to a student who meets the scholarship and examinations requirements for admission to the graduate program of choice, has met all prerequisites, and has no undergraduate deficiencies.

Provisional

Provisional status is given to a student

(a) whose scholarship does not reach the level for regular graduate standing but who shows strong promise of success in graduate studies, (b) who has the prerequisites but whose undergraduate preparation is inadequate for the chosen graduate program, or (c) whose admissions documentation is incomplete at the time of notification of acceptance. To continue eligibility for graduate study, a student admitted on provisional status must achieve a grade point average of 3.00 quarter by quarter, with no course grade less than C (2.00).

Nondegree

Nondegree status is given to a student who wishes to enroll in graduate courses for personal or professional benefit but who is not seeking a graduate degree. Such applicants complete a special application form.

Nondegree students in the Graduate School are permitted only 12 units of study for regular grades. Units beyond the 12 must be authorized by the dean of the Graduate School, or only audit (AU) will be available.

Certificate

Students seeking admission to one of the Graduate School's postbaccalaureate or post-master's certificate programs apply in the usual way for regular or provisional admission but are classified as certificate students.

Auditor

A student in any classification may register for a course as auditor with the consent of the adviser and the instructor of the course. The student is required to pay half the normal tuition and agrees to attend at least 80 percent of course lectures.

College senior

A senior with a grade point average of 3.0 or above may request to take a graduate course simultaneously with courses that complete the bachelor's degree requirements if the total does not constitute more than 12 academic units. Registration requires instructor, program director or coordinator, and Graduate School dean approval.

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 application form should be submitted, along with letters of reference, to the dean of the Graduate School. 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 his/her 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 Graduate School 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 Graduate School program while admitted to another program at this University or elsewhere. The exceptions to this are the combined-degrees programs, discussed in the following paragraph.

Combined degrees

The Graduate School provides for concurrent registration for two degrees only in its combined-science/professional degrees programs—M.D./Ph.D., M.D./M.S., D.D.S./Ph.D., D.D.S./M.S., Psy.D./Dr.P.H., Psy.D./M.P.H., Ph.D./M.P.H., M.S./M.A. (marital and family therapy/clinical ministry), and M.S./M.P.H. Concurrent application is required in some but not all of these: See Programs and Degrees in section II of this BULLETIN. See combined degrees programs in section III. See also "Becoming a Medical Scientist at Loma Linda University," a brochure which can be obtained from the coordinator of the Medical Scientist Program.

Programs and Degrees

The Graduate School offers programs leading to certificates and to the degrees Master of Science, Master of Arts, Master of Social Work, Doctor of Psychology, and Doctor of Philosophy. The campus on which registration is conducted is indicated by the designation LL (Loma Linda) or CaUC (Canadian Union College).

Postbaccalaureate

Certificates

Biomedical Sciences
Case Management
Drug and Alcohol Counseling
Family Counseling
Family Life Education

Master of Social Work

Master of Science

Anatomy
Biochemistry
Biology
Geology

Marital and Family Therapy,
LL/CaUC
Microbiology and molecular genetics
Nursing
Nutrition
Pharmacology
Physiology
Psychology
Speech-Language Pathology

Dentistry

Endodontics
Implant Dentistry
Oral and Maxillofacial
Surgery
Orthodontics and Dentofacial
Orthopedics
Pediatric Dentistry
Periodontics
Prosthodontics

Master of Arts

Family Studies
Biomedical and Clinical Ethics
Clinical Ministry

Doctor of Psychology

Doctor of Philosophy

Anatomy
Biochemistry
Biology

Medical Scientist
Microbiology
Pharmacology

Physiology
Psychology

GENERAL INFORMATION

Other graduate degrees are offered in the University by the School of Allied Health Professions (Master of Physical Therapy, Doctor of Physical Therapy) and the School of Public Health (Master of Science in Public Health, Master of Public Health, Master of Health Administration, and Doctor of Public Health).

CERTIFICATE PROGRAMS

The Graduate School offers several post-baccalaureate certificate programs. Students accepted into such programs will be assigned to an adviser who will work with them as they fulfill the program requirements. Students will be required to maintain a B- (2.7) grade point average with no course grade below C (2.0). 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

Adviser and guidance committee

Each student accepted into a degree program is assigned an adviser who helps to arrange the program of study to meet University requirements; subsequently (no later than when applying for candidacy), the student is put under the supervision of a guidance committee. This committee is responsible to and works with the coordinator of the student's program in arranging courses, screening thesis topics (where applicable), guiding research, administering final written and/or oral examinations, evaluating the thesis and other evidence of the candidate's fitness to receive the degree, and ultimately recommending the student for 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 are not 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 they must be removed as specified by the adviser or dean, usually during the first full quarter of study at this University.

Study plan

The student's adviser 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 adviser 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 all required courses.

Time limit

The time allowed from admission to the Graduate School to conferring of the master's degree may not exceed five years. Some consideration may be given to a short extension of time if in the dean's opinion such is merited.

Course credit allowed toward the doctorate is nullified eight years from the date of course completion. Nullified courses may be reevaluated, upon successful petition, through reading, conferences, written reports, or examination to assure currency in the content.

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 students may register for up to 12 units each quarter, a student is considered in full-time residence if registered for at least 8 units.

Grade achievement

The required minimum grade average is B (3.00) with no course grade below C (2.0) on all work for the master's degree. This average must be maintained in formal courses and in research, computed separately. A student submitting transfer credits must earn a B grade average on all work accepted for transfer and on all work taken at this University, computed separately.

Research competence

Student skills required in languages, investigation, and computation are specified in each program description in this BULLETIN.

Comprehensive and final examinations

The student must take the written, oral, and final examinations prescribed by the program on or before the published dates. If a candidate fails to pass the final oral or written examination for a graduate degree, the examining committee files with the dean a written analysis of the candidate's status, with recommendations regarding the student's future relation to the School. The student receives a copy of the committee's recommendation.

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 the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as possible. Such approval 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 fee of \$55 (1998-99) paid at the beginning of each quarter. A similar continuing registration fee is assessed for each quarter the student fails to register for new units.

Candidacy

Admission to the Graduate School 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 from the student to the dean, on recommendation of the program coordinator and department chair.

Students petitioning the Graduate School 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 after entering their course of study toward a degree in the Graduate School.

Specific program requirements

In addition to the foregoing, the student is subject to the requirements stated in the section of the BULLETIN governing the specific program chosen.

COMBINED MASTERS' DEGREES PROGRAMS

A number of combined-degrees programs are offered, each intended to provide more comprehensive preparation in clinical applications and the biomedical sciences. Both require concurrent admission to two programs in the Graduate School and/or a professional school in the University. These curricula are described in greater detail on p. 31 and in section III of this BULLETIN.

Religion requirement

All master's degree students are required to take at least one 3-unit religion course. Courses (numbered between 500 and 600) in social ethics, bioethics, psychology of religion, and philosophy of religion meet this requirement.

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.

Adviser and guidance committee

Each student, upon acceptance into a degree program, is assigned an adviser who helps arrange the study program. Subsequently (no later than

when applying for candidacy), the student is put under the supervision of a guidance committee. The Graduate School requires advisers for Doctor of Philosophy degree candidates to have demonstrated consistent research productivity in their chosen disciplines. Each program maintains a list of qualified doctoral degree mentors. The guidance committee, usually chaired by the adviser, is responsible to and works with the coordinator of the student's program in arranging course sequences, 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 are not admitted to the Ph.D. degree program until the prerequisites are completed (at Loma Linda University or elsewhere) with acceptable grades.

Subject deficiencies do not exclude an applicant from admission or enrollment; but they must be removed as specified by the adviser or dean, usually at the beginning of the graduate experience at this University.

Study plan

The student's adviser 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 adviser 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. The dynamic nature of the biological sciences makes dilatory or even leisurely pursuit of the degree unacceptable. Seven years are allowed for completion after admission to the Ph.D. degree program. Extension of time may be granted on petition if recommended by the guidance committee to the dean of the Graduate School.

Course credit allowed toward the doctorate is nullified eight years from the date of course completion. Nullified courses may be revalidated, upon successful petition, through reading, conference, written reports, or examination to assure currency in the content.

Residence

The Graduate School requires two years of residency for the Psy.D./Ph.D. degree, 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, research, or a combination of these. A full load of courses is 8 or more units each quarter; 36 or more clock hours per week is full time in research.

Students may be advised to pursue studies for limited periods at special facilities not available at Loma Linda University. Such time may be considered residence if the arrangement is approved in advance by the dean of the Graduate School.

The spirit and demands of doctoral 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.

Grade achievement

Students must maintain a grade point average of at least a B (3.00) to continue in regular standing toward the doctorate. This average is to be computed separately for courses and research. Courses in which a student earns a grade between C (2.0) and B (3.0) may or may not apply toward the degree, at the discretion of the guidance committee. A student submitting transfer credits must earn a B average on all work accepted for transfer credit and on all work taken at this University, computed separately.

Research competence

Doctoral students demonstrate research competence by their investigative activities. Expectations and standards of achievement with the tools of investigation, natural and synthetic languages and computers, are specified later in this BULLETIN for each program.

Comprehensive examinations

The doctoral 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 (see below).

Students cannot be admitted to the examination until the following requirements have been met: (a) demonstrated reading knowledge of one foreign language, if applicable; (b) 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 candidate is required to appear before an examining committee for the final oral examination.

If a candidate fails to pass this final examination for a graduate degree, the examining committee files with the dean a written analysis of the candidate's status, with recommendations about the student's future relation to the School. The student receives a copy of the committee's recommendation.

Project (required for the Doctor of Psychology degree)

All Doctor of Psychology degree students must register for at least one unit of project credit. This should be done in the last quarter of registration prior to completion.

The research and project preparation are under the direction of the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as possible. Such approval must be secured before petition is made for advancement to candidacy.

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 manuscript is accepted. This involves a quarterly fee of \$55 (1998-99) paid during registration each quarter.

Dissertation (required for the Doctor of Philosophy degree)

All doctoral students must register for at least one unit of dissertation credit. This should be done in the last quarter of registration prior to completion.

The research and dissertation preparation are under the direction of the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as possible. Such approval must be secured before petition is made for advancement to candidacy.

Consultation with Graduate School Admissions and Records can prevent the student from committing formatting errors that would require retyping large sections of 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. This involves a quarterly fee of \$55 (1998-99), paid during registration each quarter.

Doctoral dissertations are reported to University Microfilms International and to the National Opinion Research Center. The Graduate School office provides appropriate information and forms.

Candidacy

Admission to the Graduate School does not constitute candidacy for a graduate degree. Admission to candidacy is initiated by a written petition (Graduate School Form A) from the student to the dean, with support from the student's adviser and the program chair.

The student's petition for candidacy for the Doctor of Philosophy degree will include, in addition, 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 from each other. The unique program requirements appear in the program sections of this BULLETIN and in the program guides available from specific departments.

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 Graduate School and a professional school in the University. These curricula are described in greater detail below under the heading Combined-Degrees Program.

Religion requirement

All doctoral students take at least one 3-unit religion course. Courses (numbered between 500 and 600) in social ethics, bioethics, psychology of religion, and philosophy of religion meet this requirement.

Combined-Degrees Program (CDP)

The Combined-Degrees Program provides 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 man.

For admission to the Combined-Degrees Program, students must have a baccalaureate degree; must qualify for admission to the Graduate School; and must already be admitted to the School of Medicine, the School of Dentistry, or the School of Public Health. Application may be made at any point in the student's progress in the professional school, though it is usually made during the sophomore year. Students in this curriculum study toward the M.A., the M.S., or the Ph.D. degree.

Students may be required to interrupt their professional study for two or more years (as needed) for courses and research for the graduate degree sought. Elective time in the professional school may be spent in meeting Graduate School requirements.

The student's concurrent status is regarded as continuous until the program is completed or until discontinuance is recommended by the Graduate School or the professional school. The usual degree requirements apply.

Medical Scientist Program (MSP)

The Medical Scientist Program has degree and career objectives similar to those of the Combined-Degrees Program but with some differences.

Applicants are admitted who achieve simultaneous regular acceptance in the Graduate School and the School of Medicine prior to enrollment in either school. Study begins in the Graduate School with a one-year sequence in cell and molecular biology, selected courses from the freshman School of Medicine sequence, and clinically related seminars.

During the first years, the MSP coordinator advises the student. Later, when the student's research interest and direction emerge, a program adviser and a thesis or dissertation guidance committee are chosen and recommend advancement to candidacy.

After the first MSP year, students pursue the first two somewhat modified years of their professional curriculum, returning to the Graduate School thereafter to complete and receive the graduate degree. Completion of the professional training follows. Elective time in the professional school may be spent in meeting graduate requirements.

Doctor of Public Health/Doctor of Psychology

The program enables a Dr.P.H. degree student to meet his/her elective and religion requirements with appropriate courses from the Psy.D. degree program, and allows work on the dissertation in an area that is acceptable for the Psy.D. project—thus obtaining the dual degree in less time than is required by the separate programs.

Master of Science in marital and family therapy/Master of Public Health

Master of Science in marital and family therapy/Master of Arts in clinical ministry

These two joint-degrees programs allow the M.P.H. or M.A. degree student in clinical ministry to dual count units with the master's degree in marital and family therapy. This enables the student to be awarded the dual degree in less time than would be required by the separate programs.

Master of Arts in biomedical and clinical ethics/Doctor of Psychology

This combined-degrees program gives the psychology student the opportunity to be enriched through the study and understanding of ethical issues, as is recommended by the American Psychological Association. It also adds the psychological component often missing in the field of biomedical ethics.

Student Life

Application to and enrollment in the 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; and to maintain a manner that is mature and compatible with the University's function as an institution of higher learning. If students neglect academic or other student duties, if their social conduct is unbecoming, or if their attitudes demonstrate deficiencies such as poor judgment, moral inadequacy, or other forms of immaturity, it is inevitable that they will come under question. The faculty then reviews the case, appraises fitness for a career in the chosen profession, and recommends to the dean appropriate action as to the student's continuance or discontinuance. Prospective students who have questions concerning the University's expectations should seek specific information prior to enrollment.

The University was established to provide education in a distinctive environment. No religious test is applied, but students are expected to respect the Seventh-day Adventist church's standards and the ideals of the University. Students are required to attend chapel services, refrain from the use of tobacco and alcohol, limit sexual relations to relations between married individuals, and respect their fellow students' rights. The prospective student has the freedom to choose or reject these standards, but that choice must be made before enrollment. The student must then abide by that decision while at Loma Linda University.

FROM UNIVERSITY TO STUDENT

The University regards the student from a cosmopolitan and comprehensive point of view: (a) cosmopolitan, in that historically the University's global mission has promoted bonds and opportunities in education and service without regard to sex, national or racial origin, or geographical line; and (b) comprehensive, in that the University's concern for the welfare of the student traditionally has been an integrated concern for assisting the student in balanced development of the intellectual, emotional, physical, religious, and societal potentialities.

STUDENT WELFARE

Counseling service

The University provides access to an independent Student Assistance Plan (SAP) which will provide confidential evaluation of a client's needs and will refer to appropriate professionals to address those needs. The official counseling agency for the University provides a service to students who desire help from professional coun-

selors. This service, which is free for the first five visits, is designed to deal with a wide range of educational, vocational, premarital, marital, or other personal problems. No referral is necessary. The goal is to assist individuals to make maximum use of their intellectual and personal resources. Counseling is done in the strictest confidence, and no information is released except by the written request of the person counseled.

Teaching Learning Center

The Teaching Learning Center provides educational testing to determine reading and comprehension level. The center offers a number of courses at different levels to assist students in increasing their reading speed and comprehension. The center's program is designed to utilize the student's actual course reading in its program.

Physical fitness

Physical fitness is promoted by various recreational interests and by courses in gymnastics, field exercises, body building, and health instruction. An effort is made to interest each student in some recreational and health-building activity that may be carried over to enhance future life.

THE DRAYSON CENTER

The Drayson Center, Loma Linda University's recreation and wellness center, provides state-of-the-art fitness facilities. It includes: a 21,000-square-foot, multipurpose gymnasium which houses three full-size basketball courts, five volleyball courts, and nine badminton courts.

Circling the gym's inside perimeter is a three-lane, elevated, rubberized running track. The facility also includes five raquetball courts, with viewing areas, and fully equipped men's and women's locker rooms. Aerobics studios and cardiovascular and fitness areas are equipped for strength training, sports conditioning, body building, and power lifting. A large, ten-lane lap pool is designed to accommodate scuba-diving classes. A 22-foot-high, 150-foot water slide ends in the nearby recreational pool. This shallow pool is wheelchair accessible. An outdoor jacuzzi is also available. Also included in the complex are a lighted, six-court tennis facility; a 400,000-square-foot multi-use recreational area with four softball fields; a half-mile-long track; and picnic and game areas.

The Drayson Center offers lifetime leisure classes (noncredit), such as low- and high-impact "classicize" aerobics, scuba diving, tennis, weight training, abdominal workout, karate, Tai chi, photography, and basic calligraphy. Physical and nutritional assessments are also available.

THE STUDENT HEALTH PLAN

Because the health, vitality, and welfare of its students and their dependents are of major concern to the University, Loma Linda University sponsors and funds the Student Health Plan, a health care plan that provides health service and medical coverage to all eligible students. It includes the following benefits: Student Health Service, 24-hour coverage, and generous coverage through preferred providers.

The Student Health Plan provides a broad range of medical coverage but does not provide dental or vision coverage.

Student Health Service

Professional services are rendered by Student Health Service, which provides basic care to students. No professional fees are charged for a visit to student health, and services are not subject to co-pays or to the student's health plan deductible. However, any ancillary services which are provided at or ordered by Student Health Service (such as lab work, x-rays, etc.) will be subject to the student's health plan schedule of benefits. The Student Health Service is located in the Center for Health Promotion in Evans Hall, corner of Stewart and Anderson streets. The hours are 8 A.M.-5 P.M. Monday through Thursday, and 8 A.M.-2 P.M. on Friday.

Supplementary medical-coverage policy

The Student Health Plan is an "excess" policy and only supplements other medical plans that provide benefits to the student. (However, if the eligible student is not covered by any other primary carrier, the Student Health Plan is his/her primary carrier.) The student first obtains direct-provider payment, or reimbursement for out-of-pocket payments, from all other medical plans that provide benefits for the student; only then does the student submit bills to the Student Health Plan for any remaining balance not covered by the other plans. The student must, therefore, follow all rules of his/her primary insurance in obtaining medical treatment. The student should contact the primary carrier to determine what procedure to follow. Student Health Plan rules are secondary; they are not to be followed if the student's primary medical policy carrier requires the student to follow its rules in order to qualify for payment.

Eligibility

The Student Health Plan automatically covers all full-time students at Loma Linda University in any clinical or academic program.

Students are covered when enrolled for 7 units or more per quarter (or clock-hour equivalent, as defined by each school) for which Loma Linda University is receiving tuition and applicable fees (excluding "in progress" [IP] units, "employee tuition benefit" units, and audit units). Students enrolled for field practicum are eligible for coverage if registered for at least 240 hours per quarter.

Coverage during clinicals/rotations

Students who are accidentally injured while performing their clinical rotation duties do not have to pay their deductible or co-payment. If a covered student is doing a school-sponsored clinical or rotation out of the area and becomes ill or injured, any service received will be covered as if the student were still in Loma Linda.

Effective coverage date

An eligible student's coverage becomes effective on the day of orientation or the first day of class. Any purchased benefits will become effective on the day the Department of Risk Management receives the health plan application and payment within the open enrollment period, which is only the first two weeks of each calendar quarter.

Buy-in provision only during open enrollment

Eligible students are themselves automatically covered by the plan; however noneligible students—those on summer break and part-time students (e.g., in a clinical program but enrolled for fewer than 7 paid units)—may, if they wish, purchase coverage.

Those wishing to buy in may enroll in the Student Health Plan only during the first two weeks of each new calendar quarter, that is during

the first two weeks of January, April, July, and October.

Eligible students may buy Student Health Plan coverage benefits for their spouse and/or children. Eligible dependents are the spouse (residing with the insured student) and unmarried children under twenty-four years of age who are not self-supporting and who are themselves full-time students.

If a new spouse or eligible dependent is added to the household of a covered student after the two-week enrollment period, then the student has a thirty-day grace period (after the wedding or after the birth, etc.) in which to buy coverage for the new spouse or new dependent; however, the coverage must be purchased for the entire quarter in which this new status occurred. (If a student is expecting a child at the end of a quarter, coverage must be purchased ahead for the entire quarter in order to ensure that hospital charges for the newborn are covered from the date of birth.)

Quarterly buy-in rates are:

\$210	Part-time student
\$280	One dependent
\$530	Two or more dependents

Neither Student Finance nor the Department of Risk Management bills the student's account or sends out reminders. Funds received for buy-in coverage must be in the form of a check or money order (payable to the Department of Risk Management) or cash.

Coverage exclusion for "pre-existing" condition

Any pre-existing medical condition, illness, or injury for which medical treatment was received or which was known to the student or dependent during the twelve months before the effective date of coverage will not be covered by this plan for one year from the effective date of coverage if the student or dependent receives any treatment or takes any medication for that pre-existing medical problem during the first six months of coverage.

However, if the student or dependent remains treatment-free and takes no medication for the pre-existing problem during the first six months after the effective date of coverage, then after that six months the student will be covered for that pre-existing condition, illness, or injury.

Preferred-provider plan

The Student Health Plan is a preferred-provider plan. A list of preferred physicians and preferred medical facilities is available from Risk Management. However, referrals by Student Health Service physicians are no longer mandatory, and students may go directly to other providers without going through health services.

For local students the Student Health Plan covers only those prescriptions purchased through the Loma Linda Campus Pharmacy and the Loma Linda University Medical (Center) Pharmacy. The student co-pays \$7 for generic or \$10 for brand-name prescriptions; the Student Health Plan covers the balance for up to a thirty-day supply per prescription.

The plan year; term for benefits and out-of-pocket limits

The annual benefits and out-of-pocket limits apply per academic year, July 1 through June 30.

Deductible/maximums/benefit limits

The Student Health Plan will pay 80 percent of the student's medical expenses incurred through preferred-provider physicians/facilities, to an annual limit of \$100,000.

When the student has paid an *out-of-pocket limit of \$1,000 (or \$2,500 per family)* in any plan year, the plan will then pay 100 percent for most medical services rendered by preferred providers. (Refer to the health plan's schedule of benefits to determine which benefits do not fall into this category.) However the plan will generally pay only 50 percent of medical costs to nonpreferred providers, and there are *no limits* on what a student or family must personally pay out of pocket to nonpreferred providers.

Benefits are limited by the terms and conditions set forth in the Student Health Plan booklet. The booklet is available from the Loma Linda University Department of Risk Management. For additional health plan information, phone the Department of Risk Management at 909/824-4386.

Malpractice insurance

Students are covered by malpractice insurance while acting within the course and scope of any approved clinical assignment. All full-time students at Loma Linda University in any clinical educational program are covered by the Student Health Plan. This plan provides coverage twenty-four hours per day while the student is enrolled at the University. Effective February 23, 1994, the Student Health policy was amended to waive the deductible and co-payment for accidental injury for students in clinical rotation.

Policies and General Regulations

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

GENERAL REGISTRATION

The student must register on the dates designated in the University calendar in this BULLETIN. Registration procedure includes recording information on forms furnished by the Office of University Records and clearing financial arrangements with Student Finance. The course list filed must have been approved by the graduate adviser.

Late registration is permissible only when there is a compelling reason; a charge is made if registration is not completed by the designated dates. The student may not attend class without being registered, and in no case may registration take place later than the second week of a term unless the course is offered as an intensive which requires registration before the end of the first day of class. A change in registration after the second week affects the grade record. In the Graduate School a change in registration requires the recommendation of the student's program coordinator/mentor and the approval of the dean.

CONDITIONS OF REGISTRATION, RESIDENCE, ATTENDANCE

Academic residence

A student must meet the residence requirements indicated for a particular degree, never less than one academic quarter. A year of residence is defined as three quarters of academic work. The master's degree candidate must complete one quarter of full-time study or perform the thesis research work at the University or an approved off-campus location. A student is in full-time residence if registered for at least 8 units. A maximum of 12 units may be taken without special petition unless the student is enrolled in an approved block-registration program.

Extramural study

When a student begins a degree program, it is understood that courses taken must be conducted on a campus of the University unless, upon petition for extramural study, the student obtains consent from the program coordinator and the dean. In such instances, the student must arrange with the program coordinator for evaluation of the study and, at its completion, recommendation as to credit and grade.

Leave of absence

A student who wishes to withdraw for a quarter or longer submits a written request for leave of

absence, indicating the reason and the length of time needed to be out of the program. One year is the maximum leave time granted. This request requires the approval of the student's department and the dean. Stipulations for reentry are given the student in writing. During the period of leave, students maintain continuous registration by payment of a quarterly fee, currently \$55 (1998-99).

Administrative withdrawal

Students who fail to make arrangements for a leave of absence and continuing registration may be administratively withdrawn from Graduate School after two quarters of inactivity.

Readmission

A student who has been administratively withdrawn from the Graduate School will be required to reapply for admission and is subject to the requirements in effect at the time of readmission.

Continuous registration

A student is required to maintain continuous registration from advancement to candidacy to the awarding of the degree. For quarters during which the student is not registered for new units or load validated as a full-time student, a fee of \$55 (1998-99) is charged.

Withdrawal

Formal withdrawal must be arranged at the Graduate School's Office of Records and at the Office of University Records.

Transfer credits

A transfer student who has done acceptable graduate study in an approved institution may transfer credits up to one-fifth of the units required by the chosen program, to be applied to the degree at Loma Linda University. Such transfer credits will not be used to offset work at this University that is less than a B average. This transfer is limited to credits that have not already been applied to a degree and for which a grade of B (3.00) or better has been recorded.

A candidate for the doctorate who holds a master's degree, or presents its equivalent by transcript, may receive credit up to 54 quarter units, 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.

Chapel

Weekly devotional services are held as part of the regular program of the University; and full-time students enrolled in classes that meet on Wednesday morning are expected to attend.

Academic probation

Degree students whose overall grade point average falls below a 3.0 will be placed on academic probation. Students who are on academic probation and fail to make a 3.0 for the next quarter, or who fail to have a 3.0 G.P.A. overall after two quarters, may be dismissed from school.

Clinical probation

Programs with a clinical component may recommend that the student be placed on clinical probation. Details are contained in the program guides for the programs concerned.

Academic grievance

The student who believes that there has been an unjust evaluation or decision may appeal that evaluation or decision through the academic grievance process outlined below:

1. The student should first discuss the problem or grievance with the individual who allegedly made the unjust decision. If the student is not satisfied with the discussion and continues to believe that s/he has not been fairly dealt with, s/he should discuss the grievance with the chair of the department involved or with the coordinator of the program in which s/he is enrolled.
2. If the matter is not resolved at this level, the student should appeal to the dean of the Graduate School. The dean will review the case and either refer it back to the department for further consideration or refer it to the Graduate School Council. The student, with faculty adviser, may make a presentation (usually limited to one half hour) to the Graduate School Council and explain his/her case. The program chair/coordinator may also make a presentation (usually limited to one half hour) to the Graduate School Council. The Graduate School Council will then make a recommendation to the dean of the Graduate School.
3. Should there still fail to be a resolution, the dean of the Graduate School will appoint a Faculty Review Committee of three (3) members to evaluate the situation and make a recommendation to the dean. The student should present a written statement of his/her concerns and concisely include the pertinent information regarding the situation. The student, with faculty adviser, may request to meet with the Faculty Review Committee for discussion of the case. The review committee, at its discretion, may call others to present their perceptions of the matter at hand. After receiving the recommendation of the review committee, the dean shall make the final decision in the matter.

Adviser and guidance committee

Each student is assigned an adviser and a guidance committee. These are described fully under each degree description elsewhere in this BULLETIN.

Time limits

Any credit transferred to the School or taken in residence and submitted toward a master's degree is nullified seven years from the date when the course was completed. Similarly, credit submitted toward a doctor's degree is nullified eight years from the date when the course was completed.

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 doctor's degree, seven years are allowed after the date of admission; however, students enrolled in an approved combined-degrees program may be permitted nine years. A student desiring reinstatement must reapply to the dean. This procedure implies a reevaluation of the student's total program.

Statistics and research consultation

Several programs in the Graduate School require statistics, either as a prerequisite to entry, as part of the program, or both. The course STAT 509 General Statistics, described in the School of Public Health BULLETIN, fulfills the prerequisite requirement; other requirements are specified by program. The course STAT 698 Research Consultation, described in the School of Public Health BULLETIN, provides professional guidance as the individual student initiates and progresses with the research project, thesis, or dissertation.

GRADUATION ATTENDANCE

The candidate for a graduate degree completed on the Loma Linda campus is expected to attend the graduation events and to receive the diploma in person. Consent for the degree to be conferred in absentia is contingent on the recommendation of the dean to the president and can only be granted by the president. A graduation fee will be placed on the student's account during the quarter following submission of Form C (Request to Graduate).

SCHOLASTIC STANDING

The following values are assigned for calculation of the grade point average per unit of enrollment:

A	4.0	C	2.0
A-	3.7	C-	1.7
B+	3.3	D+	1.3
B	3.0	D	1.0
B-	2.7	F	0.0
C+	2.3		

The following designations are used to make clear the student's status but not to indicate credit:

AU	audit
I	incomplete
IP	in progress (for courses which cross term boundaries)
S	satisfactory (used in pass-fail courses; does not affect G.P.A.)
U	unsatisfactory (does not affect G.P.A.)
W	withdraw (given from two weeks after registration until two weeks before final examinations begin)

The graduate student is expected to maintain a consistently high level of performance. The dean receives reports on the quality of work done in order to determine the eligibility of the student for advancement.

PROGRAM PRACTICES

Degree programs specify expectations in this BULLETIN as well as in their own publications. Students should become well acquainted with both sources of guidance.

THESIS AND DISSERTATION

The student's research and thesis or dissertation preparation are under the direction of the student's 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.

Handbook

Instructions for the preparation and format of the publishable paper, thesis, or dissertation are in the "Handbook for Graduate Students," available at the Graduate School Admissions Office. Consultation with Graduate School Admissions and Records can help the student avoid formatting errors that would require him/her to retype large sections of manuscript. The last day for submitting copies to the Graduate School office in final approved form is published in the Calendar of Events (available from the academic dean's office).

Binding

A fee will be assessed to cover the cost of binding copies of thesis or dissertation to be deposited in the University library and the appropriate department or school collection. This same fee will also apply to personal copies bound at the student's request.

BULLETIN

When this BULLETIN and any other Graduate School publication or the publication of any other school or any other Graduate School program conflict, this BULLETIN prevails. The Graduate School reserves the right to make changes in the course schedule and/or program curriculum as they become necessary.

Financial Information

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

GENERAL PRACTICES

Advance payment

Tuition and fees are charged and payable in full in advance of each term. If the student withdraws from a course or all courses before 60 percent of the quarter has passed, tuition will be refunded on a pro-rata basis, with refunds of not less than the portion of tuition assessed equal to the remaining portion of the enrollment period as of the last day of attendance (rounded down to the nearest 10 percent of that period).

Monthly statement

The amount of the monthly statement is due and payable in full within thirty days after presentation. A student unable to meet this requirement must make proper arrangements with Student Finance. An account that is more than thirty days past due is subject to a service charge of .833 percent per month (10 percent per year). Failure to pay scheduled charges or to make proper arrangements, which is reported to the Office of University Records and the Graduate School dean, may be cause for the student to be considered absent, discontinued, or ineligible to take final examinations.

Financial clearance

The student is expected to keep a clear financial status at all times. Financial clearance must be obtained before registration each term; before receiving a certificate or diploma; or before requesting a transcript, statement of completion, or other certification to be issued to any person, organization, or professional board.

Checks

Checks should be made payable to Loma Linda University and should show the student's ID number to ensure that the correct account is credited.

Veterans

A student who is eligible to have veteran's benefits under the 1966 enactment should transfer records to the Veterans Administration Regional Office, 11000 Wilshire Boulevard, Los Angeles, California 90024. Veterans must be admitted to a degree program to be eligible to receive benefits. Application should be made well in advance of enrollment. Further information may be requested from the Office of University Records. To receive advance payments, the stu-

dent must contact the Office of University Records at least forty-five days in advance of enrollment.

SCHEDULE OF CHARGES (1998-99)

TUITION, GRADUATE SCHOOL PROGRAMS IN GENERAL

\$380	Per unit, credit.
\$190	Per unit, audit.

TUITION, GRADUATE DENTISTRY PROGRAMS (package rates)

\$2,500	Per quarter, effective Summer Quarter 1998 for oral and maxillofacial surgery program.
\$5,850	Per quarter, effective Summer Quarter 1998 for all other programs.

SPECIAL CHARGES

\$55	Application fee.
\$55	Continuous-registration fee each quarter for which no tuition is paid.
\$25	Application to change program or degree.
\$91	One-time graduation fee, charged during final year for M.S. degree candidates.
\$110	One-time graduation fee, charged during the final year, for doctoral candidates.

Tuition and/or fees will change for 1999-00. Students should plan on an annual increase consistent with inflation in the education sector.

FINANCIAL AID

University fellowships

Some fellowships are awarded annually to students of outstanding promise and performance. In certain programs, fellowships may carry stipends and remission of tuition.

Assistantships

A limited number of teaching and research assistantships, with stipends, may be provided by individual programs.

Tuition waiver

Program chairs and coordinators may recommend partial- or full-tuition waivers for students of demonstrated achievement.

Application

An application for a fellowship or an assistantship from a student not already enrolled in a graduate program at the University must be accompanied by an application for admission. All applications for financial aid must have a completed financial aid form, which is available from Student Financial Aid.

Closing date

An application for financial aid of any kind should be made as early as possible but preferably no later than six weeks before the beginning of the effective quarter. Budgets are established in the spring for the following fall.

Loans

Financial assistance is available to the student from University loan funds, government loan funds, and other special trust funds. Inquiries concerning loans and other student financial matters should be made to the Office of Student Financial Aid.

SATISFACTORY PROGRESS

Each degree program has defined "satisfactory progress" as it relates to financial aid. Years in the program and requirements completed are specified. Students should consult their advisers to get copies of the policy.



III

THE PROGRAMS

Anatomy

Biochemistry

Biology

Biomedical and Clinical Ethics

Biomedical Sciences

Clinical Ministry

Dentistry

Drug and Alcohol Counseling

Family Counseling

Family Studies

Geology

Marital and Family Therapy

Medical Scientist

Microbiology and Molecular Genetics

Nursing

Nutrition

Pharmacology

Physiology

Psychology

Social Work

Speech-Language Pathology

The Programs

At this point in the BULLETIN, the student should look in both directions before proceeding: look ahead to the specific area requirements of the chosen program, and look back to the general requirements applicable to all programs in the Graduate School.

COURSE LISTINGS

Numbering

Courses numbered from 301 to 499 are advanced undergraduate courses. Those from 501 to 689 are graduate courses; and from 690 to 699, graduate seminar, research, and thesis or dissertation courses. Courses numbered from 700 to 799 are clinical practicums.

Graduate credit

Certain courses at the advanced undergraduate level and basic science courses in the first and second professional years are acceptable for graduate credit, provided (a) the student qualifies for graduate study and has credit for the specific prerequisites of any desired course, and (b) the grade achievement is of graduate quality as required by the instructor or the Graduate School.

The advanced undergraduate courses listed in the following sections may be acceptable for graduate credit or in some cases may be offered to enable the student to make up undergraduate subject deficiencies.

Subject code letters

Code letters preceding course numbers identify the department or subject as follows:

ANAT	Anatomy	GRDN	Graduate Dentistry
ANTH	Anthropology	HPRO	Health Promotion
BCHM	Biochemistry	MDCJ	Medicine Conjoint
BIOL	Biology	MFAM	Marriage and Family
CMBL	Cell and Molecular Biology	MICR	Microbiology
EDCI	Curriculum and Instruction	NRSNG	Nursing
EDFO	Educational Foundations	NUTR	Nutrition and Dietetics
ENDN	Endodontics	ORBI	Oral Biology
FMST	Family Studies	ORDN	Orthodontics
GEOL	Geology	ORIM	Implant Dentistry
		ORMD	Oral Medicine
		ORPA	Oral Pathology
		ORSR	Oral Surgery
		PATH	Pathology
		PEDN	Pediatric Dentistry
		PERI	Periodontics
		PHRM	Pharmacology
		PHYS	Physiology and Biophysics
		PROS	Prosthodontics
		PSYC	Psychology
		RELB	Religion, Biblical Studies
		RELE	Religion, Ethical Studies
		RELH	Religion, Historical Studies
		RELM	Religion, Mission Studies
		RELP	Religion, Professional Studies
		RELR	Religion, Relational Studies
		RELT	Religion, Theological Studies
		RLGN	Religion, General studies
		SOCI	Sociology
		SOWK	Social Work
		SPPA	Speech-Language Pathology
		STAT	Biostatistics Staff.

ANATOMY

PEDRO B. NAVA, JR., Ph.D. Loma Linda University GS 1974
 Division Director; Associate Professor of Anatomy
Gross anatomy, effects of age and diabetes on PNS, taste receptors

PAUL J. McMILLAN, Ph.D. Loma Linda University GS 1960
 Program Coordinator; Professor of Anatomy
Bone cell biology, quantitative morphology, image analysis

The Division of Human Anatomy (Department of Pathology and Human Anatomy), in cooperation with other departments of the University, offers programs leading to the Master of Science and the Doctor of Philosophy degrees in the field of anatomy. The department is an active participant in the systems biology curricula, which consist of interdisciplinary courses and seminars coordinated by the faculties of the Departments of Anatomy and of Physiology and Pharmacology. The degree programs provide opportunities for qualified students to prepare for careers in teaching and research.

The student admitted to the anatomy graduate program will have an undergraduate degree with a strong component of biological sciences, including zoology and comparative vertebrate embryology. Genetics, comparative vertebrate anatomy, and histotechnology may be necessary to complete the program, although these are not required for admission.

Other prerequisites include physics, general chemistry, and organic chemistry. A foreign language and courses in statistics and computer science are encouraged. Applicants with diverse backgrounds are encouraged to apply, since each applicant is considered on an individual basis.

The Department of Anatomy encourages the student to build a career in biomedicine on a solid foundation of basic medical sciences. Three specialty areas are then available for the M.S. degree thesis or Ph.D. degree dissertation research:

1. **NEUROBIOLOGY** is an integrated program with advanced courses in neuroanatomy and neurophysiology. Research emphases include neural systems in the regulation of bio-rhythms; neurocytology; and electron microscopy and sensory systems in development, aging, and diabetes.

2. **CELL BIOLOGY** includes advanced study in cellular and molecular biology, electron microscopy, histochemistry, tissue culture, and quantitative image analysis. Research emphases are cell-cell communication, regulation and modeling of bone cell activities, receptor biology in development, in vitro fertilization, and elucidation of the molecular and cellular bases of developmental anomalies.

3. **RADIATION BIOLOGY** builds on advanced courses in quantitative morphology and cell, molecular, and radiation biology. The proton accelerator at Loma Linda University Medical Center provides a unique opportunity to study functional responses of normal and cancerous tissue to proton and other radiations.

FACULTY

- PAUL C. ENGEN, D.D.S. University of Southern California 1949
Professor of Anatomy
Histology, histological techniques, comparative anatomy
- WILLIAM H. FLETCHER, Ph.D. University of California, Berkeley 1972
Professor of Anatomy and of Physiology and Pharmacology
Microanatomy, neuroanatomy, cellular/molecular endocrinology
- ROBERT L. SCHULTZ, Ph.D. University of California, Los Angeles 1957
Professor of Anatomy
Electron microscopy, histology, nervous system
- MICHAEL A. KIRBY, Ph.D. University of California, Riverside 1984
Associate Professor of Pediatrics and of Anatomy
Neurophysiology, neuroanatomy, developmental neurobiology, radiation neurobiology

ASSOCIATE FACULTY

- WALTER H. B. ROBERTS, M.D. Loma Linda University SM 1939
Emeritus Professor of Anatomy
Gross anatomy, applied anatomy
- BOLESLAW H. LIWNICZ, M.D., Ph.D. Warsaw Academy of Medicine SM 1964; GS 1967
Professor of Pathology and Laboratory Medicine and of Anatomy
Neuropathology
- DANIEL A. MITCHELL, JR., M.D. Loma Linda University SM 1947
Professor of Anatomy
Gross anatomy, applied anatomy

Details of the programs in the Division of Human Anatomy are found in the *Anatomy Program Guide*. The following is a summary of these requirements.

MASTER OF SCIENCE

This curriculum provides opportunities for qualified students to gain experience in research methods (library and laboratory) while working on a significant problem. The student acquires experience in scientific communication by participating in seminars, writing critical reviews, and reporting the results of research experience either in thesis form or as a publishable paper.

Courses

To qualify for this degree, the student must complete the following courses in anatomy: ANAT 537, 541, 542, 544; 8 units in anatomy research and in thesis; 8 units in other basic science

- JOHN O. ARCHAMBEAU, M.D. Stanford University 1955
Professor of Radiation Biology and of Anatomy
Radiation oncology, radiation biology
- HERBERT W. HENKEN, M.D. Loma Linda University SM 1945
Emeritus Associate Professor of Anatomy and of Gynecology and Obstetrics
Gross anatomy, applied anatomy
- WILLIAM M. HOOKER, Ph.D. Loma Linda University GS 1969
Associate Professor of Anatomy
Neuroanatomy
- STEVEN M. YELLON, Ph.D. University of Michigan 1984
Associate Professor of Physiology, of Pediatrics, and of Anatomy
Neuroendocrinology, reproductive physiology
- JOHANNAH CORSELLI, Ph.D. University of California, Riverside 1986
Assistant Professor of Obstetrics and Gynecology and of Anatomy
Embryology, developmental biology
- MARINO DE LEON, Ph.D. University of California, Davis 1987
Assistant Professor of Physiology and of Anatomy
Molecular regulation, nerve regeneration, neuronal injury
- WILLIAM WAGNER, M.D. Loma Linda University SM 1946
Clinical Assistant Professor of Anatomy
Gross anatomy, applied anatomy

courses; and submit a thesis approved by the advisory committee. For each year in residence, the student will complete 1 unit of Integrative Biology Graduate Seminar (ANAT 605).

DOCTOR OF PHILOSOPHY

The purpose of the program leading to the Doctor of Philosophy degree is to give individuals the preparation needed and the opportunity to pursue an in-depth, independent investigation under conditions favorable for the maturation of scholarly attitudes and habits. Admission to this program is based on a demonstration of superior qualifications, either in undergraduate or graduate studies.

Courses

Students earning this degree will have a B (3.0) grade or better in each of the core anatomy courses, ANAT 537, 541, 542, 544. In addition they will take 1 unit of Integrative Biology

Graduate Seminar (ANAT 605) for each year in residence; and 35 quarter units in advanced anatomy courses, cell biology, biochemistry, physiology, and other graduate courses appropriate to the student's goals, with an average G.P.A. of 3.0 or better. The specific course requirements will vary with the student's research emphasis. Final approval of the student's total program will be made by the student's committee in consultation with the anatomy faculty. Approximately 100 units beyond the bachelor's degree are usually completed by the time the Ph.D. is awarded. Teaching experience is required.

Language requirement

Although there is no specific language requirement, students with competencies in natural languages, in addition to English and/or computer languages, have a definite advantage. Depending on their research, some students may be expected to have one or more of these competencies.

Comprehensive examinations

The written and oral comprehensive examinations are designed to establish that the student has a broad understanding of structure and function. The student's ability to use that knowledge to identify and design experiments to resolve problems is also tested. Familiarity with the scientific literature and the ability to use that literature to defend the dissertation research proposal are important components of the oral examination.

Advancement to candidacy

The student may apply for admission to doctoral candidacy after (a) passing the comprehensive examinations; (b) passing any other examinations, such as demonstrated proficiency in the use of computers and statistics required by the department; and (c) securing the support of his/her 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, usually resulting in one to three publications.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

COMBINED-DEGREES PROGRAM

Combined-degrees programs allow qualified students to work on combined M.D./Ph.D. or D.D.S./Ph.D. degrees. Details are provided in the Programs and Degrees section.

COURSES

ANAT 501 Human Anatomy I (3)

Anatomy of the human body as revealed by dissection and consideration of the developmental history pertinent to the understanding of the adult arrangement. Winter.

Wright.

ANAT 502 Human Anatomy II (3)

Anatomy of the human head and neck as revealed by dissection and x-ray, and consideration of the developmental history pertinent to the understanding of the adult arrangement. Spring.

Wright.

ANAT 503 Human Histology (5)

Detailed microscopic study of fundamental tissues, cells, organs, and systems of the human body. Winter, 3 units; Spring, 2 units.

McMillan.

ANAT 504 Oral Histology and Development (2)

Study of development, eruption, and microanatomy of the odontogenic apparatus. Spring; Fall.

Engen.

ANAT 526 Head and Neck Anatomy (2)

Detailed dissection of the head and neck. Demonstration and lecture. Offered on demand.

Prerequisite: ANAT 541 or equivalent.

Staff.

ANAT 534 Histological Techniques (3)

Theory and practice in the preparation of tissue sections for microscope study using routine and specialized stains. Directed study.

Staff.

ANAT 537 Neuroscience (8)

Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology. Winter, 4 units; Spring, 4 units

Staff.

ANAT 541 Gross Anatomy (10)

Anatomy of the head, neck, locomotor system, thorax, abdomen, pelvis, and perineum. Correlated with radiology, applied features, and embryological development. Summer, 6 units; Fall, 4 units.

Staff.

ANAT 542 Cell, Tissue, and Organ Biology (5)

The microscopic structure of cells, tissues, and organs of the human body. Winter, 3 units; Spring, 2 units.

Schultz.

ANAT 544 Human Embryology (2)

The plan of development as it pertains to the human. Consideration of principles.

ANAT 544L Human Embryology Laboratory (1)

Work involves the use of both human and comparative materials. Fall; Spring.

Prerequisite: A course in vertebrate embryology.

Staff.

ANAT 545 Advanced Neuroanatomy (3)
Detailed study and dissection of the human nervous system. Spring, even years.

Prerequisite: ANAT 537.

Kirby.

ANAT 546 Electron Microscopy (3)
Trains the student to use the electron microscope. Basic theory, operational techniques, and tissue preparation. As needed.

Prerequisite: Histotechnology or equivalent.

Staff.

ANAT 547 Histochemistry (3)
Theoretical and practical aspects of histochemical methods as applied to tissue sections. One lecture and two three-hour laboratories/conferences weekly. Summer, even years.

Prerequisite: A course in biochemistry; ANAT 542 or equivalent.

McMillan, Wright.

ANAT 548 Advanced and Molecular Cytology (3)
Study of the ultrastructural and cytochemical analysis of a variety of differentiated cells. Spring, odd years.

Staff.

ANAT 549 Seminar: Topographical Chemistry (2)
Qualitative and quantitative distribution of enzymes and other chemically defined components of organs as reported in current literature. Students responsible for one oral and one written report. On demand.

McMillan.

ANAT 554 Techniques in Experimental Morphology (2)

Introduction to selected methods used in the morphological analysis of organ and cellular function. Spring, odd years.

Nava.

ANAT 555 Advanced Gross Anatomy-Articulation/Joints

Detailed study of the anatomical design of joints, linking function through clinical correlations. Spring, odd years.

Prerequisite: ANAT 541.

Nava.

ANAT 594 Special Topics in Anatomy (arranged)

Intensive study of a selected topic approved by the chair of the department. Individual guidance by a staff member.

Staff.

ANAT 605 Integrative Biology Graduate Seminar (1)

Seminar, coordinated by the Division of Human Anatomy and the Department of Physiology and Pharmacology consists of reports from current literature and the presentation of student and faculty research on various aspects of regulatory and integrative biology as applied to cells, tissues, organs, and systems. Students and faculty are expected to participate in a discussion and critical evaluation of the presentation.

Faculties of Anatomy, Pharmacology and Physiology.

ANAT 697 Research (1-25)

ANAT 698 Thesis (2)

ANAT 699 Dissertation (3)

BIOCHEMISTRY

CHARLES W. SLATTERY, Ph.D. University of Nebraska 1965
 Chair and Program Coordinator; Professor of Biochemistry and of Pediatrics
Physical chemistry of macromolecules

The Department of Biochemistry offers study programs leading to the Master of Science and the Doctor of Philosophy degrees. Tailored to individual interest, the programs provide a broad biochemical background yet allow the student to develop fully a special area of interest. 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. The Doctor of Philosophy degree program is designed to prepare the graduate for a career in independent research and teaching. In addition to these options, additional combined-degrees programs—Medical Scientist Program, M.D./M.S., D.D.S./M.S., M.D./Ph.D., and D.D.S./Ph.D.—are offered in conjunction with the School of Medicine and the School of Dentistry. The combined M.S. degree/professional degree program is designed to provide additional content or research experience as background for postgraduate medical or dental education. The combined Ph.D. degree/professional degree program prepares the student for a future in academic medicine or dentistry, combining research, teaching, and clinical practice.

FACULTY

RICHARD E. BELTZ, Ph.D. University of Southern California 1955
 Professor of Biochemistry
Preparation and biological testing of novel antimetabolites

GEORGE T. JAVOR, Ph.D. Columbia University 1967
 Professor of Biochemistry and Microbiology
Cellular responses to reductive stress, regulation of coenzyme Q and porphyrin syntheses

WILLIAM H. R. LANGRIDGE, Ph.D. University of Massachusetts 1973
 Professor of Biochemistry and of Microbiology and Molecular Genetics
Plant molecular genetics, autoimmunity

GEORGE M. LESSARD, Ph.D. University of California, Riverside 1973
 Professor of Biochemistry
Oral biochemistry

W. BARTON RIPPON, Ph.D. Newcastle University 1969
 Dean; Professor of Biochemistry
Physical biochemistry of macromolecular structure and function

ALADAR A. SZALAY, Ph.D. Institute of Biochemistry and Plant Physiology 1972
 Research Professor of Biochemistry and Microbiology and Molecular Genetics
Artificial chromosome, human gene therapy

R. BRUCE WILCOX, Ph.D. University of Utah 1962
 Professor of Biochemistry
Biochemistry of the endocrine system, hormone dependent carcinogenesis

E. CLIFFORD HERRMANN, Ph.D. Virginia Polytechnic Institute 1970
 Associate Professor of Biochemistry
Enzymes of blood coagulation and casein phosphorylation

JOHN H. SANDS, Ph.D., University of California, Davis 1986
 Assistant Professor of Biochemistry
Pathogenesis of prostate cancer, T-cell-specific gene regulation, prevention of dental caries

ASSOCIATE FACULTY

- DAVID J. BAYLINK, M.D. Loma Linda University 1957
Distinguished Professor of Medicine
Professor of Biochemistry, of Orthopedic Surgery, of Pediatrics, and of Oral Surgery
Basic and clinical mineral metabolism, biochemistry of regulatory mitogens from bone matrix, gene therapy for skeletal repair
- ROLAND C. ALOIA, Ph.D. University of California, Riverside 1970
Professor of Biochemistry and of Anesthesiology
AIDS virus membrane, hibernation, and membrane anesthetic effects
- JOHN R. FARLEY, Ph.D. University of California, Davis 1977
Research Professor of Medicine and of Biochemistry
Biochemical mechanisms of bone-volume regulation and enzyme kinetics of mineral metabolism
- DAILA S. GRIDLEY, Ph.D. Loma Linda University 1978
Professor of Microbiology and Molecular Genetics, of Radiation Medicine, and of Biochemistry
Cancer immunology
- DAVID A. HESSINGER, Ph.D. University of Miami 1970
Professor of Physiology and Pharmacology, and of Biochemistry
Structure and function of cell membranes, marine toxicology
- WOLFF M. KIRSCH, M.D. Washington University School of Medicine 1955
Professor of Biochemistry
Director of Neurosurgical Research
Chief, Neurosurgical Service, Jerry L. Pettis Veterans Administration Hospital
Posttranslational percarboxylations
- KIN-HING WILLIAM LAU, Ph.D. Iowa State University 1982
Research Professor of Medicine and of Biochemistry
Phosphotyrosine phosphatases, signal transduction in bone cells
- THOMAS A. LINKHART, Ph.D. University of California, Davis 1975
Professor of Biochemistry
Associate Research Professor of Pediatrics
Cellular and molecular mechanisms of bone growth, resorption, and repletion
- SUBBURAMAN MOHAN, Ph.D. Bangalore University, India 1978
Research Professor of Biochemistry, of Medicine, and of Physiology
Growth factors and metabolic bone diseases
- WILLIAM J. PEARCE, Ph.D. University of Michigan 1979
Professor of Physiology and Pharmacology, of Biochemistry, and of Pediatrics
Cardiovascular physiology, control of cerebral circulation
- JOHN J. ROSSI, Ph.D. University of Connecticut 1976
Professor of Microbiology and Molecular Genetics and of Biochemistry
Use of synthetic oligonucleotides in studies of gene expression
- LAWRENCE B. SANDBERG, M.D., Ph.D. University of Illinois 1957, University of Oregon 1966
Research Professor of Biochemistry and of Pathology
Connective-tissue proteins, structure and function
- BARRY L. TAYLOR, Ph.D. Case Western Reserve University 1973
Professor of Biochemistry and of Microbiology and Molecular Genetics
Mechanism of oxygen chemoreceptors, bacterial chemotaxis
- ANTHONY ZUCCARELLI, Ph.D. California Institute of Technology 1974
Professor of Microbiology and Molecular Genetics and of Biochemistry
Molecular genetics, bacterial plasmids, bacteriophage biology
- RICHARD W. HUBBARD, Ph.D. Purdue University 1961
Associate Research Professor of Pathology
Clinical chemistry, amino acid metabolism
- LAWRENCE C. SOWERS, Ph.D. Duke University 1983
Adjunct Associate Professor of Biochemistry
DNA base pairing and mutagenesis, free radical and hydrolytic DNA damage
- DONNA D. STRONG, Ph.D. University of California, Los Angeles 1977
Associate Research Professor of Biochemistry, of Microbiology and Molecular Genetics, and of Medicine
Transcriptional and posttranscriptional regulation of bone-related growth factors and gene therapy for skeletal repair
- JON E. WERGEDAL, Ph.D. University of Wisconsin 1963
Associate Research Professor of Biochemistry and of Medicine
Bone metabolism
- SATISH M. SOOD, Ph.D. Punjabi University, Patiala, India 1978
Assistant Research Professor of Biochemistry
Structure and functions of milk proteins, opioide peptides, and soya proteins
- CHIRANJIB DASGUPTA, Ph.D. University of Calcutta, India 1988
Research Instructor in Biochemistry
Detection of genetic/epigenetic mutations associated with pediatric cardiovascular diseases and programmed cell death (apoptosis)

CORE REQUIREMENTS

A common core of courses constitutes partial fulfillment of requirements for all degrees offered by the biochemistry program:

BCHM 505	Seminar in Biochemistry	(2)
BCHM 506	Seminar Presentation in Biochemistry	(1)
*BCHM 508	Principles of Biochemistry	(6)
BCHM 523	Introduction to Physical Biochemistry	(3)
BCHM 525	Metabolic Interrelationships and Control	(5)
BCHM 534	Techniques of Biochemistry	(5)
BCHM 527	Molecular Biology of the Cell	(8)
REL_ ___	Religion	(3)

Additionally the student is required to register for a seminar each quarter, but the units in excess of the core component seminar units are not counted toward fulfillment of the total unit requirement.

*To satisfy this requirement, an upper-division biochemistry course taken prior to entering the program may serve as the basis for waiver or transfer credit, subject to passing the American Chemical Society (ACS) Standardized Examination in Biochemistry. If the units were used to satisfy requirements for another degree, the student is required to take an additional 6 units of course work.

MASTER OF SCIENCE

A minimum of 48 units is required for the M.S. degree, including core requirements, according to one of the two options described below.

Research emphasis

Under this plan a student takes 2 units of cognate courses in addition to the core requirement and carries out research (BCHM 697 [10]) which culminates in a thesis or a publishable paper (BCHM 698 [3]). The student will be given an oral examination by her/his graduate guidance committee after the thesis or publishable paper has been completed.

Course work emphasis

Under this plan a student fulfills the unit requirements by substituting courses for laboratory research and thesis as described in the "Research emphasis" section above. The student takes a comprehensive written examination over the graduate course work in lieu of preparing a thesis or publishable paper. Students may elect to do directed research (BCHM 697) for up to a maximum of 8 units of academic credit in place of course work units.

DOCTOR OF PHILOSOPHY

For the Ph.D. degree, a student must complete a minimum of 75 units, including those listed in the general requirements, within the framework of the description below. Students will take at least 6 units of advanced biochemistry course work: three courses of Advanced Topics in Biochemistry (BCHM 544 [6]). No grade below B (3.0) in the units of required biochemistry courses is acceptable. At least 10 additional units of course work in fields related to biochemistry, as in a minor, must also be completed with a minimum grade point average of 3.0. The student will carry out research (BCHM 697 [21]) as the foundation for preparing an acceptable dissertation (BCHM 699 [5]).

Details of the graduate program are given in the "Student Guide" published by the Department of Biochemistry.

Applications for admission requesting financial support should be completed by February 1.

COMBINED-DEGREES PROGRAM

The student may pursue two degrees simultaneously. The academic/professional degrees of combined-degrees programs are described on page 31 of this BULLETIN.

Program requirements

In the list below, the first four courses are program prerequisites. Lack of one or both of the other two courses would be considered a deficiency. The time required for completion of the program would be extended by the time necessary to make up the deficiency.

Prerequisite:

Differential and integral calculus	(8)
General physics	(12)
Organic chemistry	(12)
General biology	(12)
Required:	
Physical chemistry	(4-8)
Upper-division biology	(4)

Standardized ACS examinations in organic chemistry, physical chemistry, and biochemistry are administered to students as placement examinations upon students' arrival. Evidence of adequate performance on these examinations during the course of undergraduate education is an acceptable alternative. In addition, students are encouraged to take the GRE subject test if it is available for their major.

The department reserves the right to decide on the equivalence of courses presented by the applicant. Applicants who have deficiencies may be provisionally accepted. Deficiencies must be completed before the applicant is accepted into regular status and before the student registers for advanced didactic biochemistry courses numbered above 540.

GENERAL INFORMATION

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

COURSES

BCHM 504 Introduction to Biochemistry (5)
Chemistry and metabolism of proteins, carbohydrates, lipids, and nucleic acids. Enzymes, vitamins and minerals, bioenergetics. Replication, transcription, translation, and regulation of cell function. Special topics in biochemistry related to nutrition. Lecture and demonstration primarily for dental students.

BCHM 505 Seminar in Biochemistry (1)

BCHM 506 Seminar Presentation in Biochemistry (1)

BCHM 508 Principles of Biochemistry (6)
Chemistry of amino acids and proteins. Enzyme properties and mechanisms. Bioenergetics. Chemistry and metabolism of carbohydrates, lipids, amino acids, and nucleic acids. Protein biosynthesis and the control of gene expression. Special topics in physiological chemistry: connective tissue components, acid-base balance, hormones, vitamins, and minerals.

BCHM 523 Introduction to Physical Biochemistry (3)

Introduction to biochemical thermodynamics, proteins and protein physical chemistry, enzyme kinetics and mechanisms, and bioenergetics.

Prerequisite: BCHM 508 or equivalent.

BCHM 525 Metabolic Interrelationships and Control (5)

Structure, function, and control of enzymes. Control of energy metabolism. Cellular mechanisms of hormone action.

Prerequisite: BCHM 508 or equivalent.

BCHM 527 Molecular Biology of the Cell (8)

Identical to CMBL 502 The Cell in Transition offered by the Department of Microbiology.

Crosslistings: CMBL 502, MICR 539.

Prerequisite: BCHM 508 or CMBL 501.

BCHM 534 Techniques of Biochemistry (5)

Intensive integrated laboratory experience in protein chemistry, and the physical characterization of macromolecules. Writing scientific papers.

BCHM 544 Advanced Topics in Biochemistry (2-4)

Recommended for the Ph.D. (2+2+2).

Examples: membrane biochemistry, transport and bioenergetics, physical methods in biochemistry, metabolic regulation, protein structure, hormonal regulation of metabolism. Crosslistings: CMBL 538; BIOL 546; MICR 538.

BCHM 551 Special Problems in Biochemistry (arranged)

BCHM 697 Research (arranged)

BCHM 698 Thesis (arranged)

BCHM 699 Dissertation (arranged)

BIOLOGY

DAVID L. COWLES, Ph.D. University of California, Santa Barbara 1987
 Program Coordinator; Associate Professor of Biology
Ecological physiology, marine biology

The Department of Natural Sciences offers programs leading to the Master of Science and Doctor of Philosophy degrees in biology. These programs of study provide a broad and unified approach to the life sciences; and also 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, ranging 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, biosystematics, cell and molecular biology, ecological physiology, behavioral ecology, conservation biology, genetics, marine biology, microbiology, and paleontology.

OBJECTIVES

The biology program strives to:

1. Instill in students the values of honesty, scientific integrity, careful research, and critical, independent thinking.
2. Provide the tools and intellectual environment in which biologists can attain their highest potential in scholarship, research, and teaching.
3. Challenge graduate students to consider the relationship between science, faith, and societal responsibility.

FACULTY

LEONARD R. BRAND, Ph.D. Cornell University 1970
 Professor of Biology and Paleontology
Vertebrate paleontology, mammalogy, philosophy of science

H. PAUL BUCHHEIM, Ph.D. University of Wyoming 1978
 Professor of Geology
Sedimentology, geolimnology, paleoenvironments

RONALD L. CARTER, Ph.D. Loma Linda University GS 1977
 Chair; Professor of Biology
Genetics, molecular systematics, molecular ecology

WILLIAM K. HAYES, Ph.D. University of Wyoming
 Associate Professor of Biology
Behavioral ecology, herpetology, ornithology

ROBERT A. CUSHMAN, Ph.D. Colorado School of Mines 1994
 Assistant Professor of Geology
Biostratigraphy, paleopalynology, invertebrate paleontology

ASSOCIATE FACULTY

ROLAND C. ALOIA, Ph.D. University of California, Riverside 1970
 Professor of Biochemistry and of Anesthesiology
Effects of anesthetic agents on biological membrane function

LEONARD R. BULLAS, Ph.D. Montana State University 1963
 Professor of Microbiology
Bacterial genetics

DAVID A. HESSINGER, Ph.D. University of Miami 1970
 Professor of Physiology and Pharmacology
Marine toxins, cellular and molecular biology

BENJAMIN H. S. LAU, Ph.D. University of Kentucky 1966; M.D. Loma Linda University SM 1980
Professor of Microbiology
Immunology, medical bacteriology, mycology

SANDRA L. NEHLSSEN-CANNARELLA, Ph.D. National Institute for Medical Research, London 1971
Professor of Microbiology and of Surgery; Research Professor of Pathology
Transplantation immunology, reproductive immunology, autoimmunity

MARVIN A. PETERS, Ph.D. University of Iowa 1969
Professor of Physiology and Pharmacology
Drug metabolism

ARIEL A. ROTH, Ph.D. University of Michigan 1955
Professor of Biology
Invertebrate zoology

JOHN F. STOUT, Ph.D. University of Maryland 1963
Adjunct Professor of Biology
Behavioral physiology

ROBERT W. TEEL, Ph.D. Loma Linda University 1972
Professor of Physiology
Cell physiology, differentiated cells in vitro

R. BRUCE WILCOX, Ph.D. University of Utah 1962
Professor of Biochemistry
Biochemistry of the endocrine system, hormone-dependent carcinogenesis

JAMES R. WILSON, Ph.D. University of Cincinnati 1978
Adjunct Professor of Biology
Regulation of cell adhesion, cancer metastasis

ANTHONY J. ZUCCARELLI, Ph.D. California Institute of Technology 1974
Professor of Microbiology
Molecular genetics, microbiology

GORDON J. ATKINS, Ph.D. McGill University 1987
Adjunct Associate Professor of Biology
Neurophysiology

H. THOMAS GOODWIN, Ph.D. University of Kansas 1990
Adjunct Associate Professor of Biology
Vertebrate paleontology, biogeography

MICHAEL A. KIRBY, Ph.D. University of California, Riverside 1984
Associate Professor of Anatomy
Developmental neurobiology

JUN-ICHI RYU, Ph.D. Tokyo Metropolitan University 1978
Associate Professor of Microbiology
Molecular genetics

HANSEL M. FLETCHER, Ph.D. Temple University 1990
Assistant Professor of Microbiology
Bacterial pathogenesis

MASTER OF SCIENCE

Admission

Applicants must meet the general admission requirements of the Graduate School (as outlined in the current Graduate School BULLETIN). Expected undergraduate preparation includes a bachelor's degree from an accredited college or university, with a biology major or equivalent; bio-statistics, two quarters of college mathematics (calculus recommended), and one year of general chemistry; at least 20 quarter units from two or more of the following: organic chemistry, bio-chemistry, general physics, and geology. Taking of the GRE biology section is recommended.

Student aid

Research and teaching assistantships are available from the department on a competitive basis. Further information can be obtained from the chair of the department. Qualified students are also encouraged to seek fellowships from federal and private agencies such as the National Science Foundation and the National Institutes of Health.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

CURRICULUM

The following constitutes the curriculum for the Master of Science degree in biology.

A minimum of 48 quarter units of academic credit is required. Of the 48 units, 30 must be in biology and cognate science subjects (as approved by the guidance committee), with 20 at or above the 500 level (exclusive of research), including:

BIOL 545	Genetics and Speciation	(4)
BIOL 558	Philosophy of Science	(4)
BIOL 605	Seminar Presentation in Biology	(1)
BIOL 607	Seminar in Biology	(2)
BIOL 616	Research Methods I	(1)
BIOL 617	Research Methods II	(2)

During the graduate program, two of the following three:

Organismal biology or paleontology
Ecology or environmental science
Cell or molecular biology

The remaining 18+ units must include:

Additional courses as may be required by the student's guidance committee

Research, 4-12 units

Thesis, 2 units, including final oral examination and defense

Religion, 3 units

Special attendance requirements

Attendance at all departmental seminars is required of the student while in residence at Loma Linda University.

Recommendations

A reading knowledge of one foreign language is recommended for students planning to enter a Doctor of Philosophy degree program.

Comprehensive examination

An oral comprehensive examination is given to measure the student's general knowledge of biology, especially as it relates to carrying out the proposed research. This examination should be completed by the end of the third quarter of study.

Advancement to candidacy

The student may apply for advancement to candidacy after (1) completing all deficiencies and prerequisites, (2) passing the oral comprehensive examination, (3) selecting a research committee and having an approved research proposal, and (4) being recommended by the department faculty. This should be completed by the end of the third quarter of study.

Thesis

The written thesis must demonstrate the completion of significant, original research.

Defense of thesis

An oral presentation and defense of the thesis is required.

DOCTOR OF PHILOSOPHY

Admission

The successful applicant must meet the general admission requirements of the Graduate School as outlined in the current Graduate School BULLETIN. Undergraduate preparation should include general biology (or the equivalent) and at least one course each in animal physiology, cell and molecular biology (or one year of biochemistry), and genetics. Required cognate courses are two quarters of college mathematics (calculus recommended); one year each of general physics, general chemistry, organic chemistry. Taking of the GRE biology section is recommended.

CURRICULUM

The following constitutes the curriculum for the Doctor of Philosophy degree in biology.

A minimum of 72 quarter units of academic credit for courses, seminars, and research beyond the master's degree is required; that is, a minimum of 120 units beyond the baccalaureate degree, including the following required courses:

- BIOL 545 Genetics and Speciation (4)
- BIOL 558 Philosophy of Science (4)
- or
- GEOL 558 Philosophy of Science (4)
- BIOL 605 Seminar Presentation in Biology (2)
- BIOL 607 Seminar in Biology (3)
- BIOL 616 Research Methods I (1)
- BIOL 617 Research Methods II (2)

A course at this University in one of the following:

- Paleontology
- BIOL 515 Biogeography (3)
- GEOL 548 Field Interpretation of Historical Geology (4)

Additional courses in the Department of Natural Sciences.

At least two

Sometime during the undergraduate or graduate program:

Biology of at least one animal taxon (of at least the class level)

Botany

Developmental biology

Ecology or environmental science

Advanced genetics

Biochemistry

Biostatistics

The required 72+ units must also include:

Additional courses as may be required by the student's guidance committee

Research, 10-25 units

Dissertation, 2 units

Religion, 3-unit course beyond master's degree level

Special attendance requirements

Attendance at all departmental seminars is required of the student while in residence at Loma Linda University.

Recommended

Teaching is recommended during at least one quarter. This experience may be obtained in the laboratory or it may involve presenting part of the lectures for a course.

Comprehensive examinations

An oral and a written comprehensive examination are given near completion of the formal course work. The purpose of these examinations is to measure the student's knowledge of the various fields of biology, philosophy of biology, and preparation for research. These examinations should be completed by the beginning of the third year of study.

Advancement to candidacy

The student may apply for advancement to doctoral candidacy after (1) completing all deficiencies and prerequisites, (2) passing the comprehensive examinations, (3) selecting a research committee and having an approved research proposal, and (4) being recommended by the department faculty.

Dissertation

The written dissertation must demonstrate the completion of significant, original research.

Defense of dissertation

An oral presentation and defense of the dissertation is required.

DOCTOR OF PHILOSOPHY PALEONTOLOGY EMPHASIS

The Department of Natural Sciences offers graduate study in paleontology through both the program in geology and the program in biology. The Master of Science degree in geology emphasizes the study of fossils and the sedimentary rocks in which they are found (see description in the Geology section of this BULLETIN). The Ph.D. degree in biology with a formal emphasis in paleontology focuses on biological aspects of paleontology, such as systematics, morphology, speciation, biogeography, and ecology of ancient organisms.

Admission

Expected undergraduate preparation in biology includes general biology (or the equivalent), genetics, botany, physiology, cell and molecular biology (or the equivalent), and general ecology. Expected undergraduate preparation in cognate subjects and geology includes two quarters of college mathematics (calculus recommended); one year each of general physics and general chemistry; at least one quarter of organic chemistry (additional organic chemistry recommended) and physical geology. Taking of the GRE biology section is recommended.

CURRICULUM

The following constitutes the curriculum for the Doctor of Philosophy degree in biology with an emphasis in paleontology.

A minimum of 72 quarter units of academic credit for courses, seminars, and research beyond

the master's degree is required; that is, a minimum of 120 units beyond the baccalaureate degree, including the following required courses:

BIOL 545	Genetics and Speciation	(4)
BIOL 558	Philosophy of Science	(4)
or		
GEOL 558	Philosophy of Science	(4)
BIOL 605	Seminar Presentation in Biology	(2)
BIOL 607	Seminar in Biology	(3)
BIOL 616	Research Methods I	(1)
BIOL 617	Research Methods II	(2)

One of the following at this University:

BIOL 515	Biogeography	(3)
GEOL 548	Field Interpretation of Historical Geology	(4)
or		
GEOL 556	Paleoenvironments	(4)

Sometime during the undergraduate or graduate program:

Biology of at least one taxon (of at least the class level)

Historical geology (GEOL 405 or 547)

Sedimentology (GEOL 427 or 566)

Stratigraphy (GEOL 429 or 567)

Three advanced paleontology courses (at least two at this University)

Cell physiology or cell and molecular biology or one year of biochemistry

Biostatistics

The required 72+ units must also include:

Additional courses as required by the student's guidance committee

Research, 10-25 units

Dissertation, 2 units

Religion, 3-unit course beyond master's degree level

Special attendance requirements

Attendance at all departmental seminars is required of the student while in residence at Loma Linda University.

Recommended

Teaching is recommended during at least one quarter. This experience may be obtained in the laboratory or it may involve presenting part of the lectures for a course.

Comprehensive examinations

An oral and a written comprehensive examination are given near completion of the formal course work. The purpose of these examinations is to measure the student's knowledge of the various fields of biology, philosophy of biology, and preparation for research. These examinations should be completed by the beginning of the third year of study.

Advancement to candidacy

The student may apply for advancement to doctoral candidacy after (1) completing all deficiencies and prerequisites, (2) passing the comprehensive examinations, (3) selecting a research committee and having an approved research proposal, and (4) being recommended by the department faculty.

Dissertation

The written dissertation must demonstrate the completion of significant, original research.

Defense of dissertation

An oral presentation and defense of the dissertation is required

COMBINED DEGREES**M.D./M.S., D.D.S./M.S.**

For students selecting a combined-degrees program with the Master of Science degree earned in biology or geology, up to 12 units of credit for basic science courses and up to 6 units of research and/or graduate courses done as part of the electives of the professional curriculum may be applied to the master's degree program.

COMBINED DEGREES**M.D./PH.D., D.D.S./PH.D.**

For students selecting a combined-degrees program leading to the Doctor of Medicine and Doctor of Philosophy degrees or to the Doctor of Dental Surgery and Doctor of Philosophy degrees, with the Ph.D. degree earned in biology, the following modifications of requirements may apply: As many as 30 units of credit for basic science courses and up to 30 units of research and/or graduate courses, but not more than 36 units done as part of the electives of the professional curriculum, may be applied to the Ph.D. degree program.

The animal physiology and the biostatistics requirements would be met by the professional curriculum.

Biology minor

At times, students in other University departments will seek a biology minor. A biology minor for students majoring in other departments may include any courses listed under the Department of Natural Sciences except those also listed from the department in which the major is taken. At least one course in the minor must be from among the following primary offerings of the Department of Natural Sciences: BIOL 504 to 589.

Varied course offerings

In addition to the primary offerings of the department, the student may take courses in other departments as part of the graduate work, according to special interests and needs. Some of these courses of special interest to biology students are listed below. See the Departments of Microbiology, Physiology, Anatomy, and Biochemistry for additional courses.

COURSES**BIOL 495 Undergraduate Research (1-4)**

Original investigation and/or literature study pursued under the direction of a faculty member. May be repeated for additional credit.

Prerequisite: Consent of the instructor.

BIOL 504 Biology of Marine Invertebrates (4)

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 505 Marine Biology (4)

Survey of the marine species of the world, and of the oceanographic processes and ecological interactions that affect them. Greatest emphasis placed on species from the North American Pacific coast. Includes an independent project. Three class hours per week, plus all-day field trips (usually on alternate Sundays).

BIOL 509 Mammalogy (4)

Study of the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Three class hours, one three-hour laboratory per week.

BIOL 515 Biogeography (3)

Present and past distribution and migrations of the natural populations of organisms. Offered alternate years.

Prerequisite: Biology or systematics of at least two plant or animal taxa desirable.

BIOL 517 Ecological Physiology (4)

Study of the interface between the individual and the environment, with emphasis on unusual environments, to explore the limits of physiological systems. Three class hours and one three-hour laboratory per week. Offered alternate years.

BIOL 518 Readings in Ecology (2)

Study, analysis, and discussion of current and classic papers.

Prerequisite: A course in ecology or consent of the instructor.

BIOL 524 Paleobotany (4)

Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analysis of floral trends in the fossil record. Three class hours plus one three-hour laboratory or field trip per week.

Crosslisting: GEOL 524.

Prerequisite: Consent of instructor.

BIOL 525 Paleopalynology (4)

The morphology, paleoecology, classification, and stratigraphic distribution of plant microfossils. Includes introduction to biostratigraphic and paleoecologic analytical methods. Three class hours and one three-hour laboratory or field trip per week.

Crosslisting: GEOL 525.

Prerequisite: GEOL 405 or consent of the instructor.

BIOL 526 Principles and Methods of Systematics (3)

Study of the principles and methods of modern systematic biology, with focus on the assumptions, concepts, and computerized methods of phylogeny reconstruction.

BIOL 534 Invertebrate Paleontology (4)

Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Principles and methods involved in the study and analysis of invertebrate fossils considered. Three class hours and one three-hour laboratory per week.

Crosslisting: GEOL 534.

Prerequisite: Consent of the instructor.

BIOL 535 Animal Behavior (4)

Behavioral mechanisms of animals and their role in survival. Lectures and projects.

BIOL 536 Readings in Animal Behavior (2)

Critical analysis of the research literature on selected topics in animal behavior.

Prerequisite: A course in animal behavior or consent of the instructor.

BIOL 537 Advances in Sociobiology (3)

Study of current concepts and ideas relating to the origin and structure of social behavior of animals. Special attention focused on the adaptive significance of species-specific behavior in a wide variety of environments.

BIOL 538 Behavior Genetics (4)

Study of the interaction of genotype and phenotype as it relates to animal behavior. Primary focus at the molecular and physiological levels of behavior. Modern understanding of the nature/nurture debate extended to topics which include biological determinism and ethics.

BIOL 544 Vertebrate Paleontology (4)

Fossil vertebrates, with an emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Three class hours, one three-hour laboratory per week.

Crosslisting: GEOL 544.

Prerequisite: GEOL 405 or consent of the instructor.

BIOL 545 Genetics and Speciation (4)

Comparative analysis of species concepts, mechanisms of speciation, and analysis of micro- and macroevolution. Offered alternate years.

Prerequisite: A course in genetics and philosophy of science.

BIOL 547 Molecular Biosystematics (4)

Analysis at the molecular level of genetic events that underlie speciation. Laboratory work integrated with lecture, demonstrating basic molecular genetic research tools applicable to molecular biosystematics studies.

Prerequisite: Genetics and speciation or molecular genetics, and philosophy of science.

BIOL 548 Molecular Ecology (4)

Application of molecular markers to the study of ecology and natural history of populations. Special emphasis placed on molecular techniques that uniquely contribute to resolving major problems in phylogeography and measures of adaptiveness.

Prerequisite: Genetics and speciation plus a course in either ecology or biogeography.

BIOL 558 Philosophy of Science (4)

Study of selected topics in the history and philosophy of science, and the application of these principles in analyzing contemporary scientific trends. Offered alternate years.

BIOL 588 Current Topics in Biology (1-5)

Reviews of current interest in specific areas of biological science, offered at the discretion of the department. Different sections of the course may be repeated for additional credit.

Prerequisite: Consent of the instructor.

BIOL 589 Readings in Biology (1-4)**BIOL 605 Seminar Presentation in Biology (1)**

Selected topics dealing with recent developments, particularly reports of current research. Student presents one seminar during the quarter.

BIOL 607 Seminar in Biology (0.5)

Selected topics dealing with recent developments. Student attends seminar; no presentation required.

BIOL 616 Research Methods in Biology I (1)

Concepts and methods used in biological research, including scientific writing and literature. Offered Fall Quarter.

BIOL 617 Research Methods in Biology II (2)

Techniques and technology for the analysis and presentation of data. Offered alternate Winter Quarters.

BIOL 695 Special Projects in Biology (1-4)

Responsibility for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

BIOL 697 Research (1-8)
See department checklist for recommended number of units.

BIOL 698 Thesis (2)
Credit for writing the master's thesis.

BIOL 699 Dissertation (2)
Credit for writing the doctoral dissertation.

ROSARIO BEACH SUMMER COURSES

In cooperation with the Walla Walla College Marine Station in Anacortes, Washington, facilities are available for marine courses and research by graduate students of this department. Some of the available courses are listed below.

BIOL 455 Comparative Physiology (5)
Comparative study of the physiology and life process of animals, with emphasis on invertebrates.
Prerequisite: Cell biology.

BIOL 458 Marine Biology (5)
Study of marine life and its ecology, and of oceanography as it affects marine life.

BIOL 459 Marine Invertebrates (5)
Study of the biology of selected groups of marine invertebrates.

BIOL 460 Marine Ecology (5)
Study of interspecific, intraspecific, and community relationships demonstrated by marine organisms.

BIOL 462 Ichthyology (5)
Systematic study of fishes found in Puget Sound, with a survey of fishes of other waters.

BIOL 463 Marine Botany (5)
Systematic study of plants found in Puget Sound, with a survey of marine plants from other areas.

BIOL 508 Physiology of Algae (5)
Comparative study of the physiology of representative members of the major algal groups. Collection and growth of cultures of single-celled forms; related metabolic processes, nutritional factors, light requirements, synchronization, and growth emphasized. Offered every three-to-five years.

BIOL 516 Behavior of Marine Organisms (5)
Study of inter- and intraspecific behaviors of marine animals and their behavioral responses to the physical environment. Laboratory experiences, field observations, and a research project.

Prerequisite: A background in organismal biology and permission of the instructor. Offered every three-to-five years.

GEOLOGY COURSES

Course descriptions for the following courses can be found in the Geology section of this BULLETIN.

GEOL 405 Historical Geology (4)

GEOL 424 Structural Geology (3)

GEOL 425 Field Methods of Geologic Mapping (4)

GEOL 427 Sedimentology (4)

GEOL 429 Stratigraphy (4)

GEOL 437 Geophysics (4)

GEOL 524 Paleobotany (4)

GEOL 525 Paleopalynology (4)

GEOL 534 Invertebrate Paleontology (4)

GEOL 544 Vertebrate Paleontology (4)

GEOL 545 Taphonomy (3)

GEOL 546 Ichnology (2)

GEOL 547 Advanced Historical Geology (4)

GEOL 548 Field Seminar in Historical Geology (4)

GEOL 554 Paleolimnology (4)

GEOL 556 Paleoenvironments (4)

GEOL 566 Advanced Sedimentology (4)

GEOL 567 Stratigraphy and Basin Analysis (4)

BASIC MEDICAL SCIENCE COURSES

Numerous courses offered by the basic medical science departments are available to graduate students. Some are listed here, and their course descriptions may be found elsewhere in this BULLETIN.

ANAT 546 Electron Microscopy (3)

ANAT 548 Advanced and Molecular Cytology (3)

ANAT 554 Techniques in Experimental Morphology (3)

BCHM 301, 302 Basics of Biochemistry (3, 2)

BCHM 508 Principles of Medical Biochemistry (6)

BCHM 523 Introduction to Physical Biochemistry (3)

BCHM 525 Metabolic Interrelationships and Control (5)

BCHM 534 Techniques in Biochemistry (5)

ENVH 566 Air Quality and Human Health (2-4)

ENVH 568 Water Quality Assurance (3)

ENVH 569 Environmental Sampling and Analysis (4)

ENVH 586 Environmental Health Administration (3)

MICR 521 Medical Microbiology (8)

MICR 539 Molecular Biology of Prokaryotes and Eukaryotes (8)

MICR 555 Microbial Genetics (3)

MICR 565 Virology (3)

MICR 566 Cell Culture (3)

MICR 568 Laboratory Techniques in
Virology (3)

MICR 594 Medical Mycology (3)

PHSL 535 Comparative Physiology (5)

PHSL 541 Cell and Molecular Biology (4)

PHSL 596 Readings in Comparative
Physiology (1)

STAT 521 Biostatistics I (4)

STAT 522 Biostatistics II (4)

STAT 523 Biostatistics III (4)

STAT 549 Analytical Application of SPSS/PC (2)

STAT 568 Data Analysis (2-3)



BIOMEDICAL AND CLINICAL ETHICS

GERALD R. WINSLOW, Ph.D. Graduate Theological Union 1979
Dean and Program Coordinator
Christian ethics

The purpose of this interdisciplinary course of graduate study leading to a Master of Arts degree in biomedical and clinical ethics is to prepare qualified persons to engage in education, research, and service pertinent to the ethical issues in health care and human biology.

This degree is designed primarily for two types of students: those who are planning to pursue a career in biomedical ethics and 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 other professions.

The Biomedical and Clinical Ethics Program is administered by the Faculty of Religion through the Graduate School. It draws upon resources from many sectors of the campus, including clinical faculty in four of the University's schools, Loma Linda University Medical Center's Department of Clinical Ethics, the Center for Christian Bioethics, and the Center for Spiritual Life and Wholeness. The M.A. degree program cooperates with the Center for Christian Bioethics in a variety of ways. The Center's Thompson Library, a constantly growing collection with approximately 2,500 volumes, aims to become one of the most comprehensive libraries of materials in biomedical and clinical ethics on the Pacific Slope. These materials, which are an especially valuable resource for graduate students, supplement the related holdings in the primary libraries of Loma Linda University and nearby institutions.

The primary objectives of the Biomedical and Clinical Ethics Program are to:

1. Promote interdisciplinary study of ethical issues in health care and human biology.
2. Provide practical experience through observation and participation in clinical ethics.
3. Offer course work in the theological, biblical, and philosophical resources for ethics.
4. Prepare students for subsequent doctoral work in ethics.
5. Enhance understanding of biomedical ethics for members of the health care and other professions.

FACULTY

- IVAN BLAZEN, Ph.D. Princeton Theological Seminary 1979
 Professor of Religion
Biblical interpretation and theology
- DAVID R. LARSON, Ph.D. Claremont Graduate School 1982
 Professor Religion and Co-Director, Center for Christian Bioethics
Theological and philosophical ethics, Biomedical ethics
- ROBERT D. ORR, M.D. McGill University 1966
 Professor of Family Medicine; Co-Director, Center for Christian Bioethics
 Director of the Department of Clinical Ethics, Loma Linda University Medical Center
Clinical ethics
- RICHARD RICE, Ph.D. University of Chicago Divinity School 1974
 Professor of Religion
Christian theology and philosophy of religion
- JACK W. PROVONSHA, M.D. Loma Linda University SM 1953; Ph.D. Claremont Graduate School 1967
 Emeritus Professor of Philosophy of Religion and Christian Ethics
Philosophy of religion, theology, biomedical ethics, clinical ethics
- JAMES W. WALTERS, Ph.D. Claremont Graduate School 1979
 Professor of Religion
Theological and philosophical ethics, biomedical Ethics
- MARK CARR, Ph.D. University of Virginia 1998
 Assistant Professor of Religion
Christian ethics
- DENNIS deLEON, M.D. University of Tennessee, Memphis 1989
 Assistant Professor of Family Medicine
Clinical ethics

ASSOCIATE FACULTY

- ROY BRANSON, Ph.D. Harvard University 1968
 Adjunct Professor of Christian Ethics
Theological and philosophical ethics, biomedical ethics, religion and society
- CHARLES W. TEEL, Jr., Ph.D. Boston University 1972
 Adjunct Professor of Christian Ethics
Christian social ethics, sociology of religion
- LOIS VAN CLEVE, Ph.D. Claremont Graduate School 1985
 Professor of Nursing
Ethics in nursing
- GARY CHARTIER, Ph.D. University of Cambridge 1991
 Adjunct Assistant Professor of Christian Ethics
Theological and philosophical ethics

CLINICAL FACULTY

- ROBERT KIGER, D.D.S., M.A. Loma Linda University SD, GS 1970, 1985
 Chair, Department of Periodontics
 Professor of Dentistry
Clinical ethics
- RONALD M. PERKIN, M.D. University of South Florida 1976, M.A. Loma Linda University GS 1997
 Professor and Associate Chair, Department of Pediatrics
Clinical ethics
- DEBRA CRAIG, M.D., M.A. Loma Linda University SM, GS 1982, 1995
 Associate Professor of Medicine
Clinical ethics
- STEVEN B. HARDIN, M.D. Loma Linda University SM 1985
 Assistant Professor of Medicine
Clinical ethics
- MILENNE ALDANA DELEON M.P.H., R.D. Loma Linda University PH 1994
 Instructor in Nutrition and Dietetics
Clinical ethics

MASTER OF ARTS

Admission

In addition to meeting admission requirements for the Graduate School, the applicant to the Biomedical and Clinical Ethics Program must:

1. Propose clear personal and professional goals and ways in which the Biomedical and Clinical Ethics Program may facilitate their realization.
2. Persuade the admissions committee by previous accomplishments that s/he is able and willing to reach these goals and to make a significant contribution to the field.

Course requirements

In order to receive the Master of Arts degree in biomedical and clinical ethics from Loma Linda University, the student will complete a minimum of 48 units of course work as herein specified, with an overall grade point average of B or better, with no grade lower than a C and with no grade in a required course lower than a B-. At least 36 units must be in approved courses numbered 500-699 or their equivalent. The required curriculum is as follows:

Curriculum

- | | | |
|----------|--|-----|
| RELG 504 | Research Methods | (4) |
| RELE 524 | Christian Bioethics | (4) |
| RELE 548 | Christian Social Ethics | (4) |
| RELE 554 | Clinical Intensive in Biomedical Ethics I | (4) |
| RELE 555 | Clinical Intensive in Biomedical Ethics II | (4) |
| RELE 577 | Theological Ethics | (4) |

- RELE 588 Philosophical Ethics (4)
 RELE 624 Seminar in Scripture and Ethics (4)
 ——— — Approved electives (16)

TOTAL UNITS REQUIRED (48)

Transfer credit

Students are permitted to transfer up to 8 units of approved graduate level courses from other accredited institutions into the Biomedical and Clinical Ethics Program. In addition, prior or current students in Loma Linda University's other postbaccalaureate degree programs are permitted to petition to receive credit for a maximum of 12 units for courses completed in their professional studies that are directly related to biomedical and clinical ethics.

Comprehensive examinations

Each student must pass five comprehensive examinations within a period of two weeks. These written examinations will test the student's ability to integrate and apply knowledge from the following areas: (1) philosophical ethics, (2) theological and biblical ethics, (3) social ethics, (4) biomedical ethics, and (5) clinical ethics. These examinations must be successfully completed before the student defends a thesis or its approved substitutes.

Thesis or project

Each student must either prepare a thesis while registered for RELE 697 and RELE 698 or prepare three major papers of publishable quality in courses approved as substitutes by the guidance committee. The student must provide an oral defense of a thesis or three major papers that analyze specific issues, cases, dilemmas, or themes in biomedical and clinical ethics. Students must declare whether they intend to write a thesis by the time they complete 24 quarter units in the program.

COURSES

RELG 504 Research Methods (4)

Examination of the presuppositions and procedures for graduate research in religious studies. Use of libraries and research centers. Ways and means of preparing and presenting term papers, theses, and scholarly articles.

RELE 524 Christian Bioethics (4)

Advanced analysis of ethical issues and options in medicine and related fields. Contributions of Christian thought and life. Topics selected in part by student priorities.

RELE 525 Ethics for Scientists (4)

The ethical presuppositions and obligations of scientific research, particularly in the physical and biological sciences. Identification, clarification and resolution of ethical issues in scientific research, with emphasis on Christian contributions.

RELE 534 Ethical Issues in Public Health (4)

Theoretical and practical appraisals of the ethical issues and alternatives encountered by public health administrators, educators, and investigators.

RELE 548 Christian Social Ethics (4)

Implications of Christian belief for selected problems in social ethical theory and practice.

RELE 554 Clinical Intensive in Biomedical Ethics I (4)

Theories and applications of clinical biomedical ethics.

RELE 555 Clinical Intensive in Biomedical Ethics II (4)

Theories and applications of clinical biomedical ethics.

Prerequisite: RELE 554.

RELE 577 Theological Ethics (4)

Primary theological legacies of Western culture. Relationships between doctrinal formulations and interpretations of health and healing; possible contribution of each legacy to contemporary therapeutic endeavors.

RELE 588 Philosophical Ethics (4)

Critical analysis of the basic theories propounded in Western philosophical ethics. Study of the writings of major ethical theorists, including Plato, Aristotle, Kant, and Mill. Philosophical ethics compared with Christian faith.

RELE 624 Seminar in Scripture and Ethics (4)

Investigation of ethical contributions of Christian Scripture. In-depth study of various biblical passages that focus on important moral themes.

RELG 674 Reading Tutorial (4)

Reading course for graduate students in religious studies. Topics vary depending on student and instructor interests.

Prerequisite: Consent of the instructor.

RELG 697 Independent Research (1-8)

Prerequisite: Consent of the instructor and the student's adviser.

RELG 698 Thesis (1-4)

Prerequisite: Consent of the instructor and the student's adviser.

RELG 699 Directed Study (1-4)

Prerequisite: Consent of the instructor and the student's adviser.

BIOMEDICAL SCIENCES

RAMON R. GONZALEZ, Jr., Ph.D. Wake Forrest University 1973
 Program Coordinator; Associate Professor of Physiology
Cardiovascular physiology, control of circulation

The Biomedical Sciences Certificate Program provides an opportunity for qualified students to register for selected graduate-level courses in the biomedical sciences. These courses are identical to those taken by students in our master's and doctoral degree programs; however, the certificate program enables students to complete their studies with one academic year of full-time commitment. The program is intended to provide postbaccalaureate experience in the rapidly changing area of biomedical sciences. As such, it will either augment other career choices such as high school teaching, patent law, and biotechnology management; or improve the preparation for professional training in medicine or dentistry.

Faculty for the program will be drawn from the graduate faculty associated with basic science departments of the School of Medicine and the Department of Natural Sciences in the Graduate School.

POSTBACCALAUREATE CERTIFICATE

Admission

Students entering the program will have completed a baccalaureate degree (or its equivalent) meeting the criteria outlined under the Admission Information section of this BULLETIN. Students who have not taken the Graduate Record Examination may be considered if they have a Medical College Acceptance Test with no score less than 6 and an aggregate score greater than 20. A Dental Aptitude Test score greater than 15 would also be acceptable.

Course of study

Students will be required to complete 28 units selected from courses offered through the Graduate School. These courses will include three units of religion, with the remaining 25 units selected, in consultation with the program coordinator, from offerings in the biological sciences.

The program may include 1 unit of appropriate seminar and up to 6 units of research. Since many of the courses offered in the basic medical sciences are sequenced or anticipate specific undergraduate experiences, students will be required to meet all course prerequisites.

Students may choose to select course sequences that could be applied to one of the Master of Science degree programs that the Graduate School offers in the biological sciences. Course work at the level of B (3.00) or above would be transferred to such a Master of Science degree program upon presentation of a petition for academic variance to the dean of the Graduate School.

Although several of the courses may share lecture experience and tests with the School of Medicine doctoral degree program, such courses will not be transferred to the School of Medicine; and a student subsequently admitted to the M.D. degree program should expect to take, and pay for, the normal medical school curriculum.

CLINICAL MINISTRY

GERALD R. WINSLOW, Ph.D. Graduate Theological Union, University of California, Berkeley 1979
Dean; Professor of Christian Ethics
Christian ethics

RANDALL L. ROBERTS, D.Min. Fuller Theological Seminary 1996
Program Coordinator; Assistant Professor of Practical Theology
Pastoral care, ministry

The Master of Arts degree in clinical ministry encourages students to explore the theological, biblical, and historical roots of ministry within the institutional setting and to prepare for the practice of such ministry. It is especially valuable as preparation for careers in chaplaincy and other fields of ministry. It is specifically designed for three types of students: (1) those at the beginning of their professional lives; (2) those pursuing this degree in order to enhance or shift their existing careers; and (3) those pursuing this degree as a steppingstone to further study. This degree furthers education in caring for the whole person. The student will develop clinical skills applicable to contemporary ministry.

The program includes education in two areas: academic and clinical. Academic preparation is provided by the Faculty of Religion and other cooperating departments within the University.

Settings providing clinical opportunities for training in institutional ministry include: Loma Linda University Medical Center (LLUMC), Loma Linda University Behavioral Medicine Center, Loma Linda University Community Medical Center, the SAC-Norton Clinic, the Jerry L. Pettis Memorial Veterans Medical Center, and others.

LLUMC, under the auspices of the Department of Chaplain Services, is an accredited Clinical Pastoral Education (CPE) Center. Students admitted to the M.A. degree program in Clinical Ministry program may apply for this clinical placement. (Separate application procedures are required.)

The faculty represents a balance between academic expertise and clinical experience, as well as a variety of disciplines, including: biblical studies, theology, practical theology, marriage and family therapy, cultural psychology, American church history, health education, nursing, and ethics.

The program has the following objectives:

1. Develop persons skilled in the practice of ministry in both routine and critical settings.
2. Expose students to a wide range of biblical, theological, and practical material pertinent to the field.
3. Provide a broadly based education in ministry, with specific focus on the practice of ministry.
4. Prepare students for membership in various professional organizations, such as the American Association of Pastoral Counselors (AAPC), the Association for Clinical Pastoral Education (ACPE), the College of Chaplains (COC), etc.
5. Contribute positively to the student's pastoral formation.

FACULTY

IVAN BLAZEN, Ph.D. Princeton Theological Seminary
1979

Professor of Religion
Biblical interpretation and theology

DAVID R. LARSON, D.Min. Claremont School of
Theology 1973; Ph.D. Claremont Graduate
University 1982

Professor of Religion
Christian ethics

JOHNNY RAMIREZ, Ed.D. Harvard University 1993

Professor of Religion
Theology, psychology, and culture

RICHARD RICE, Ph.D. University of Chicago Divinity
School 1974

Professor of Religion
Christian theology

DAVID L. TAYLOR, D.Min. Vanderbilt University 1977

Professor of Religion
American religious history and theology

LOUIS VENDEN, Ph.D. Princeton Theological Seminary
1979

Professor of Religion
Theology and ministry

JAMES W. WALTERS, Ph.D. Claremont Graduate
University 1979

Professor of Religion
Christian ethics

CARLA G. GOBER, M.P.H., M.S. Loma Linda University
PH, GS 1985, 1994

Assistant Professor of Religion;
Associate Director, Center for Spiritual Life and
Wholeness
Clinical ministry

ASSOCIATE FACULTY

WILLIAM LOVELESS, Ed.D. University of Maryland
1964

Adjunct Professor of Religion

BERNARD TAYLOR, Ph.D. Hebrew Union College 1989

Adjunct Professor of Religion

FRED KASISCHKE, D.Min. Fuller Theological Seminary
1988

Assistant Professor of Dental Curriculum

SIROJ SORAJJAKOOL, M.A. Andrews University 1987

Adjunct Assistant Professor of Religion

HYVETH WILLIAMS, D.Min. Boston University 1998

Adjunct Assistant Professor of Religion

CLINICAL FACULTY

WIL ALEXANDER, Ph.D. Michigan State 1962; M.Th.
Edinburgh University 1966

Professor of Clinical Ministry
Director, Center for Spiritual Life and Wholeness

M. JERRY DAVIS, Rel.D. Claremont School of Theology
1967

Adjunct Professor of Religion

D. LEIGH AVELING, D.Min. Claremont School of
Theology 1996

Adjunct Assistant Professor of Religion

ART EARLL, M.Div. Andrews University 1971

Adjunct Assistant Professor of Religion

JAMES GREEK, D.Min. Fuller Theological Seminary
1985

Adjunct Assistant Professor of Religion

DONNA SMITH-HERRICK, M.Div. Stanford University
1994

Adjunct Assistant Professor of Religion

MASTER OF ARTS

Admission

In addition to meeting admission require-
ments for the Graduate School, the applicant to
the Clinical Ministry Program must:

1. Propose clear personal and professional goals
and ways in which the program in Clinical
ministry may facilitate their realization;
2. Persuade the admissions committee by previ-
ous accomplishments that s/he is able and
willing to reach these goals and to make a sig-
nificant contribution to the field.

COURSE REQUIREMENTS

In order to receive the Master of Arts in clinical
ministry from Loma Linda University, the stu-
dent will complete a minimum of 48 units of
course work as herein specified, with an overall
grade point average of B or better, with no grade
lower than C and with no grade in a core course
lower than a B-. The required curriculum is as
follows:

REQUIRED CURRICULUM

(core course work: 36-48 units)

RELG 504	Research Methods	(3-4)
RELR 565	Introduction to Ministry in Institutional Settings	(3-4)
RELR 567	Introduction to Pastoral Counseling	(3-4)
RELR 568	Care of the Dying and Bereaved	(3-4)
RELR 574	Preaching Practicum in Clinical Ministry	(3-4)
RELR 584	Culture, Psychology, and Religion	(3-4)
RELR 694	Seminar in Clinical Ministry	(3-4)
RELF 557	A Theology of Human Suffering	(3-4)
RELF 559	New Testament Theology	(3-4)
RELF 588	Old Testament Theology	(3-4)

RELE 524	Christian Bioethics	(3-4)
MFAM 515	Crisis Intervention Counseling	(3)

Additional courses selected as required:

RELG 697	Independent Research	(1-8 units)
RELG 696	Project	(1-4 units)
RELG 698	Thesis	(1-4 units)
— —	Approved electives	(0-12 units)

TOTAL UNITS REQUIRED (48)

Students are able to transfer up to 8 units of approved graduate-level courses from other institutions into the University's program in clinical ministry.

Students must also satisfactorily complete an approved one-year (i.e., 1,600 hours) clinical internship. The program recommends that this requirement be met by the satisfactory completion of four quarters of clinical pastoral education (CPE) at an accredited CPE center. (*Note: Acceptance into a quarter of CPE is at the discretion of the CPE supervisor and must be arranged individually and in advance.*) The expectation of the program is that all students will complete all course work before entering the clinical internship. In certain cases, however, a student may petition the director of the program to take the clinical internship out of sequence. Even in such cases, the recommendation is that certain classes—namely RELR 565, RELR 568, and RELR 694—be completed before entering the clinical internship.

CPE (RELR 524), if taken as a selective, may account for a maximum of 6 academic units, and, if taken for academic credit, must be taken in addition to the 1,600-hour clinical internship.

After every 400-hour segment, a clinical evaluation form must be submitted to the program director.

Comprehensive examination

Each student must pass a comprehensive examination. This examination will test the student's ability to integrate and apply knowledge from the overall program. This examination must be successfully completed before the student defends a thesis, project, or papers.

Thesis or project

Each student must either prepare a thesis while registered for RELR 698 or prepare a project while registered for RELR 696 or prepare two major papers of publishable quality. The student must provide an oral defense of the thesis, project, or two major papers. Students must declare whether they intend to complete a thesis, project, or two major papers by the time they complete 12 quarter units in the program.

COURSES

RELG 504 Research Methods (3-4)

Examination of the presuppositions and procedures for graduate research in religious studies. Use of libraries and research centers. Ways and means of preparing and presenting term papers, theses, and scholarly articles.

Additional project required for fourth unit.

RELR 565 Introduction to Ministry in Institutional Settings (3-4)

Study of the biblical and theological foundations for the practice of ministry in institutional settings.

Additional project required for fourth unit.

RELR 567 Introduction to Pastoral Counseling (3-4)

Overview of theology, history, theory, and practice of pastoral counseling.

Additional project required for fourth unit.

RELR 586 Care of the Dying and Bereaved (3-4)

Study of the biblical, theological, cultural, relational, and psychological aspects of dying and death.

Additional project required for fourth unit.

RELR 574 Preaching Practicum in Clinical Ministry (3-4)

Introduction to homiletics. Basic sermon preparation skills, sermon delivery, worship sermons, funeral sermons, and wedding sermons.

Additional project required for fourth unit.

RELR 584 Culture, Psychology, and Religion (3-4)

Introduction to the major contours of Western culture as they relate to various schools of psychological thought and the influence of religious beliefs in their inception. Theological critique of various world views that have guided psychological schools of thought. Topics to be examined include liberalism and modernism; pietism and evangelicalism; Enlightenment and Romantic movements.

Additional project required for fourth unit.

RELR 694 Seminar in Clinical Ministry (3-4)

Principles and practice of effective interaction with patients, parishioners, inmates, and other populations.

Additional project required for fourth unit.

RELF 557 A Theology of Human Suffering (3-4)

Suffering and evil in relation to the creative and redemptive purposes of God for this world. Formation of the student's theology of human suffering of uppermost concern.

Additional project required for fourth unit.

RELF 558 Old Testament Theology (3-4)

Major theological concepts of the Old Testament and how these relate to Christian faith and understanding.

Additional project required for fourth unit.

RELF 559 New Testament Theology (3-4)

Major theological themes found in the teachings of Jesus, Paul, and John.

Additional project required for fourth unit.

RELE 524 Christian Bioethics (3-4)

Advanced analysis of ethical issues and options in medicine and related fields. Contributions of Christian thought and life. Topics selected in part by student priorities.

Additional project required for fourth unit.

MFAM 515 Crisis-Intervention Counseling (3)

Experiential course where theory, techniques, and practices of crisis intervention are presented, with special attention to the development of the basic communication skills of counseling. Areas included which are intended to contribute to the development of a professional attitude and identity are: confidentiality, inter-professional cooperation, professional socialization, and organization. Therapeutic tapes covering topics such as death and dying, incest, spousal abuse, and rape.

Laboratory required.

RELG 697 Independent Research (1-8)

Prerequisite: Consent of the instructor and the student's adviser.

RELG 696 Project (1-4)

Prerequisite: Consent of the instructor and the student's adviser.

RELG 698 Thesis (1-4)

Prerequisite: Consent of the instructor and the student's adviser.



DENTISTRY

CHARLES J. GOODACRE, D.D.S. Loma Linda University SD 1971; M.S.D. Indiana University 1974
 Dean; Professor of Restorative Dentistry
Prosthodontics

LEIF K. BAKLAND, D.D.S. Loma Linda University SD 1963
 Coordinator, graduate programs in dentistry; Professor of Endodontics
Endodontics

Graduate study leading to the Master of Science degree or a specialty certificate in dentistry is offered in the following areas: endodontics, implant dentistry, oral and maxillofacial surgery, orthodontics and dentofacial orthopedics, pediatric dentistry, periodontics and prosthodontics. The basic science approach to research and clinical practice is emphasized. The programs are organized in line with the standards of the Council on Dental Education of the American Dental Association; and in objectives and content, where applicable, meet the requirements of the respective specialty boards.

FACULTY

DAVID ANDERSON, D.D.S. Loma Linda University SD 1970
 Professor of Dental Anesthesiology
Dental anesthesiology

PHILIP J. BOYNE, D.M.D. Tufts University 1947; M.S. Georgetown University 1961
 Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

WAYNE V. CAMPAGNI, D.M.D. University of Pittsburgh 1959; Certificate in Prosthodontics, Veterans Administration Hospital—Wadsworth, Los Angeles 1979
 Professor of Restorative Dentistry
Prosthodontics

MAX CRIGGER, D.D.S. Ohio State University 1965, M.S. Eastman Dental Center New York, 1972
 Professor of Periodontics
Periodontics

JOHN E. PETERSON, JR., D.D.S. Loma Linda University SD 1970, M.S. GS 1978
 Professor of Orthodontics and of Dentofacial Orthopedics and of Pediatric Dentistry
Orthodontics and dentofacial orthopedics and pediatric dentistry

JAMES H. SIMON, D.D.S. Temple University 1961
 Professor of Endodontics
Endodontics

DIMITRIS N. TATAKIS, D.D.S. University of Athens (Greece) 1982; Certificate in Periodontics, State University of New York at Buffalo 1988; Ph.D. State University of New York at Buffalo 1990
 Professor of Periodontics
Periodontics

MAHMOUD TORABINEJAD, D.M.D. University of Tehran (Iran) 1971; M.S.D. University of Washington 1976; Ph.D. University of London, 1995
 Professor of Endodontics
Endodontics

JOHN WHITTAKER, D.D.S. Otago University (New Zealand) 1967
 Professor of Restorative Dentistry
Implant dentistry

GARY C. BOGLE, D.D.S. Loma Linda University SD 1969, M.S. GS 1973
 Associate Professor of Periodontics
Periodontics

JOSEPH M. CARUSO, D.D.S. Loma Linda University SD 1973, M.S. GS 1975, M.P.H. SPH 1976
 Associate Professor of Orthodontics and Dentofacial Orthopedics
Orthodontics and dentofacial orthopedics

TONY DAHER, D.D.S. University of St. Joseph, (Lebanon) 1977; Certificate in Prosthodontics, University of Paris (France) 1980; M.S. Ed. University of Southern California 1984; Certificate in Prosthodontics, University of California at Los Angeles 1988; Board Certified Diplomate 1998
 Associate Professor of Restorative Dentistry
Prosthodontics

ROBERT J. FRANK, D.D.S. Ohio State University 1972
Associate Professor of Endodontics
Endodontics

BERNARD G. GANTES, D.D.S. University Rene
Descartes (France) 1978; M.S. Loma Linda
University GS 1985
Associate Professor of Periodontics
Periodontics

LLOYD E. GAUNT, D.D.S. Loma Linda University SD
1963, M.S. GS 1965
Associate Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

KEITH D. HOFFMAN, D.D.S. Loma Linda University SD
1983; Ph.D. Louisiana State University 1990
Associate Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

JAIME L. LOZADA, D.D.S. University of Puebla
(Mexico) 1983
Associate Professor of Restorative Dentistry
Implant dentistry, periodontics

DOUGLAS J. MCKENDRY, D.D.S. University of Alberta
(Canada) 1983; M.S.D. University of
Washington 1986
Associate Professor of Endodontics
Endodontics

STEVEN G. MORROW, D.D.S. Loma Linda University
SD 1960, M.S. GS 1987
Associate Professor of Endodontics
Endodontics

GORDON M. RICK, D.D.S. Loma Linda University SD
1968, M.S. GS 1972
Associate Professor of Oral Pathology
Oral pathology

WILLIS L. Schlenker, D.D.S. Loma Linda University SD
1957
Associate Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

THORARINN J. SIGURDSSON, D.D.S. University of
Iceland (Iceland) 1974; Certificate in
Periodontics, Lund University (Sweden) 1979;
Certificate in Periodontics, Loma Linda
University SD 1994
Associate Professor of Periodontics
Periodontics

SHAHNAZ BONYANPOOR, D.M.D. Shiraz University
School of Dental Medicine (Iran) 1978;
Certificate in Pediatric Dentistry, Boston
University 1980
Assistant Professor of Pediatric Dentistry
Pediatric dentistry

R. DAVID RYNEARSON, D.D.S. Loma Linda University
SD 1971, M.S. GS 1987
Assistant Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

MELVA S. WYATT, D.D.S. University of San Carlos of
Guatemala School of Dentistry (Guatemala)
1985; Certificate in Pediatric Dentistry,
Louisiana State University 1989
Assistant Professor of Pediatric Dentistry
Pediatric dentistry

ASSOCIATE FACULTY

ROBERT M. RICKETTS, D.D.S. Indiana University
1945; M.S. University of Illinois 1950
Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

KNUT A. SELVIG, D.D.S. University of Oslo (Norway)
1955; Certificate in Periodontics, Eastman
Dental Center 1961; M.S. University of
Rochester 1962; Ph.D. University of Bergen
(Norway) 1967
Professor of Periodontics
Periodontics

JOHN L. TOMLINSON, Ph.D. University of Wisconsin
1967
Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

W. HOWARD DAVIS, D.D.S. University of Southern
California 1948
Associate Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

JOHN P. DEVINCENZO, D.D.S. Loma Linda University
SD 1964, M.S. GS 1967
Associate Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

JAMES R. WISE, D.D.S. Loma Linda University SD
1967, M.S. GS 1971
Associate Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

NORMAN S. CARTER, D.D.S. Loma Linda University SD
1973, M.S. GS 1975
Assistant Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

CLELAN G. EHRLER, D.D.S. Loma Linda University SD
1968, M.S. GS 1971
Assistant Professor of Orthodontics and Dentofacial
Orthopedics
Orthodontics and dentofacial orthopedics

ADAM J. JANETTE, D.D.S. University of Illinois, 1991;
Certificate in Oral and Maxillofacial Surgery,
Northwestern University Dental School 1996
Assistant Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

RONALD M. KAMINISHI, D.D.S. Northwestern
University 1968
Assistant Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

EDWARD I. KIM, D.D.S. University of Southern
California 1983; M.S. Loma Linda
University GS 1993
Assistant Professor of Restorative Dentistry
Implant dentistry

ANTHONY B. LIER, D.D.S. Loma Linda University SD
1975, M.S. GS 1981

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

ROBERT D. MITCHELL, D.D.S. Loma Linda University
SD 1978, M.S. GS 1985

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

THOMAS L. ROBERTSON, D.D.S. Marquette University
1959; M.S. Loma Linda University GS 1968

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

JEFFREY I. ROSENBERG, D.D.S. Baltimore College of
Dental Surgery 1978; Certificate in Prosthodontics,
Veterans Administration Hospital, Los Angeles 1982

Assistant Professor of Restorative Dentistry

Implant dentistry

RAYMOND M. SUGIYAMA, D.D.S. Western Reserve
University 1964; M.S. Loma Linda University
GS 1968

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

GUY D. TAYLOR, D.D.S. West Virginia University 1967,
M.S. 1971

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

PETER S. WOHRLE, D.M.D. Harvard School of Dental
Medicine 1988; M.Med.Sc. Harvard University
1991; Certificate in Prosthodontics, Harvard
School of Dental Medicine 1989; Certificate in
Implant Dentistry, Harvard School of Dental
Medicine 1991

Assistant Professor of Restorative Dentistry

Implant dentistry

CLINICAL FACULTY

ALFRED L. FRANK, D.D.S. University of Southern
California 1945

Professor of Endodontics

Endodontics

W. EUGENE RATHBUN, D.D.S. University Rene
Descartes Paris (France) 1978, Certificate in
Periodontics Loma Linda University SD 1965;
Ph.D. University California Los Angeles 1970

Professor of Periodontics

Periodontics

DONALD S. CLEM III, D.D.S. Loyola University 1980;
Certificate in Periodontics, University of Texas
Health Science Center 1984

Associate Professor of Periodontics

Periodontics

WAYNE K. TANAKA, D.D.S. University of Washington,
1976; Certificate in Oral and Maxillofacial
Surgery, Wilford Hall USAF Medical Center,
Lackland AFB, 1983.

Associate Professor of Oral and Maxillofacial Surgery
Oral and maxillofacial surgery

ROBERT L. BASS, D.D.S. University of Nebraska 1982

Assistant Professor of Oral and Maxillofacial Surgery

Oral and maxillofacial surgery

GUNTHER BLASEIO, D.D.S. Erlangen University 1977;
M.S. Loma Linda University GS 1986

Assistant Professor of Orthodontics and Dentofacial
Orthopedics

Orthodontics and dentofacial orthopedics

MILOS BOSKOVIC, D.D.S. University of Southern
California 1984

Assistant Professor of Restorative Dentistry

Oral implantology

MICHAEL E. FOX, D.D.S., Loma Linda University SD
1983

Assistant Professor of Oral and Maxillofacial Surgery

Oral and maxillofacial surgery

PAUL J. FUENTES, D.D.S. University of California, Los
Angeles 1981; Certificate in Periodontics,
Loma Linda University SD 1988

Assistant Professor of Periodontics

Periodontics

DANIEL KUNIHIRA, D.D.S., Loma Linda University SD
1974; Certificate in Periodontics, Virginia
Commonwealth University 1982

Assistant Professor of Periodontics

Periodontics

MICHAEL B. LEE, D.D.S. Loma Linda University SD
1983, M.S. GS 1995

Assistant Professor of Periodontics

Periodontics

WILLIAM L. MIHRAM, D.D.S. Baylor College of
Dentistry 1970; Certificate in Periodontics,
Baylor University 1972, M.S.D. 1972

Assistant Professor of Periodontics

Periodontics

W. PETER NORDLAND, D.M.D. Temple University
School of Dentistry 1979; Certificate in
Periodontics, Loma Linda University GS 1982

Assistant Professor of Periodontics

Periodontics

MARC P. SALOMONE, D.D.S. University of California,
Los Angeles 1982

Assistant Professor of Oral and Maxillofacial Surgery

Oral and maxillofacial surgery

HARVEY ZALSMAN, JR., D.D.S. Loma Linda University
SD 1983, M.D. SM 1990

Assistant Professor of Oral and Maxillofacial Surgery

Oral and maxillofacial surgery

WILSON B. BAUGH, D.D.S. University of Southern
California 1981

Instructor in Oral and Maxillofacial Surgery

Oral and maxillofacial surgery

Admission

An appropriate degree from an accredited college, or the equivalent, and other specifics and personal qualifications are required for admission for graduate study. A doctoral degree in dentistry (Doctor of Dental Surgery or Doctor of Dental Medicine, or the equivalent) is required for admission to all programs. Application for admission should be made before or by September 15 for the programs in endodontics and periodontics; October 1 for the programs in orthodontics and dentofacial orthopedics; October 15 for the programs in implant dentistry and prosthodontics; and on or before November 15 for the programs in oral and maxillofacial surgery and pediatric dentistry.

Residence

The required time in residence varies with the program. For length of program, refer to information under program description.

Grades

The student must achieve a general grade point average of not less than 3.00, with no subject below 2.0. In addition to earning acceptable scholastic marks, evidence of personal and professional fitness for growth in the science and art of the specialty must be submitted.

Advancement to candidacy

The student desiring to qualify for a master's degree should petition the Graduate Council for advancement to candidacy not later than the close of the first academic year. At the same time, the proposed thesis topic, an outline, and a comprehensive bibliography, as approved by the program director, must be submitted. If all credentials and proposals are acceptable, the student is advanced to candidacy; and a guidance and examining committee of not fewer than three members is named.

Thesis

The student is required to pursue a problem in basic or clinical research, the results of which are presented in thesis form according to standards set by the Graduate Council. Oral defense of the thesis will be required.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN. In addition, students should consult the booklet "Advanced Dental Education Programs," published by the School of Dentistry, along with syllabi that are published by the various programs.

ENDODONTICS

The goal of the advanced education program in endodontics is to prepare students for the practice of this dental specialty. The program is designed to: 1) provide a comprehensive study of the biomedical sciences, with emphasis on their relationship to endodontics; 2) prepare dentists for the competent treatment of both uncomplicated and complicated cases; and 3) provide experience in research and teaching to encourage continued professional growth and development after graduation.

A minimum of two years of general practice experience is required prior to entering the program.

The program begins in July and requires two years in residence for the specialty certificate.

Following enrollment into the program, students may apply for acceptance to the Graduate School for a master's degree in addition to the specialty certificate awarded by the School of Dentistry. The application must be supported by a letter of recommendation from the program director. Acceptance into the master's degree program may extend the length of study approximately one additional year; the additional time must be in residence.

Graduates are educationally qualified for certification by the American Board of Endodontics.

Required courses

ENDN 534	Endodontic Treatment Conference	(12)
ENDN 601	Principles of Endodontics	(12)
ENDN 604	Literature Seminar in Endodontics	(12)
ENDN 625	Clinical Practice in Endodontics (1000-1300 clock hours)	
ENDN 654	Practice Teaching in Endodontics	(3)
ENDN 697	Research	(arranged)
ENDN 698	Thesis (required for Master of Science degree)	(12)
GRDN 509	Research and Statistics I	(3)
GRDN 531	Applied Surgical Anatomy	(2)
GRDN 601	Practice Management	(2)
GRDN 604	Topics in Medicine and Hospital Protocol	(2)
GRDN 607	Research and Statistics II	(3)
GRDN 609	Professional Ethics	(2)
GRDN 622	Biomedical Science I	(4)
GRDN 623	Biomedical Science II	(4)
GRDN 632	Basic Microsurgery Technique	(2)
ORPA 531	Clinical Oral Pathology	(2)
ORPA 533	Radiology	(2)
RELE ___	Religion elective	(3)

IMPLANT DENTISTRY

The graduate program in implant dentistry leads to a certificate in implant dentistry, and a Master of Science degree may be obtained also. It 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 broadly interfaces with the dental specialties of oral and maxillofacial surgery, prosthodontics, and periodontics. The implant dentistry student will be expected to achieve advanced knowledge and skills in certain aspects of all of these dental specialties and be proficient in implant prosthodontics and implant surgery. The content of the program is designed to prepare the student for certification by the American Board of Implant Dentistry.

The required time in residency for the certificate awarded by the School of Dentistry is three years. The Master of Science degree additionally requires the student to successfully complete a research project and thesis. The beginning date is April, and the first quarter will be spent in dental anesthesiology rotation.

Required courses

ANES 521	Principles of Medicine, Physical Diagnosis, and Hospital Protocol, (section II)	(2)
ANES 546	General Anesthesia (section II)	(9)
ANES 547	Anesthesia Grand Rounds (section II)	(1)
ANES 604	Anesthesia Literature Review (section II)	(1)
GRDN 509	Research and Statistics I	(1)
GRDN 545	Clinical Nutrition in Dentistry	(2)
GRDN 607	Research and Statistics II (M.S. degree only)	(3)
GRDN 609	Professional Ethics	(2)
GRDN 622	Biomedical Science I	(4)
GRDN 623	Biomedical Science II	(4)
GRDN 632	Basic Microsurgery Technique	(2)
GRDN 651	Scientific Writing	(1)
IMPD 533	Applied Radiology for Implant Dentistry	(1)
IMPD 561	Dental Bioengineering	(2)
IMPD 601	Literature Review in Implant Dentistry	(22)
IMPD 604	Current Literature Review in Implant Dentistry	(20)
IMPD 611	Introduction to Implant Dentistry	(2)
IMPD 612	Advanced Implant Dentistry	(2)
IMPD 625	Clinical Practice in Implant Dentistry (1050 clock hours)	
IMPD 631	Oral Implant Surgery	(10)
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry	(10)
IMPD 637	Peri-Implant Histopathology	(1)
IMPD 654	Practice Teaching in Implant Dentistry	(3)
IMPD 697	Research	(8)
IMPD 698	Thesis (required for M.S. degree)	(1)
ORSR 512	Clinical Experience in Oral Surgery (132 clock hours)	
ORSR 604	Literature Review in Oral and Maxillofacial Surgery	(3)
PERI 604	Current Periodontal Literature	(8)
PERI 625	Clinical Practice in Periodontics (176 clock hours)	
PROS 500	Current Prosthodontic Literature Review	(8)
PROS 505	Patient Presentation Seminar	(8)
PROS 507	Allied Specialties Seminars	(1)
PROS 510	Clinical Practice of Prosthodontics (440 clock hours)	
PROS 546	Occlusion and Morphology	(2)
PROS 547	Occlusion: Principles and Instrumentation	(2)
PROS 555	Removable Partial Prosthodontics, Lecture	(2)
PROS 565	Complete Denture Prosthodontics, Lecture	(2)
PROS 575	Fixed Partial Prosthodontics, Lecture	(2)
PROS 576	Advanced Fixed Partial Prosthodontics I (MC esthetics)	(2)
PROS 577	Advanced Fixed Partial Prosthodontics II (all-ceramic esthetics)	(2)
PROS 585	Implant Prosthodontics	(2)
PROS 595	Maxillofacial Prosthodontics	(2)
PROS 637	Geriatric Dentistry	(1)
RELE ___	Religion elective	(3)

ORAL AND MAXILLOFACIAL SURGERY

The advanced educational program in oral and maxillofacial surgery is designed to prepare the dentist for the practice of the specialty and provide the foundation for the continued acquisition of knowledge and skills. Clinical surgical health care delivery is emphasized. The student is introduced to research methodology and teaching to develop an increased awareness of their importance in assessing clinical procedures and patient management. The content of the program conforms to the Standards of the Commission on Accreditation and is designed to prepare the surgeon for certification by the American Board of Oral & Maxillofacial Surgery.

A minimum of four calendar years in residence is required, with the beginning date of July 1. A license to practice in California is required.

Following enrollment into the program, students may apply for acceptance to Graduate

School for a master's degree in addition to the specialty certificate awarded by the School of Dentistry. The application must be supported by a letter of recommendation from the program director. Acceptance into the master's degree program will probably extend the length of study.

Required courses

GRDN 531	Applied Surgical Anatomy	(2)
GRDN 601	Practice Management	(2)
GRDN 622	Biomedical Science I	(4)
GRDN 623	Biomedical Science II	(4)
ORPA 531	Clinical Oral Pathology	(2)
ORSR 524	Applied Cephalometrics for Oral Surgeons	(2)
ORSR 531	Oral and Maxillofacial Surgery I (first-year residency)	(12)
ORSR 532	Oral and Maxillofacial Surgery II (second-year residency)	(32)
ORSR 533	Oral and Maxillofacial Surgery III (third-year residency)	(32)
ORSR 534	Oral and Maxillofacial Surgery IV (fourth-year residency)	(32)
ORSR 535	Principles of Medical History, Physical Examination, and Pathophysiology	(6)
ORSR 601	Surgical Oral Pathology Conference	(3)
ORSR 604	Literature Review in Oral and Maxillofacial Surgery	(12)
ORSR 641	Application of Surgical Principles to Orthognathic Surgery	(7)
ORSR 654	Practice Teaching in Oral and Maxillofacial Surgery	(8)
ORSR 697	Research	(8)
ORSR 698	Thesis	(1)
RELE ___	Religion	(3)

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS

The graduate program in orthodontics and dentofacial orthopedics is organized to do the following: (1) Develop technical competence in the skills of orthodontics, (2) deepen understanding of the basic natural sciences and their correlation with orthodontic practice, (3) develop analytical thinking, (4) develop skills in clinical research, (5) increase the sense of responsibility toward the patient and the community, and (6) develop increased awareness of the obligation to make contributions to the growth and stature of the profession and to coordinate with those of allied professional disciplines. All of the foregoing 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.

The master's degree program requires a minimum of twenty-seven months in residence beginning in June. Additional time may be required, depending on the research selected.

Required courses

GRDN 509	Research and Statistics I	(3)
GRDN 526	Applied Anatomy	(2)
GRDN 601	Practice Management	(2)
GRDN 607	Research and Statistics II	(3)
GRDN 609	Professional Ethics	(2)
GRDN 623	Biomedical Science II	(5)
ORDN 524	Introduction to Graduate Orthodontics	(1)
ORDN 524L	Introduction to Graduate Orthodontics, Laboratory	(6)
ORDN 525	Materials Science and Mechanics	(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 Orthodontic Literature I	(2)
ORDN 591	Current Orthodontic Literature II	(2)
ORDN 597	Orthognathic Surgery Theory and Literature Review	(2)
ORDN 604	Seminar in Orthodontics	(1)
ORDN 605	Advanced Seminar in Orthodontics	(2)
ORDN 606	Craniofacial Genetics	(2)
ORDN 608	Physiology and Pathology of Speech	(1)
ORDN 625	Clinical Practice in Orthodontics (1400 clock hours)	(2)
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	Orthodontics Board Preparation	(5)
ORDN 697	Research	(12)
ORDN 698	Thesis	(3)
ORPA 531	Clinical Oral Pathology	(2)
ORSR 641	The Application of Surgical Principles to Orthognathic Surgery	(2)
RELE —	Religion elective	(3)

PEDIATRIC DENTISTRY

Preparation

The advanced education program in pediatric dentistry is designed to prepare the student 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 core courses and seminars. There is also a research component designed to expose the student to problem solving using the scientific method.

The program requires a minimum of twenty-four months in residence beginning July 1. The program fulfills the requirements for beginning the process of certification by the American Board of Pediatric Dentistry.

Following enrollment into the program, students may apply for acceptance to the Graduate School for a master's degree in addition to the specialty certificate awarded by the School of Dentistry. The application must be supported by a letter of recommendation from the program director. Acceptance into the master's degree program may extend the length of study.

Required courses

GRDN 509	Research and Statistics I	(3)
GRDN 531	Applied Surgical Anatomy	(2)
GRDN 607	Research and Statistics II	(3)
GRDN 604	Topics in Medicine and Hospital Protocol	(2)
GRDN 609	Professional Ethics	(2)
GRDN 622	Biomedical Science I	(4)
GRDN 623	Biomedical Science II	(4)
ORPA 531	Clinical Oral Pathology	(2)
ORPA 533	Radiology	(2)
ORDN 545	Growth and Development	(3)
ORDN 606	Craniofacial Genetics	(2)
ORDN 608	Physiology and Pathology of Speech	(1)
PEDN 503	Pediatric Dental Seminar I	(4)
PEDN 504	Pediatric Dental Seminar II	(2)
PEDN 505	Pediatric Dental Seminar III	(4)
PEDN 506	Pediatric Dental Seminar IV	(4)
PEDN 508	Pediatric Hospital Dentistry Seminar	(4)
PEDN 524	Introduction to Orthodontics	(2)
PEDN 524L	Introduction to Orthodontics, Laboratory (110 clock hours)	
PEDN 546	General Anesthesia Clinic	(5)
PEDN 601	Pediatric Dental Practice Management	(2)
PEDN 604	Pediatric Dental Literature	(12)
PEDN 625	Pediatric Dental Clinic (1500-2000clock hours)	
PEDN 654	Pediatric Dental Teaching	(5)

PEDN 680	Elective Study for Advanced Education Students of Pediatric Dentistry	(12)
PEDN 697	Research in Pediatric Dentistry	(9)
PEDN 698	Thesis (arranged)	
RELE —	Religion elective	(3)

PERIODONTICS

The advanced education program in periodontics leads to a certificate in periodontics awarded by the School of Dentistry with an optional Master of Science degree. For more information see our web page.

The three-year program prepares the student for a specialty practice in periodontics and provides the basis for continuing professional development. The program includes didactic, clinical, and research components. In brief, the program's didactic emphasis is placed on a biologic understanding of pathologic and therapeutic processes, based upon the respective pertinent literature. The clinical training emphasizes the latest surgical technology, instruments, and devices. The program is committed to implant surgery training to the level of independent competency.

The Master of Science degree additionally requires the student to complete one or more research projects and to be involved in predoctoral clinical and didactic teaching activities. The Master of Science degree prepares the residents for academic careers in periodontal research and teaching.

The program fulfills the requirements for eligibility; and emphasizes, prepares, and encourages the student to proceed to completion of certification by the American Board of Periodontology.

A minimum of thirty-six months in residence is required beginning in July.

Required courses

ANES 548	Anesthesia Residents Seminar	(2)
ANES 604	Anesthesia Literature Review	(1)
ANES 622	Conscious Sedation Techniques	(1)
GRDN 509	Research and Statistics I	(3)
GRDN 531	Applied Surgical Anatomy	(2)
GRDN 545	Clinical Nutrition in Dentistry	(2)
GRDN 601	Practice Management	(2)
GRDN 604	Topics in Medicine and Hospital Protocol	(2)
GRDN 607	Research and Statistics II	(3)
GRDN 609	Professional Ethics	(2)
GRDN 622	Biomedical Science I	(4)
GRDN 623	Biomedical Science II	(4)
GRDN 632	Basic Microsurgery Technique	(2)
IMPD 561	Dental Bioengineering	(2)
IMPD 611	Introduction to Implant Dentistry	
IMPD 637	Peri-Implant Histopathology	(1)

ORPA 531	Clinical Oral Pathology	(2)	GRDN 607	Research and Statistics II	(3)
ORPA 533	Radiology	(2)	GRDN 609	Professional Ethics	(2)
PERI 524	The Periodontium	(2)	GRDN 622	Biomedical Science I	(4)
PERI 531	Periodontal Pathology	(8)	GRDN 623	Biomedical Science II	(4)
PERI 546	General Anesthesia Clinic	(84 clock hours)	GRDN 632	Basic Microsurgery Technique	(2)
PERI 601	Periodontal Therapy	(12)	GRDN 651	Scientific Writing	(.5)
PERI 604	Current Periodontal Literature	(24)	IMPD 533	Applied Radiology for Implant Dentistry	(1)
PERI 605	Literature Review in Implant Dentistry for Periodontics	(2)	IMPD 561	Dental Bioengineering	(2)
PERI 611	Introduction to Periodontics	(2)	IMPD 604	Current Literature Review in Implant Dentistry	(2)
PERI 625	Clinical Practice in Periodontics	(1500 clock hours)	IMPD 611	Introduction to Implant Dentistry	(1)
PERI 626	Clinical Practice in Implant Surgery	(350 clock hours)	IMPD 631	Oral Implant Surgery	(1 per quarter, 3 quarters)
PERI 634	Clinical Conference	(12)	ORPA 531	Clinical Oral Pathology	(2)
PERI 654	Practice Teaching in Periodontics	(4)	PERI 601	Periodontal Therapy	(2)
PERI 697	Research	(arranged)	PROS 500	Prosthodontic Literature Review	(14)
PERI 698	Thesis	(arranged)	PROS 505	Patient Presentation Seminar	(7)
			PROS 507	Allied Specialties Seminar	(1)
			PROS 510	Clinical Practice in Prosthodontics	(2000-2400 clock hours)

PROSTHODONTICS

The advanced education program in prosthodontics is designed to increase the knowledge base, clinical skills, and laboratory skills of the resident in all areas of prosthodontics. In addition to conventional fixed and removable prosthodontics, this program offers considerable experience in implant prosthodontics and esthetic dentistry, an introduction to maxillofacial prosthetics and the diagnosis and treatment of patients with temporomandibular dysfunction. Comprehensive treatment planning seminars with the residents and faculty of other graduate programs are designed to prepare the resident to interact with and coordinate the treatment of patients requiring advanced prosthodontic care.

The program begins in July and requires thirty-three months to complete a certificate awarded by the School of Dentistry, or thirty-six months or more to complete the master's degree level.

Following enrollment in the program, students may apply for acceptance to Graduate School for a master's degree in addition to the specialty certificate. The application must be supported by a letter of recommendation from the program director. Acceptance into the master's degree program may extend the length of study.

Required courses

GRDN 509	Research and Statistics I	(3)	PROS 515	Practice Teaching	(3-4)
GRDN 531	Applied Surgical Anatomy	(2)	PROS 525	Dental Materials Science	(2)
GRDN 545	Clinical Nutrition in Dentistry	(2)	PROS 527	Clinical Application of Dental Materials	(2)
GRDN 555	TMJ Function and Dysfunction	(1)	PROS 546	Occlusion and Morphology	(2)
GRDN 601	Practice Management	(2)	PROS 547	Occlusion: Principles and Instrumentation	(2)
GRDN 604	Topics in Medicine and Hospital Protocol	(2)	PROS 555	Removable Partial Prosthodontics	(2)
			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 esthetics)	(2)
			PROS 577	Advanced Fixed Partial Prosthodontics II (all-ceramic esthetics)	(2)
			PROS 595	Maxillofacial Prosthetics	(2)
			PROS 634	Diagnosis and Treatment Planning	(8)
			PROS 637	Geriatric Dentistry	(1)
			PROS 697	Research	(7)
			PROS 698	Thesis	(arranged)
			RELE ___	Religion elective	(3)

CORE COURSES

GRDN 509 Research and Statistics I (3)

Introduction to research methods, including identification of variables, statement of research questions and hypotheses, research design. Fundamental procedures for collecting, summarizing, presenting, analyzing, and interpreting data. Measures of central tendency and variation, probability, binomial distribution, normal distribution, sampling distributions and standard error, confidence intervals, hypothesis testing, t-test, chi-square, correlation and regression. Sample size and power analysis for the t-test. Introduction to computer analysis for solution of statistical problems.

GRDN 526 Applied Anatomy (2)

Fundamentals of anatomy as it applies to a special region or application.

GRDN 531 Applied Surgical Anatomy (2)

Surgical approach to anatomy as it relates to special anatomic regions.

GRDN 545 Clinical Nutrition in Dentistry (2)

Review of basic nutrition, application of nutritional principles to the processes of mastication and deglutition, surgical wound healing, skeletal development and maintenance, tooth development and disease resistance, perinatal oral development, and oral health in aging. Videotaped review, seminar and conference.

GRDN 555 Temporomandibular Joint Function and Dysfunction (1)

Designed to provide students with information about the function and dysfunction of the temporomandibular joint and associated structures. Will prepare students to obtain history, perform clinical examination, recognize disorders, and prescribe treatment.

GRDN 601 Practice Management (2)

Designed to prepare the student for specialty practice, concepts of employment, records, incorporating, insurance, and practice planning.

GRDN 604 Topics in Medicine and Hospital Protocol (1-2)

Topics presented in internal medicine and physical evaluation, with emphasis on diseases and physical conditions relating to dental treatment. An overview is given on hospital utilization. Local anesthesia, inhalation, and intravenous sedation techniques are reviewed.

GRDN 607 Research and Statistics II (3)

Research designs for ANOVA, ANCOV, and multiple regression, including repeated measures and blocking. One-way ANOVA, factorial ANOVA, repeated-measures ANOVA, and analysis of covariance using the computer, with emphasis on interpretation of data. Multiple correlation and regression models using the computer, with emphasis on interpretation of data. Introduction to nonparametric statistics. Evaluation of the research literature.

GRDN 609 Professional Ethics (2)

Designed to provide 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, 2)

This two-quarter course is offered every other year (alternating with Biomedical Science II) during fall and winter quarters. The course content is applied oral bacteriology, immunology, topics in oral medicine, applied pharmacology and orofacial pain. Course participants are expected to have basic knowledge in the various topic areas since this course is constructed on an advanced level of understanding.

GRDN 623 Biomedical Science II (2, 2-3)

This two-quarter course is offered every other year (alternating with Biomedical Science I) during fall and winter quarters. The course content is cell biology, applied oral pathology, biology of hard tissues, physiology and biochemistry. Course participants are expected to have basic knowledge in the various topic areas since this course is constructed on an advanced level of understanding.

GRDN 632 Basic Microsurgery Technique (2)

The Basic Microsurgery Technique course has been designed as an integrated 40 hour laboratory course tailored to the needs of the individual student. This course provides the individual with the principles and application of microscope operation and use, microinstrumentation, microdissection, micromanipulation and microsuturing techniques. These skills are then further enhanced through the performance of various microvascular and microneural repair procedures.

ORPA 531 Clinical Oral Pathology (2)

Emphasis on oral manifestation of disease. Diagnosis, prognosis, and treatment of various oral neoplasms.

ORPA 533 Radiology (2)

Utilization of the physical nature of x-rays to better understand image production, biological effects of x-rays, radiation safety, application of principles of radiographic techniques; risk estimation and radiographic interpretation.

DEPARTMENTAL ENDODONTICS

ENDN 534 Endodontic Treatment Conference (12)

Evaluates and discusses diagnosis, treatment plans, prognosis, and outcome of endodontic treatment cases.

ENDN 601 Principles of Endodontics (12)

Comprehensive study of various aspects of endodontics.

ENDN 604 Literature Seminar in Endodontics (12)

Review of literature pertaining to the principles and practice of endodontics.

ENDN 625 Clinical Practice in Endodontics (1000-1300 clock hours)

Practice and experience in all aspects of endodontics. Emphasizes obtaining experience in treating complex endodontic cases.

ENDN 654 Practice Teaching in Endodontics (3)

Supervised teaching in the endodontic preclinical laboratory and predoctoral clinic.

ENDN 697 Research (arranged)

ENDN 698 Thesis (2)

IMPLANT DENTISTRY

IMPD 533 Applied Radiology for Implant Dentistry (1)

Fundamental aspects of radiology imaging as part of the diagnosis and treatment.

IMPD 561 Dental Bioengineering (2)

Structures and properties of dental implant materials.

IMPD 601 Literature Review in Implant Dentistry (22)

Historical and/or fundamental implant dentistry literature.

IMPD 604 Current Literature Review in Implant Dentistry (20)

Provides a deeper understanding of the research and literature currently available.

IMPD 611 Introduction to Implant Dentistry (2)

Overview of implant dentistry, including etiology, therapy, clinical methods, and record keeping.

IMPD 625 Clinical Practice in Implant Dentistry (1056 clock hours)

Experience in the clinical diagnosis and treatment of patients who may benefit from implant dentistry therapy.

IMPD 631 Oral Implant Surgery (10)

Instruction in basic and advanced implant surgery principles.

IMPD 634 Diagnosis and Treatment Planning in Implant Dentistry (10)

Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems.

IMPD 637 Peri-Implant Histopathology (1)

Increases understanding of the implant-interface and biological changes which take place in the tissues surrounding dental implants following their placement.

IMPD 654 Practice Teaching in Implant Dentistry (3)

Teaching experience in implant prosthodontics and implant surgery.

IMPD 697 Research (8)

IMPD 698 Thesis (1)

ORAL AND MAXILLOFACIAL SURGERY

ORSR 524 Applied Cephalometrics for Oral Surgeons (2)

Construction of progress cephalometric tracings and use of superimposition to evaluate and revise a treatment plan. Students evaluate progress of their clinic patients.

ORSR 531 Oral and Maxillofacial Surgery I (first-year residency) (12)

Principles of dento-alveolar technique and the surgical treatment of oral diseases studied. Minor surgery procedures performed under local anesthesia and intravenous sedation. Residents introduced to ambulatory general anesthesia. Treatment of emergencies in oral and maxillofacial surgery practice. Mastery of hospital procedures. Assistance with staff hospital cases. Attendance at specified seminars, conferences, special lectures, and rounds in the Medical Center emphasized. Off-service rotation to other surgical and medical services required.

ORSR 532 Oral and Maxillofacial Surgery II (second-year residency) (32)

Residents participate as assistant surgeons in planning and performing major oral and maxillofacial surgery procedures and in managing the hospitalized patient. Diagnosis and treatment of fractures of the facial bones, facial osseous reconstruction, and orthognathic surgery studied. Continuation of training in ambulatory general anesthesia for oral and maxillofacial surgery. Rotations continue to other medical and surgical services in the Medical Center. Attendance is required at specified seminars, conferences, special lectures, and rounds.

ORSR 533 Oral and Maxillofacial Surgery III
(third-year residency) (32)

Residents trained in advanced treatment of 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 arthroscopy and arthroplasty, osseous grafting of postresection and posttraumatic maxillofacial defects. Study continues in the application of general anesthesia to ambulatory-outpatient surgery patients. Students trained in assuming full responsibility for all aspects of the oral and maxillofacial surgery practice.

ORSR 534 Oral and Maxillofacial Surgery IV
(fourth-year residency) (32)

Research and advanced clinical training in the subspecialty areas of oral and maxillofacial surgery, as well as training through off-service rotations to plastic and reconstructive surgery, head and neck surgery, anesthesiology, and implantology.

ORSR 535 Principles of Medical History, Physical Examination, and Pathophysiology (6)

Study of methods for obtaining a medical history and physical examination. Specific topics include review of organ systems and associated pathology (physical and laboratory), hospital protocol, and charting.

ORSR 601 Surgical Oral Pathology Conference (3)

Recent oral pathology laboratory cases used as the basis for review and discussion of the common and ominous lesions that are encountered in a dental specialty clinical practice. Differential diagnosis and patient management emphasized.

ORSR 604 Literature Review in Oral and Maxillofacial Surgery (12)

Clinical review of present and past literature dealing with pertinent oral and maxillofacial surgical problems.

ORSR 641 The Application of Surgical Principles to Orthognathic Surgery (7)

Seminar course emphasizing preoperative diagnosis, planning, intraoperative procedures, and postoperative care of orthognathic patients. Description of congenital and developmental deformities and emphasis on all aspects of surgical-orthodontic patient management.

ORSR 654 Practice Teaching in Oral and Maxillofacial Surgery (8)

Experience in teaching the undergraduate dentistry student.

ORSR 697 Research (8)**ORSR 698 Thesis (M.S. degree only)** (1)**RELE ___ Religion** (3)**ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS****ORDN 524 Introduction to Graduate Orthodontics** (12)

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—diagnosis and treatment planning, including cephalometrics, growth forecasting, and preparation of visual treatment objectives.

ORDN 524L Introduction to Graduate Orthodontics, Laboratory (6)

Selected laboratory projects to enhance the didactic portion of the course.

ORDN 525 Materials Science and Mechanics (2)

Structure and properties used in orthodontics. Analysis of the effects of mechanical and heat treatment. Survey of strength and mechanics in force-delivery systems.

ORDN 527 Clinical Photography (1)

Clinical proficiency in intra-oral and extra-oral photography. Discussion and use of photographic equipment and techniques on orthodontic patients. Camera, lens, and flash required.

ORDN 535 Advanced Cephalometrics (2)

Cephalometrics from a histological perspective, including most of the major analyses.

ORDN 536 Concepts of Physical Anthropology (2)

Basic and classic concepts of physical anthropology as they relate to orthodontics.

ORDN 545 Growth and Development (3)

Principles of growth and development from the subcellular to the tissue level. Emphasis on myogenesis and osteogenesis. Prenatal and postnatal development of the face and jaws, including the classic concepts of facial growth. Consideration of 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)

Development of the human face and dentition. A concept of dynamic functioning occlusion.

ORDN 571 Diagnosis and Treatment Planning I (2)

Diagnosis and treatment of assigned patients.

ORDN 574 Diagnosis and Treatment Planning II (2)

Continuation of ORDN 571, with follow up of clinical cases with progress records.

ORDN 584 Current Orthodontic Literature I (2)
Presentation of current papers in various subdisciplines of orthodontics.

ORDN 591 Current Orthodontic Literature II (2)
Presentation of current papers in various subdisciplines of orthodontics.

ORDN 597 Orthognathic Surgery Theory and Literature Review (2)

Presentation of current papers in various subdisciplines of orthodontics, with primary emphasis on surgical orthodontics. Presentation of cases with various problems requiring surgery.

ORDN 604 Seminar in Orthodontics (1)
Critical review of suggested etiological factors of malocclusion. Problems of diagnosis and the rationale of various treatment philosophies. Liberal use of current literature. Discussion by guest lecturers with demonstrated competence in the field.

ORDN 605 Advanced Seminar in Orthodontics (2)
Second-year seminar. Design of clinical diagnosis. Practice management.

ORDN 606 Craniofacial Genetics (2)
Basic genetics. Introduction to craniofacial clinic.

ORDN 608 Physiology and Pathology of Speech (1)
Concentration and in-depth study of specific areas of oral myofunctional disorders which influence the occlusion. Breathing, tongue functions, swallowing, and behavioral disfunction in orthodontics.

ORDN 625 Clinical Practice in Orthodontics (1400 clock hours)
Diagnosis and treatment of assigned patients.

ORDN 634 Orthodontic Clinical Conference (2)
Preparation and presentation of the diagnosis, case analysis, and treatment plan, with primary emphasis on difficult and unusual cases.

ORDN 635 Finishing Mechanics I (2)
Orthodontic treatment modalities, with emphasis on finishing mechanics for the patient.

ORDN 636 Finishing Mechanics II (1)
Seminar course created primarily for first-year graduate orthodontic students to expose 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 (4)
Experience in teaching clinical orthodontics to predoctoral dental students.

ORDN 655 Temporomandibular Function and Dysfunction (2)
The temporomandibular joint in health and in disease or dysfunction. Diagnosis, treatment planning, and treatment of the temporomandibular joint, with emphasis on the integration of orthodontics and temporomandibular joint treatment.

ORDN 657 Orthodontic Board Preparation (5)
Presentation of finished orthodontic cases to faculty and residents. Preparation for the American Board of Orthodontics.

ORDN 697 Research (12)

ORDN 698 Thesis (3)

PEDIATRIC DENTISTRY

PEDN 503 Pediatric Dental Seminar I (4)
Selected clinical topics in pediatric dentistry.

PEDN 504 Pediatric Dental Seminar II (2)
Selected clinical topics in pediatric dentistry.

PEDN 505 Pediatric Dental Seminar III (4)
Selected clinical topics in pediatric dentistry.

PEDN 506 Pediatric Dental Seminar IV (4)
Selected clinical topics in pediatric dentistry.

PEDN 508 Pediatric Hospital Dentistry Seminar (4)
Hospital protocol and the care of patients in a hospital environment.

PEDN 524 Introduction to Orthodontics (2)
Diagnosis and treatment planning for clinical orthodontics.

PEDN 524L Introduction to Orthodontics, Laboratory (160 clock hours)
Fabrication of various orthodontic appliances.

PEDN 546 General Anesthesia Clinic (5)
Experience in general anesthesia in a hospital setting.

PEDN 601 Pediatric Dental Practice Management (2)
Establishing and operating a pediatric dental practice.

PEDN 604 Pediatric Dental Literature (12)
Pediatric dental literature study, including the reading list of the American Board of Pediatric Dentistry.

PEDN 625 Pediatric Dental Clinic (1500-2000 clock hours)
Clinical pediatric dental experience in both the outpatient and inpatient settings for patients with a variety of clinical needs and problems.

PEDN 654 Pediatric Dental Teaching (5)
Experience in teaching pediatric dentistry in a clinical and laboratory setting.

ELECTIVES

PEDN 680 Elective Study for Advanced Education Students of Pediatric Dentistry (12)
Electives selected by students in the advanced education program in pediatric dentistry and by department faculty.

PEDN 697 Research in Pediatric Dentistry (9)

PEDN 698 Thesis (arranged)

PERIODONTICS

- PERI 524 The Periodontium (2)**
Review of the literature concerning the anatomy (macro-, micro-, and ultrastructural) and the physiology of the periodontium.
- PERI 531 Periodontal Pathology (8)**
Review of the literature which forms the basis for current concepts of the etiology and pathogenesis of periodontal diseases.
- PERI 546 General Anesthesia Clinic (84 clock hours)**
Clinical rotation including physical evaluation, airway management, management of medical emergencies in patients scheduled for anesthesia, and introduction to conscious sedation.
- PERI 601 Periodontal Therapy (12)**
Review of the literature which forms the basis for current concepts of the treatment of periodontal diseases.
- PERI 604 Current Periodontal Literature (24)**
Review of the most recent issues considered in periodontal scientific journals.
- PERI 605 Literature Review in Implant Dentistry for Periodontics (2)**
Review of literature providing the basis for implant surgery, as well as concepts for implant restoration.
- PERI 611 Introduction to Periodontics (2)**
Overview of the clinical science of periodontics, including epidemiology, etiology, therapy, clinical methods, and record keeping.
- PERI 625 Clinical Practice in Periodontics (1500 clock hours)**
Clinical experience in the diagnosis and treatment of periodontal diseases.
- PERI 626 Clinical Practice in Implant Surgery (350 clock hours)**
Clinical experience in the diagnosis and treatment regarding implant surgery.
- PERI 634 Clinical Conference (12)**
Case management conference to assist the student in diagnosis, treatment planning, and management of periodontal diseases and surgical implant dentistry.
- PERI 654 Practice Teaching in Periodontics (4)**
Experience in teaching the predoctoral dental student.
- PERI 697 Research (arranged)**
- PERI 698 Thesis (arranged)**

PROSTHODONTICS

- PROS 500 Prosthodontic Literature Review (14)**
Discussion of assigned topics from classic and current prosthodontic and related literature, led by students and moderated by faculty member in charge.
- PROS 501 Removable Partial Prosthodontic Literature Review (14)**
Discussion of assigned topics from classic removable partial denture literature, led by students and moderated by faculty member in charge.
- PROS 502 Complete Denture Prosthodontic Literature Review (14)**
Discussion of assigned topics from classic complete denture literature, led by students and moderated by faculty member in charge.
- PROS 505 Patient Presentation Seminar (Prosthodontic, Implant, Perio) (7)**
Patient treatment presentations, discussion of alternate methods of rehabilitation, and related literature.
- PROS 507 Allied Specialties Seminar (Endo, Perio, Ortho, Radiology, Oncology, ENT, Plastics, Oral and Maxillofacial Surgery) (1)**
Combined course of lectures, seminars, and short observational rotations to clinical areas of both dentistry and medicine that impact the clinical practice of prosthodontics.
- PROS 510 Clinical Practice in Prosthodontics (2000-2400 clock hours)**
Advanced clinical practice in the treatment of individuals with fixed, removable, maxillofacial, and implant prostheses.
- PROS 515 Practice Teaching (3-4)**
Teaching experience in the areas of fixed and removable prosthodontics.
- PROS 525 Dental Materials Science (2)**
The elements of materials science presented. 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)**
Clinical application and manipulation of dental materials. Specific clinical problems identified. Behavior of materials explained through the acquired knowledge of basic properties.
- PROS 546 Occlusion and Morphology (2)**
Lecture, seminar, and laboratory course 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)**
Continuation of PROS 546, with emphasis on occlusal equilibration, jaw movements, determinants of occlusion, and articulators commonly used.

PROS 555 Removable Partial Prosthodontics (2)
Lecture, seminar, and laboratory course covering principles, concepts, and techniques used to design and fabricate removable partial dentures.

PROS 557 Advanced Removable Partial Prosthodontics (2)

Advanced clinical and laboratory procedures, with emphasis on intracoronal attachments, rotational path, and alternate removable partial-denture design.

PROS 565 Complete Denture Prosthodontics (2)

Clinical and laboratory procedures for the fabrication of complete dentures, including setting and balancing denture teeth.

PROS 566 Advanced Complete Denture Prosthodontics (2)

Lecture/seminar course covering the treatment of immediate dentures and overdentures, and treatment of difficult and unusual complete denture situations.

PROS 575 Fixed Partial Prosthodontics (2)

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 esthetics) (2)

Clinical and laboratory procedures, with emphasis on advanced metal-ceramic restorations.

PROS 577 Advanced Fixed Partial Prosthodontics II (all-ceramic esthetics) (2)

Advanced clinical and laboratory procedures, with emphasis on all-ceramic restorations.

PROS 595 Maxillofacial Prosthetics (2)

Design and fabrication of obturators for partial maxillectomy patients, both edentulous and dentulous. Introduction to the fabrication of extraoral prostheses.

PROS 634 Diagnosis and Treatment Planning (8)

Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems.

PROS 637 Geriatric Dentistry (1)

Lectures selected to enhance the knowledge base in the expanding area of elder care. Complications resulting when the elderly with chronic diseases are treated with multiple-drug regimes.

PROS 697 Research (7)

PROS 698 Thesis (arranged)





DRUG AND ALCOHOL COUNSELING

GUNTER REISS, Dr.P.H., M.S., CHES Loma Linda University 1975
 Program Coordinator; Associate Faculty, Graduate School
 Assistant Professor of Health Promotion and Education, School of Public Health
Family therapy and chemical abuse

RONALD G. HUSTON, Ph.D. United States International University 1981
 Program Adviser; Department of Counseling and Family Sciences
 Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Family sciences, chemical abuse, child and adolescent therapy

The Drug and Alcohol Counseling Certificate Program is designed to give students specialized training in the area of drug and alcohol counseling theory and techniques. The Drug and Alcohol Counseling Certificate Program is accredited by the California Alcohol and Drug Counselors Education Program (CADCEP). This Drug and Alcohol Counseling Certificate Program is a family systems, interdisciplinary program offered jointly by the Graduate School Marital and Family Therapy Program (MFAM) and the School of Public Health Department of Health Promotion and Education (HPRO). The Drug and Alcohol Counseling Certificate Program is designed for students who want to work in medical and mental health agencies and clinics doing drug and alcohol counseling. The required education for the drug and alcohol counseling certificate is a minimum of 39 quarter units and 300 clock hours of clinical training.

FACULTY

IAN P. CHAND, Ph.D. Pennsylvania State University 1980
 Director of Clinical Training; Professor of Marriage and Family Therapy
Marriage and family therapy, biofeedback, family sciences, sociology

BARBARA FRYE, Dr.P.H., M.S., CHES Loma Linda University 1989
 Coordinator of Maternal, Child, Family Health Program in the School of Public Health and the School of Medicine
 Associate Professor of International Health

KEN AUSTIN, Ph.D. California Western University 1975
 Adjunct Professor of Counseling and Family Sciences
 Associate Faculty, Counseling and Family Sciences
 Licensed Marriage and Family Therapist

CERTIFICATE

Admission

Applicants must meet the Graduate School admission requirements outlined in this BULLETIN and give evidence of academic ability, emotional stability, and maturity. The drug and alcohol counseling certificate is designed to be a track in the M.S. degree program in marital and family therapy or the M.P.H. degree program in health

promotion. Two faculty interviews are also required. Students with a B.A. degree from an accredited university who also have a 3.0 G.P.A. and GRE scores in the range of 1200-1500 or above with good recommendations can be accepted for the certificate program. In the M.S. degree program, the critical essay is required in place of the GRE, which is no longer required. A writing course is required if the student does not pass the essay examination.

A. Certificate track (in M.S. degree program with MFAM emphasis)

Course requirements

HPRO 542	Health and Dependency Counseling	(3)
HPRO 554	Alcohol and Drug Dependency	(3)
HPRO 563	Stress and Coping Mechanisms	(3)
HPRO 564	Mental Health and Society	(3)
MFAM 515	Crisis-Intervention Counseling	(3)
MFAM 534	Clinical Training	(300 hours)
MFAM 536	Case Presentation Seminar	(2)
MFAM 537	Case Presentation Seminar	(2)
MFAM 568	Group Process Theories and Procedures	(3)
MFAM 614	Law and Ethics	(3)
MFAM 638	Family Therapy and Chemical Abuse	(3)
FMST 514	Crosscultural Counseling Family Values	(2)
FMST 614	Family Communication	(3)
RELR 564	Religion, Marriage, and the Family	(3)
Elective	Two courses	(3-4 units)*
		(39-40 units)

B. Certificate track (in M.P.H. degree with HPRO emphasis)

Course requirements (34 units)

HPRO 542	Health and Dependency Counseling	(3)
HPRO 554	Alcohol and Drug Dependency	(3)
HPRO 563	Stress and Coping Mechanisms	(3)
HPRO 564	Mental Health and Society	(3)
HPRO 607	Alcohol and Drug Seminar	(50 hours) (3)
HPRO 696	Directed Study/Special Project in Chemical Dependency	(1)
HPRO 798	Field Practicum	(400 hours)
INTH 505	Dynamics of Sociocultural Change	(2)
MFAM 515	Crisis-Intervention Counseling	(3)
MFAM 568	Group Process Theories and Procedures	(3)
MFAM 614	Law and Ethics	(3)
MFAM 638	Family Therapy and Chemical Abuse	(3)
RELE 457	Christian Ethics and Health Care	(3)
Elective	Two courses	(4-5 units)*
		(38-39 units)

C. Certificate (in nonmaster's degree program)

Core courses (30-31 units minimum)

HPRO 542	Health and Dependency Counseling	(3)
HPRO 554	Alcohol and Drug Dependency	(3)
HPRO 563	Stress and Coping Mechanisms	(3)
HPRO 564	Mental Health and Society	(3)
HPRO 696	Directed Study/Special Project in Chemical Dependency	(1)
MFAM 515	Crisis-Intervention Counseling	(3)
MFAM 568	Group Process Theories and Procedures	(3)
MFAM 614	Law and Ethics	(3)
MFAM 638	Family Therapy and Chemical Abuse	(3)
RELR 564	Religion, Marriage, and the Family	(3)

Crosscultural requirement (one course from three listed below)

INTH 517	Methods of Crosscultural Communication	(3)
INTH 505	Dynamics of Sociocultural Change	(2)
FMST 514	Crosscultural Counseling Family Values	(2)

Field studies courses (5 units practicum classes—300 clinical hours)

MFAM 535	Case Presentation	(3)
MFAM 536	Case Presentation	(2)
MFAM 534	Clinical Training	(300 hours)
or		
HPRO 798	Field Practicum	(300 hours)
HPRO 607	Alcohol and Drug Seminar	(50 hours) (3)
Elective	Two courses	(4-5 units)*
		(39-41 units)

***Elective (3-5 units)**

Electives for A, B, or C are to be chosen in consultation with the program coordinator from among the following:

MFAM 658	Reality Family Therapy	(2)
HPRO 526	Lifestyle Diseases and Risk Reduction	(3)
STAT 515	Grant and Contract Proposal Writing	(2)

COURSES

HPRO, INTH, and STAT course descriptions appear in the BULLETIN of the School of Public Health.

FAMILY COUNSELING

RONALD G. HUSTON, Ph.D. United States International University 1981
 Coordinator; Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Family studies, marriage and family therapy, human sexual behavior

POSTBACCALAUREATE CERTIFICATE

Admission

Applicants to the certificate program must meet the Graduate School admission requirements outlined in the BULLETIN and give evidence of completion of B.A. or B.S. degree with a 3.0 G.P.A. or equivalent. Evidence of emotional stability and maturity is required along with qualifications appropriate for one of the helping professions as listed below.

Description

The certificate in family counseling is designed for individuals who find a significant part of their work directed toward dealing with the relationship problems of individuals, families, and children. It is designed for those professionals who would like to gain family counseling skills but who do not desire to complete another degree or earn a clinical license.

The program will help participants acquire theoretical and systemic knowledge about relationships, families, and children; as well as develop practical skills applicable both to their professional and personal lives. It is designed for people who have a wide range of experiences, backgrounds, and goals. Physicians, ministers, nurses, teachers, chaplains, EAP counselors, social workers, school counselors, child-care workers, drug counselors, lawyers, and others in the helping professions can enhance their effectiveness through this program. Paid para-professionals, such as group-home workers, and volunteers for counseling organizations can also benefit from a knowledge of family counseling techniques. People involved in the business world, such as supervisors, managers, and personnel department employees, can also benefit from the improvement of interpersonal and family skills offered through the program.

FACULTY

See Marital and Family Therapy Program.

Certificate requirements

To earn the certificate, participants must successfully complete 24-25 quarter units. This includes 20 core units and 4-5 units of electives. It is possible to complete the certificate in three academic quarters. No clinical experience is required, but students may use their electives to become exposed to clinical modalities.

Required courses (20 units)

MFAM 515	Crisis-Intervention Counseling	(3)
MFAM 535	Case Presentation and Professional Studies	4)
MFAM 551	Family Therapy: Theory and Practice	(3)
MFAM 553	Family Systems Theory	(3)
MFAM 635	Case Presentation Seminar	(3)
MFAM 639	Interdisciplinary Professional Seminar	(1)
RELR 564	Religion, Marriage, and Family	(3)
Electives (4-5 units required)		
FMST 614	Family Communication	(3)
MFAM 638	Family Therapy and Chemical Abuse	(3)
MFAM 644	Child Abuse and Family Violence	(3)
MFAM 663	Brief Family Therapy	(2)
MFAM 665	Structural Family Therapy	(2)

FAMILY STUDIES

RONALD G. HUSTON, Ph.D. United States International University 1981
 Program Coordinator; Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Family studies, marriage and family therapy, child and adolescent therapy, human sexual behavior

The Family Studies Program leads to a Master of Arts degree or a certificate in family life education. The 50-unit Master of Arts degree provides the student with an understanding of the structure and functioning of the family as a social institution from a systems and theological perspective.

The program is designed to train individuals at the postbaccalaureate level to develop, implement, and evaluate family life programs for school, community, and church populations. In addition to providing church- and school-related job opportunities, this training prepares students for employment as community family-agency administrators, Headstart administrators, extension specialists, family service and life researchers, family specialists, human development specialists, administrative assistants for community relations, community services representatives, probation advisers, social service workers, mental health workers, vocational counselors, and volunteer services coordinators.

The certificate program in family life education is designed for those who wish to acquire the basic requirements for the family life education certification of the National Council on Family Relations but who do not desire the Master of Arts degree. Ministers, teachers, school counselors, social services workers, and others who wish to become family life educators are attracted to the certificate program.

Both the Master of Arts degree program in family studies and the certificate program in family life education meet the requirements of the National Council on Family Relations for certification as a family life educator.

FACULTY

IAN P. CHAND, Ph.D. Pennsylvania State University
 1980
 Professor of Marriage and Family Therapy, AAMFT-
 approved supervisor
*Family studies, marriage and family therapy,
 biofeedback, sociology*

MARY E. MOLINE, Ph.D. Brigham Young University
 1979
 Chair; Professor of Marriage and Family Therapy;
 AAMFT-approved supervisor
*Marriage and family therapy, family studies,
 group process*

CHERYL J. SIMPSON, Ph.D. University of Oregon 1980
 Professor of Counseling and Family Sciences;
 Credentialed School Counselor/Psychologist;
 Licensed Education Psychologist
*Counseling psychology and educational
 psychology*

JANICE A. EWING, Ph.D. Virginia Polytechnic Institute
 and State University 1997
 Assistant Professor of Marriage and Family Therapy,
 AAMFT-approved supervisor
*Research tools and methodology, gender perspec-
 tives, family systems theory*

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Requirements section of the Graduate School BULLETIN.

POSTBACCALAUREATE CERTIFICATE

Certificate requirements

1. Completion of at least an undergraduate degree or its equivalent for admission.
2. A minimum of 26 units of graduate credit in family studies as outlined in this BULLETIN. Students may transfer toward the certificate up to 9 units of graduate credit earned at an approved institution.

Specialization requirements (26 units)

Completion of the following courses meets the requirements for the certificate in family life education issued by the Graduate School.

FMST 514	Crosscultural Counseling Family Values	(2)
MFAM 553	Family Systems Theory	(3)
MFAM 558	Advanced Human Growth and Development	(3)
MFAM 669	Human Sexual Behavior	(3)
FMST 614	Family Communication	(3)
FMST 524	Family Resource Management	(2)
FMST 528	Parenting	(2)
MFAM 614	Law and Ethics	(3)
RELRL 564	Religion, Marriage, and the Family	(3)
FMST 529	Family Life Education	(2)

MASTER OF ARTS

Admission

Applicants must meet the Graduate School admission requirements outlined in this BULLETIN and give evidence of academic ability, emotional stability, and maturity.

In addition to completing the required application forms, providing character and academic references, and completing the critical essay examination, the prospective student should also arrange for a personal interview with two of the program faculty.

Although no particular undergraduate major is specified as preparation for the family studies program, an introductory statistics course is required for a master's degree but not for the certificate program. In addition, the student is required to take an MMPI-2 (Minnesota Multiphasic Personality Inventory-2) and have the results sent to the program (can be taken on LLU campus prior to the interview.)

Degree requirements

Essential to fulfilling the requirements for the Master of Arts degree are:

1. A minimum of 50 units of graduate credit in family studies, as outlined in the BULLETIN.
2. Satisfactory performance on a written comprehensive examination, or the completion of a thesis.

Both the certificate candidate and the M.A. degree candidate must meet the certificate requirements and the specialization requirements.

Additional requirements for M.A. degree

Candidates for the M.A. degree must also meet the following requirements:

Core requirements (6 units)

MFAM 515	Crisis-Intervention Counseling	(3)
MFAM 568	Group Process Theory and Procedures:Theories in MFAM Therapy	(3)

Research requirements (9 units)

FMST 505	Social Research Methods I	(3)
FMST 506	Social Research Methods II	(3)
FMST 697	Project	(3)
or		
FMST 698	Thesis	(3)

Practicum requirements (3 units)

FMST 695	Internship in Family Life Education (1-4)
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Electives (6 units selected from the following)

FMST 525	Sociology of the Family	(2)
FMST 635	Single Adult in Family and Society	(3)
FMST 694	Directed Study: Family Studies	(1-3)
MFAM 545	Gender Perspectives	(2)
MFAM 638	Family Therapy and Chemical Abuse	(3)
MFAM 644	Child Abuse and Family Violence	(3)

COURSES

FMST 505 Social Research Methods I (3)

Analysis of current social research methods. Practice in the use of techniques. Scientific method.

Prerequisite: Introductory course in statistics as an undergraduate research methods course.

FMST 506 Social Research Methods II (3)

Use of computer. Statistical analysis. Writing research report.

FMST 514 Crosscultural Counseling Family Values (2)

Structure and function, changing patterns, future in urban society. Relationship of changes in society to widespread family problems. Familiarity with a wide range of social and ethnic backgrounds including but not limited to people of color, Asians, Native Americans, and Hispanics.

FMST 524 Family Resource Management (2)
Challenges of health care costs, child care, reorganizing and downsizing organizations, managing cultural diversity, equal employment opportunity, and responding to needs of families and employees through consistent and effective planning so people become more productive and more satisfied with their lives at work and at home.

FMST 525 Sociology of the Family (2)
Study of the structure, function, and changing patterns of families in society. Relationships between family problems and changes in society, and their impact on children.

FMST 528 Parenting (2)
Principles and practices relating to parent-child relationships. Emphasis on family roles, communication, conflict resolution, values development, and parenting skill development.

FMST 529 Family Life Education (2)
Systematic comparative analysis of the historical development, theoretical perspectives, types of programs, and research in family life studies.

FMST 614 Family Communication (3)
Theoretical foundations of human communication. Therapeutic techniques of major communication theorists in marital and family therapy.

FMST 635 Single Adult in Family and Society (3)
Perceptions, needs, challenges, and opportunities during the periods of adult singleness in the life cycle.

FMST 694 Directed Study: Family Studies (1-3)

FMST 695 Internship in Family Studies (1-4)

FMST 697 Project (3)

FMST 698 Thesis (3)



GEOLOGY

H. PAUL BUCHHEIM, Ph.D. University of Wyoming 1978
 Program Coordinator; Professor of Geology
Sedimentology, geolimnology, paleoenvironments

The Department of Natural Sciences offers a program leading to the Master of Science degree in geology. Research and course work emphasizes field and laboratory studies in sedimentology, paleontology, paleoenvironmental reconstruction, paleoecology, paleobotany, and taphonomy. Areas of curriculum strengths include sedimentary geology, paleontology, and environmental geology. Research in paleontology may also be pursued through the M.S. and Ph.D. degree programs in biology.

FACULTY

LEONARD R. BRAND, Ph.D. Cornell University 1970
 Professor of Biology and Paleontology
Vertebrate zoology and paleontology

RONALD L. CARTER, Ph.D. Loma Linda University GS 1977
 Professor of Biology
Molecular ecology and systematics

ROBERT A. CUSHMAN, Jr., Ph.D. Colorado School of Mines 1994
 Assistant Professor of Geology
Biostratigraphy, paleopalynology, and invertebrate paleontology

ASSOCIATE FACULTY

CLYDE L. WEBSTER, Ph.D. Colorado State University 1972
 Professor of Chemistry
Geochemistry, mass spectroscopy, trace element modeling

BEN CLAUSEN, Ph.D. University of Colorado 1987
 Assistant Professor of Geophysics
Nuclear physics, geophysics

ADJUNCT FACULTY

H. THOMAS GOODWIN, Ph.D. University of Kansas 1990
 Adjunct Associate Professor of Paleobiology, Andrews University
Vertebrate paleontology and biogeography

KEVIN E. NICK, Ph.D. University of Oklahoma 1990
 Adjunct Assistant Professor of Geology
Paleomagnetism and sedimentology

MASTER OF SCIENCE

Admission

Applicants must meet the general Graduate School admission requirements. Acceptable undergraduate preparation is a bachelor's degree and must include: physical geology, petrology, and structural geology. (Students with an undergraduate degree other than in geology may remove geology deficiencies while in residence in the graduate program.) Prerequisite cognates include one-year courses in biology (zoology, botany, ecology, non-human biology courses, etc), chemistry, mathematics and physics.

Curriculum

A minimum of 48 quarter units, including 28 at or above the 500 level, constitutes the curriculum for the Master of Science degree in geology. In

addition to the general Graduate School requirements, the following courses are required:

GEOL 425	Field Methods of Geologic Mapping	(4)
GEOL 431	Geochemistry	(4)
GEOL 547	Advanced Historical Geology	(4)
GEOL 556	Paleoenvironments	(4)
GEOL 558	Philosophy of Science	(4)
GEOL 566	Advanced Sedimentology	(4)
GEOL 567	Stratigraphy and Basin Analysis	(4)
GEOL 605	Seminar in Geology	(1)
or		
GEOL 607	Seminar in Geology	(1, 1)
GEOL 616	Research Methods I	(1)
GEOL 617	Research Methods II	(2)
GEOL 697	Research	(1-4)

GEOL 698 Thesis	(1-2)
Two of the following:	
GEOL 524 Paleobotany	(4)
or	
GEOL 525 Paleopalynology	(4)
GEOL 534 Invertebrate Paleontology	(4)
GEOL 544 Vertebrate Paleontology	(4)

The remainder of the student's program will be planned in consultation with the major professor and graduate advisory committee. In addition to course work, students are expected to attend all program seminars, fulfill research and thesis expectations, and successfully pass a final oral examination.

PROGRAM OBJECTIVES

The geology program focuses on field-oriented geology, particularly sedimentology, stratigraphy, and paleontology. The integrated core course sequence provides students with the tools to conduct research in the sub-disciplines of sedimentology, paleontology or environmental geology. Field work is emphasized because it 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 in the application of the scientific method to the resolution of geologic problems. Consideration of multiple working hypotheses is encouraged.

EMPHASES

The graduate Geology Program's primary research and curriculum strength is paleontology and sedimentary geology. Environmental geology is available as a curriculum emphasis. In addition to the basic requirements listed above, students wishing to concentrate in one of these three emphases should take the following courses as electives:

PALEONTOLOGY

BIOL 526 Principles and Methods of Systematics	(3)
BIOL 545 Genetics and Speciation	(4)
GEOL 534 Invertebrate Paleontology	(4)
GEOL 544 Vertebrate Paleontology	(4)
GEOL 524 Paleobotany	(4)
GEOL 525 Paleopalynology	(4)

Graduate paleontology and biology courses related to area of specialty also recommended.

SEDIMENTARY GEOLOGY

GEOL 454 Sedimentary Petrology	(4)
GEOL 556 Paleoenvironments	(4)
GEOL 554 Geolimnology	(4)

Additional readings and special-topic courses in sedimentology also recommended

ENVIRONMENTAL GEOLOGY

GEOL 574 Environmental Geology	(3)
GEOL 575 Hydrogeology	(4)
GEOL 437 Geophysics	(4)
GEOL 556 Paleoenvironments	(4)
ENVH 568 Water Quality Assurance	(3)
ENVH 567 Hazardous Materials and Solid-Waste Management (recommended)	(3)

COURSES

UNDERGRADUATE

(For 100- to 400-level course descriptions, see Section V, the undergraduate geology section of this BULLETIN.)

GEOL 125 Rocky Mountain Field Geology	(2-3)
GEOL 304 Physical Geology	(4)
GEOL 316 Mineralogy	(4)
GEOL 317 Optical Mineralogy and Petrology	(4)
GEOL 325 Rocky Mountain Field Geology	(2-3)
GEOL 326 Geology of Southern California	(3-4)
GEOL 327 Geology of Death Valley	(3-4)
GEOL 328 Geology of Anza Borrego	(3-4)
GEOL 341 The Natural History of Fossils	(3-4)
GEOL 384 Paleobotany	(4)
GEOL 386 Invertebrate Paleontology	(4)
GEOL 387 Vertebrate Paleontology	(4)

BIOL 400⁺-level courses

(as approved by guidance committee)

Course descriptions for BIOL courses can be found in the Program in Biology section of this BULLETIN.

GRADUATE

GEOL 524 Paleobotany (4)

Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analysis of floral trends in the fossil record. Three class hours, one three-hour laboratory or field trip per week.

Prerequisite: Consent of instructor.

GEOL 525 Paleopalynology (4)

The morphology, paleoecology, classification, and stratigraphic distribution of plant microfossils. Includes an introduction to biostratigraphic and paleoecological analytical methods. Three class hours and one three-hour laboratory or field trip per week.

Prerequisite: GEOL 430 or consent of instructor.

GEOL 534 Invertebrate Paleontology (4)

Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Principles and methods involved in the study and analysis of invertebrate fossils considered. Three class hours and one three-hour laboratory per week.

Prerequisite: Consent of instructor.

GEOL 544 Vertebrate Paleontology (4)

Fossil vertebrates, with an emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Three class hours, one three-hour laboratory per week.

Prerequisite: BIOL 106 or consent of the instructor.

GEOL 545 Taphonomy (3)

Processes that affect an organism from death until its final burial and fossilization, and the utilization of this information in reconstructing ancient assemblages of organisms. Three class hours per week.

GEOL 546 Ichnology (2)

Fossilized traces produced by animal activity, such as tracks, burrows, feeding traces, etc. Two class hours per week.

GEOL 547 Advanced Historical Geology (4)

History of the earth, with an in-depth look at vertical paleontologic and lithologic changes of the geologic column. Emphasis on concepts of interpretation, particularly the causes of mass extinctions within the context of their accompanying sedimentologic variations. Term paper or research project report required.

Prerequisite: GEOL 304, 427, 429.

GEOL 548 Field Seminar in Historical Geology (4)

Field analysis of the stratigraphic and fossil record, with emphasis on interpretation and discussion of models of deposition. Includes one week of lecture and a two-week field trip to specific sites in the western United States. Summer only.

Prerequisite: GEOL 547, 566, 567; or consent of instructor.

GEOL 554 Geolimnology (4)

Ancient lake deposits, including their sedimentologic, paleontologic, mineralogic, geochemical, and stratigraphic characteristics. The depositional processes occurring in modern lakes investigated as analogs. Laboratory and several extended field trips included.

Prerequisite: GEOL 427, 429; or consent of the instructor.

GEOL 556 Paleoenvironments (4)

Application of paleontologic, sedimentologic, and geochemical data and methods to the interpretation of past sedimentary environments, with emphasis on organism-sediment relationships. Processes, sediments, and organisms in modern depositional environments investigated as analogs.

Prerequisite: GEOL 427, 429; or consent of the instructor.

GEOL 558 Philosophy of Science (4)

Selected topics in the history and philosophy of science, and the application of these principles in analyzing contemporary scientific trends.

Prerequisite: GEOL 430 or consent of instructor.

GEOL 564 Field Geology Studies (1-6)

Special field study trips lasting one or more weeks. Student involvement required, including field presentations and field work 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 566 Advanced Sedimentology (4)

Advanced methods and principles of sedimentology, with emphasis on the analysis and interpretation of sedimentary structures and the processes that produced them. Sedimentary facies, depositional environments, chemogenic and biogenic sedimentation, and postdepositional diagenetic processes discussed in detail. Research or project paper required. Three class hours, one three-hour laboratory or field trip per week, and several extended field trips.

Prerequisite: GEOL 304, 315 recommended.

GEOL 567 Stratigraphy and Basin Analysis (4)

Advanced methods of stratigraphy and basin analysis, including facies analysis, depositional systems, sequence stratigraphy, paleogeography, and basin modeling. Research or project paper required. Three class hours, one laboratory or field trip per week, and two extended field trips.

Prerequisite: GEOL 304, 427, 429.

GEOL 574 Environmental Geology (3)

Geological and hydrogeological principles that apply to subsurface waste and contaminant characterization. Review of remediation techniques and hazardous-waste disposal alternatives. Three class hours per week.

Prerequisite: Physical geology; GEOL 427, 429 recommended.

GEOL 575 Hydrogeology (4)

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, one three-hour laboratory per week.

Prerequisite: GEOL 427, 429; or consent of instructor.

GEOL 588 Topics in Geology (1-4)
Review of 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.

Prerequisite: Consent of instructor.

GEOL 589 Readings in Paleontology (1-4)
Review of the literature in a specific area of paleontology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

GEOL 594 Readings in Geology (1-4)
Review of the literature in a specific area of geology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

GEOL 595 Lacustrine Readings (1)
Readings and analyses 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 605 Seminar Presentation in Geology (1)
Selected topics dealing with recent developments, particularly reports of current research. Student presents one seminar during the quarter.

GEOL 607 Seminar in Geology (1)
Selected topics dealing with recent developments. Student attends seminar; no presentation required.

GEOL 616 Research Methods I (1)
Concepts and methods used in research, including computer applications, scientific literature, research design, and proposal writing.

GEOL 617 Research Methods II (2)
Techniques and technology for the analysis and presentation of data.

GEOL 695 Special Projects in Geology (1-4)
Special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.

Prerequisite: Consent of instructor.

GEOL 697 Research (1-4)

GEOL 698 Thesis (1-2)

OTHER COURSES APPLICABLE TO GEOLOGY PROGRAM

Additional courses not listed here may be approved by the student's advisory committee.

ENVH 567 Hazardous Materials and Solid-Waste Management	(3)#
ENVH 568 Water Quality Assurance	(3)#
BIOL 459 Marine Invertebrates	(5)*
BIOL 460 Marine Ecology	(5)*
BIOL 462 Ichthyology	(5)*
BIOL 504 Biology of Marine Invertebrates	(4)
BIOL 509 Mammalogy	(4)
BIOL 515 Biogeography	(3)
BIOL 518 Readings in Ecology	(2)
BIOL 526 Principles and Methods of Systematics	
BIOL 545 Genetics and Speciation	(4)
BIOL 547 Molecular Biosystematics	(4)
BIOL 588 Marine Biology	

* Summer Rosario Beach courses indicated by an asterisk.

See School of Public Health BULLETIN for description of ENVH courses.



MARITAL AND FAMILY THERAPY

MARY E. MOLINE, Ph.D. Brigham Young University 1979
 Chair; Program Coordinator; Professor of Marriage and Family Therapy
 AAMFT-approved supervisor
Marriage and family therapy, family studies, group process

DIANNA LYNNE CONNORS, M.A. Western Michigan University 1978
 Program Coordinator, Canadian University College campus
 Clinical Instructor in Marriage and Family Therapy

The Marital and Family Therapy Program leads to the Master of Science degree and is designed to give the student a broad academic background for understanding individuals, couples, or families. The program has a Christian emphasis.

Marriage, family, and child counseling is established in California by law as a profession requiring state licensure. Persons who desire to enter the profession must have the proper academic and clinical preparation and must pass the written and oral licensing examinations. The master's degree program at Loma Linda University provides the academic requirements to meet the California licensing standards according to Business and Professions Code 4980.38 and has the following objectives:

1. Develop skilled professionals in marriage and family therapy.
2. Expose students to available content material in the field.
3. Provide supervised clinical training toward the development of clinical skills and competence.
4. Provide specialized training in one of the family therapy modalities that will qualify graduates for licensure as marriage and family therapists.
5. Prepare students to be familiar with sociocultural issues.
6. Prepare marital and family therapy students for professional practice, with specialized training in the delivery of services in private-practice and institutional settings.

The American Association for Marriage and Family Therapy (AAMFT), with headquarters in Washington, D.C., functions on a national basis to ensure that academic and clinical training programs adhere to the standards of the profession. The program offered by Loma Linda University is a fully accredited program. Clinical license requirements vary by state and will require additional hours of supervised clinical practice.

FACULTY

- IAN P. CHAND, Ph.D. Pennsylvania State University
1980
Director of Clinical Training; Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Marriage and family therapy, biofeedback, family studies, sociology
- M. JERRY DAVIS, Rel.D. Claremont School of Theology
1967
Adjunct Professor of Religion; AAMFT-approved supervisor
Pastoral counseling
- RONALD G. HUSTON, Ph.D. United States International University 1981
Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Marriage and family therapy, family studies, human sexual behavior
- JANICE E. EWING, Ph.D. Virginia Polytechnic Institute and State University 1997
Assistant Professor of Marriage and Family Therapy; AAMFT-approved supervisor
Family studies, marriage and family therapy, structural therapy, qualitative research, gender perspectives, family systems theory

ASSOCIATE FACULTY

- KENNETH M. AUSTIN, Ph.D. California Western University 1975
Adjunct Professor of Marriage and Family Therapy
Clinical psychology, law, and ethics
- RANDALL LEE ROBERTS, D.Min. Fuller Theological Seminary 1995
Assistant Professor of Clinical Ministry Program
Religion and clinical ministry

CLINICAL FACULTY

- DORIS HUBBARD, M.S. Loma Linda University 1992
Director of Clinical Training, Canadian University College campus; Assistant Professor of Counseling and Family Sciences; Clinical Instructor in Marriage and Family Therapy; AAMFT-approved supervisor
- DANIEL FERGUSON, M.S. Loma Linda University 1981
Instructor in Pediatrics; Licensed Marriage and Family Therapist; AAMFT-approved supervisor
Child and adolescent therapy
- CRAIG LAMBDIN, M.S. University of Redlands 1980
Licensed Marriage and Family Therapist; AAMFT-approved supervisor
- ANTOINETTE WONG, M.S. Loma Linda University 1985
Licensed Marriage and Family Therapist; AAMFT-approved supervisor

MASTER OF SCIENCE

Admission

Applicants to both the Loma Linda University and the Canadian University College programs must meet the Graduate School admission requirements outlined in this BULLETIN; and give evidence of academic ability, emotional stability, and maturity.

In addition to completing the required application forms, providing character and academic references, and completing the Critical Essay examination, the prospective student should also arrange for a personal interview with two of the program faculty.

Although no particular undergraduate major is specified as preparation for the marital and family therapy program, undergraduate courses in each of the following are required: abnormal psychology and introductory statistics. A course in interviewing and counseling is preferred for non-behavioral science majors. In addition, the student is required to take an MMPI-2 (Minnesota Multiphasic Personality Inventory 2) and have the results sent to the program. (The MMPI can be taken on Loma Linda University's campus prior to the interview.)

This program offers options for full-time and part-time studies.

Degree requirements

Requirements for the Master of Science degree for both the Loma Linda University and the Canadian University College campuses include the following:

1. Residence of at least two academic years.
2. A minimum of 78 quarter units of graduate work, which includes credit received for core courses, electives, and a 3-unit religion course.
3. Practicum in marriage and family counseling. A minimum of 500 direct client-contact hours and 100 direct-supervision hours is required. Of the direct client-contact hours, at least 250 hours must be with couples and families. Of the direct-supervision hours, at least 50 hours must be with raw data (video, audio, 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. Clinical training as defined by the Commission on Accreditation for Marriage and Family Therapy includes a minimum of twelve continuous months in a clinical internship.
4. Successful completion of a written comprehensive examination (taken before advancement to candidacy) and an oral examination (taken at the end of the program).

Clinical services

The program operates a community marriage and family therapy clinic to provide counseling services to individuals, couples, and families; and to give opportunity for clinical practice for MFAM student trainees and interns. Part of the student's field experience and internship may be taken at other clinics in the Riverside, San Bernardino, and Orange County areas. Paid internships may be available.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

Financial aid

The Marital and Family Therapy Program students are eligible for federal, state, and private loans and grants. The Counseling and Family Sciences Department offers financial aid on a limited basis. Research assistant and other paid opportunities in the department are also available on a limited basis.

**CURRICULUM
COURSE REQUIREMENTS**

The following are the major areas of study and the required and elective courses for each, totaling 78 quarter units.

THEORETICAL FOUNDATIONS OF MARITAL AND FAMILY THERAPY (9)

- MFAM 551 Family Therapy: Theory and Practice (3)
- MFAM 552 Marital Therapy: Theory and Practice (3)
- MFAM 553 Family Systems Theory (3)

ASSESSMENT AND TREATMENT IN MARITAL AND FAMILY THERAPY (20)

- FMST 614 Family Communication (3)
- MFAM 515 Crisis-Intervention Counseling (3)
- MFAM 568 Group Process Theory and Procedures: Theories in MFAM Therapy (3)
- MFAM 624 Marital and Family Assessment (3)
- MFAM 638 Family Therapy and Chemical Abuse (3)
- MFAM 644 Child Abuse and Family Violence (3)
- MFAM 665 Structural Family Therapy (2)

HUMAN DEVELOPMENT AND FAMILY STUDIES (15)

- FMST 514 Crosscultural Counseling Family Values (2)

- MFAM 545 Gender Perspectives (2)
- MFAM 556 Psychopathology and Diagnostic Procedures I (3)
- MFAM 558 Advanced Human Growth and Development (3)
- MFAM 584 Treatment of Child and Adolescent Problems (2)
- MFAM 669 Human Sexual Behavior (3)

ETHICS AND PROFESSIONAL STUDIES (7)

- MFAM 535 Case Presentation and Professional Studies (4)
- MFAM 614 Law and Ethics (3)

RESEARCH (7)

- MFAM 501 Research Tools and Methodology I (3)
- MFAM 502 Research Tools and Methodology II (3)
- MFAM 697 Project (1)

SUPERVISED CLINICAL PRACTICE (12)

- MFAM 536, 537 Case Presentation Seminar (2, 2)
- MFAM 635, 636, 637 Case Presentation Seminar (3, 3, 2)
- MFAM 534 Clinical Training (200 hours total)
- MFAM 634 Advanced Clinical Training (300 hours total)

RELIGION (3)

- RELR 564 Religion, Marriage, and the Family (3)

ELECTIVES (5-6)

- FMST 524 Family Resource Management (2)
- FMST 528 Parenting (2)
- FMST 529 Family Life Education (2)
- MFAM 516 Play Therapy (2)
- MFAM 555 Narrative Family Therapy (2)
- MFAM 557 Object-Relations Family Therapy (2)
- MFAM 559 Cognitive Behavioral Couples Therapy (2)
- MFAM 566 Psychopathology and Diagnostic Procedures II (2)
- MFAM 605 Gestalt Family Therapy (2)
- MFAM 657 Setting up a Private Practice in Family Therapy (2)
- MFAM 658 Reality Family Therapy (2)
- MFAM 663 Brief Family Therapy (2)
- MFAM 664 Experiential Family Therapy (2)
- MFAM 670 Seminar in Sex Therapy (2)
- MFAM 675 Clinical Problems in Marriage and Family Therapy (1-2)
- MFAM 694 Directed Study: Marriage and Family (1-4)
- MFAM 695 Research Problems: Marriage and Family (1-4)

POST-MASTER'S

- MFAM 651 AAMFT-Approved Supervisor Training (2)
- MFAM 704 MFAM State Board Written Examination Review (2)
- MFAM 705 MFAM State Board Oral Examination Review (2)
- MFAM 744 Clinical Internship (1)

COURSES

MFAM 501 Research Tools and Methodology I (3)

Current social research methods, practice in the use of techniques, consideration of the philosophy of the scientific method, and familiarization with MFAM test instruments.

Prerequisite: An introductory course in statistics as an undergraduate research methods course.

MFAM 502 Research Tools and Methodology II (3)

Qualitative methodology. Designed to prepare students to undertake research projects using the intensive interview method of qualitative research. Practical and epistemological issues and problems in qualitative research explored in a workshop format.

MFAM 515 Crisis-Intervention Counseling (3)
 Experiential course in which theory, techniques, and practices of crisis intervention are presented, with special attention to the development of the basic communication skills of counseling. Areas included which are intended to contribute to the development of a professional attitude and identity are: confidentiality, interprofessional cooperation, professional socialization, and organization. Therapeutic tapes also presented covering topics such as death and dying, incest, spousal abuse, and rape. Laboratory required.

MFAM 516 Play Therapy (2)

Experiential course designed for practitioners and graduate students to learn how to apply play therapy techniques in dealing with childhood problems such as molestation, physical abuse, depression, trauma, and family conflict.

MFAM 534 Clinical Training (200 total clock hours)

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 200 clock hours.

MFAM 535 Case Presentation and Professional Studies (4)

Formal presentation of ongoing individual, marital, and family cases by clinical trainees. Taping, video playbacks, and verbatim reports with faculty and clinical peers. Exploring of the interface between MFCCs and other professionals. Examining of licensure procedures; applying to professional organizations (AAMFT, etc.); developing professional attitude and identity. Limited to students in clinical training.

MFAM 536, 537 Case Presentation Seminar (2, 2)

Formal presentation of ongoing individual, marital, and family cases by clinical trainees. Taping, video playbacks, and verbatim reports with faculty and clinical peers. Examination and training in applied psychotherapeutic techniques, assessment, diagnosis, prognosis, and treatment of premarital, couple, family, and child relationships; dysfunctional and functional aspects examined, including health promotion and illness prevention. Limited to students in clinical training.

MFAM 545 Gender Perspectives (2)

Explores the identities, roles, and relationships of women and men in light of social, cultural, and historical perspectives. Implications for the family therapist explored.

MFAM 551 Family Therapy: Theory and Practice (3)

Overview of the major theories in marriage and family therapy. Systems theory concepts explored in light of the major models of family therapy.

MFAM 552 Marital Therapy: Theory and Practice (3)

Overview of the marital therapy literature, with a focus on clinical theory and techniques.

MFAM 553 Family Systems Theory (3)

Review of Bowen theory, 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)

Narrative therapy and social constructionism as important developments in social theory and in clinical practice. Use of narratives and the role they play in a person's life through language and meaning systems. Issues of power, collaboration, culture, community, and re-authoring narratives examined, particularly in the works of Michael White and David Epston.

MFAM 556 Psychopathology and Diagnostic Procedures I (3)

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 multi-axial classifications of the DSM-IV as a practical basis for diagnostics.

Prerequisite: A course in abnormal psychology.

MFAM 557 Object-Relations Family Therapy (2)
Designed in a seminar form to acquaint students in marriage and family therapy with the basics of object-relations theory. Special emphasis given to the unique properties of object-relations systems theory in bridging intrapsychic and environmental forces.

MFAM 558 Advanced Human Growth and Development (3)
Human biological, psychological, and social development from conception to death, including but not limited to: childbirth, child rearing, childhood, adolescence, adulthood, marriage, divorce, blended families, step-parenting, and geropsychology. Overview of concepts, theories, and research relevant to human development. Emphasis on development over the life span in the context of family interaction and its impact on family therapy.

MFAM 559 Cognitive Behavioral Couples Therapy (2)
Experiential course in which major cognitive behavioral family therapy therapists are surveyed, and treatment techniques are integrated into practice in laboratory.

MFAM 566 Psychopathology and Diagnostic Procedures (2)
Focuses on the etiology of marital dysfunction specifically from a dual function of individual and systems psychopathology.
Prerequisite: MFAM 556.

MFAM 568 Group Process Theory and Procedures: Theories in MFAM Therapy (3)
Major theoretical approaches surveyed include individual theories, marital groups, network, and family therapy groups. Group laboratory experience provided wherein students apply theory to practice and develop group leadership skills.

MFAM 584 Treatment of Child and Adolescent Problems (2)
Psychodynamics involved in child and adolescent problems with respect to the family relationship. Demonstration of a variety of counseling approaches to the treatment of children and adolescents.

MFAM 605 Gestalt Family Therapy (2)
Principles of Gestalt psychology and therapy; the relationship between the individual and the physical, emotional, societal, and spiritual environment. Group experience which permits the spiritual and affective aspects of Gestalt therapy to be expressed and integrated with systems theory.

MFAM 614 Law and Ethics (3)
Laws pertaining to the family: child welfare, separation, divorce, and financial aspects of family maintenance. Case management, referral procedures, professional and client interaction, ethical practices (AAMFT), ethical relations with other professions, legal responsibilities, liabilities, and confidentiality. Current legal patterns and trends in the mental health profession. Exploration between the practitioner's sense of self and human values and his/her professional behavior and ethics.

MFAM 624 Marital and Family Assessment (3)
Application of psychological testing methods in the diagnostic assessment of individual, family, and group behavioral dynamics as encountered in marriage and family counseling. Observations and/or laboratory experience.

MFAM 634 Advanced Clinical Training (300 total clock hours)
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 a total of at least 300 clock hours.

MFAM 635, 636, 637 Case Presentation Seminar (3, 3, 2)
Formal presentation of ongoing individual, marital, and family cases by clinical trainees. Taping, video playbacks, and verbatim reports with faculty and clinical peers. Limited to students enrolled in clinical training.

MFAM 638 Family Therapy and Chemical Abuse (3)
Current theories and treatment of chemical dependencies. Emphasis on family therapy, assessment techniques, understanding of how chemicals affect the mental and biological systems, issues of dual diagnosis.

MFAM 639 Interdisciplinary Professional Seminar (1)
Designed from different mental health disciplines to orient the student to the arena of professional issues regarding family counseling.

MFAM 644 Child Abuse and Family Violence (3)
Definition and incidence of physical and emotional abuse, neglect, sexual molestation, dynamics of family violence; offender and non-offender characteristics. Treatment of children, adolescents, the family, and adults abused as children. Treatment modalities, including individual, group, and family therapy. Ethical and legal issues, referral sources, multidisciplinary approach to child abuse, assessment, interview techniques, and confidentiality. Minimum of 30 contact hours.

MFAM 651 AAMFT-Approved Supervisor Training (2)
Postgraduate: The didactic component requirement for AAMFT-approved supervisor designation.

MFAM 657 Setting up a Private Practice in Family Therapy (2)
The legal, ethical, and economic aspects of developing and maintaining a private practice. Development of professional attitude and identity of professional organizations such as AAMFT.

MFAM 658 Reality Family Therapy (2)

A clinically oriented seminar in which students learn the theory of reality therapy and how to integrate it into the practice of marriage and family therapy. Emphasis on the practice and therapeutic skills associated with the use of reality therapy with clients.

MFAM 663 Brief Family Therapy (2)

Examines the area of brief therapy in general and forms of brief family therapy in particular. In-depth study of brief family therapy.

MFAM 664 Experiential Family Therapy (2)

Examination of various experiential family theories. Laboratory experience included.

MFAM 665 Structural Family Therapy (2)

Designed to enhance observational, conceptual, planning, and intervention skills; increase ability to understand verbal and nonverbal communication; and broaden understanding of structural family therapy.

MFAM 669 Human Sexual Behavior (3)

Sexuality in contemporary society from the socio-psychological viewpoint. Anatomy and physiology of human sexuality: reproduction, normal and abnormal sexual response, psychosexual development, human fertility, human sexual dysfunction; integration of systems theory. A minimum of 30 contact hours.

MFAM 670 Seminar in Sex Therapy (2)

Discussion of the major male and female sexual dysfunctions. Therapeutic processes of treatment.

Prerequisite: MFAM 669.

MFAM 675 Clinical Problems in Marriage and Family Therapy (1-2)

Intensive, clinically focused course using videotape, live interview, and role playing. Marriage and family counseling methods observed and applied to problems representative of clinical practice.

MFAM 694 Directed Study: Marriage and Family (1-4)

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 695 Research Problems: Marriage and Family (1-4)

Directed research in the student's special field of interest in the family.

Prerequisite: MFAM 501 or concurrent registration with the consent of the coordinator.

MFAM 697 Project (1)

Student submits a written modality paper and a case description, and makes a videotape presentation of a final case project to a three-member committee selected by the student. Oral response to a case vignette required.

Prerequisite: Advancement to candidacy.

MFAM 704 MFAM State Board Written Examination Review (2)

Training for candidates preparing to take the written examination for MFCC licensure.

MFAM 705 MFAM State Board Oral Exam Review (2)

Course designed to provide training to candidates preparing to take the oral exam for MFCC licensure.

MFAM 744 Clinical Internship (1)

Supervised clinical counseling of individuals, couples, families, and children. One hour of individual supervision per week. Postgraduates only. Approved by internship coordinator.

MEDICAL SCIENTIST PROGRAM

ANTHONY J. ZUCCARELLI, Ph.D., California Institute of Technology 1974
 Director; Professor of Microbiology and of Biochemistry
Molecular genetics, bacterial genomic polymorphism, bacterial plasmids

The faculty that participate in this program come from the biomedical science programs of the Graduate School, from the clinical departments of the School of Medicine at Loma Linda University, and from research laboratories outside of Loma Linda University.

The Medical Scientist Program integrates the education programs leading to the Ph.D. and M.D. degrees. The foundation course in the program is a sequence that explores the biochemical, molecular, and cellular functions of living systems within the context of the biomedical sciences. Through correlative seminars, this basic material is extended to include organ systems and is applied to the study of human diseases. Subsequent courses in the curriculum include specialized areas of biomedical and clinical sciences. Research and dissertation are supervised by graduate faculty of the basic biomedical sciences. An application to the School of Medicine, processed through the American Medical College Application Service (AMCAS), should be completed by the November prior to the year admission is desired. A separate application to the Graduate School, directed to the Medical Scientist Program, should be submitted by February of the year admission is desired.

DOCTOR OF PHILOSOPHY/DOCTOR OF MEDICINE

Admission

Applicants submit complete applications (with fees) to both the Graduate School and the School of Medicine during the senior undergraduate year. The applications are considered concurrently by two separate admissions committees. Applicants must be accepted into both the Graduate School and the School of Medicine to participate in the program. The Medical Scientist Program admissions committee bases its recommendations upon academic criteria; personal interviews; GRE General Test and MCAT scores; and other measures of analytical potential, creativity, compassion, and initiative. Accepted applicants are invited to participate in ongoing research in one of the biomedical science departments during the summer preceding their matriculation.

Curriculum

The curriculum is innovative in content and sequence. It includes courses that provide a pervasive research perspective, as well as those that provide basic instruction in clinical sciences. A three-quarter course sequence in biochemistry, molecular biology, cell biology, and immunology taken during the first year emphasizes analytical thinking and problem solving as a foundation for a research-oriented approach to biomedical science and clinical medicine. Seminar sessions merge research and clinical approaches to medical problems and expand the perspective of the program to include organ systems and disease processes.

Curriculum sequence

The typical sequence of courses in the curriculum is outlined below, though several variations are possible, with approval of the program director and curriculum committee.

First year:	Biochemistry, molecular biology, cell biology/immunology, genetics, gross anatomy/embryology, religion, clinical correlates, introduction to research, research rotations
First summer:	Research
Second year:	Modification of School of Medicine freshman year (all freshman courses except anatomy/embryology and religion), clinical correlates
Second summer:	Research
Third year:	School of Medicine sophomore year, clinical correlates; board examination (USMLE Step I)
Research years:	Two or more years to complete research, graduate course work, and Ph.D. degree
Junior year:	School of Medicine
Senior year:	School of Medicine

Advisement

Admitted students are classified as medical scientists on both the School of Medicine and Graduate School rosters and are advised by the Medical Scientist Program director. During the second year, students choose a basic science program (anatomy, biochemistry, microbiology and molecular genetics, pharmacology, or physiology) in which they will pursue their subsequent research and graduate course work. After making that selection, they will be guided by the coordinator for that graduate program and by a guidance committee.

Time limits

Limits apply to the time allotted for the completion of graduate degrees. Four years (between the sophomore and junior years of the School of Medicine curriculum) are allowed for the completion of a Ph.D. degree; two years are allowed for completion of the M.S. degree. Completion within these limits is required to retain eligibility for further tuition waivers for School of Medicine course work, as described under "Financial assistance."

It is strongly recommended that the students compete their graduate degree prior to reentry

into the School of Medicine for the junior year. No additional financial aid will be provided until the graduate degree is completed.

Financial assistance

Financial assistance to students in the Medical Scientist Program may provide:

1. Stipends during those periods in which students are most directly involved in graduate education—the first year and the research years. The amount of the stipend is similar to that available to Ph.D. degree students in the biomedical science graduate programs.
2. A tuition waiver for all Graduate School course work.
3. Tuition deferment for the freshman and sophomore years of the School of Medicine curriculum. When a student completes an M.S. or Ph.D. degree, tuition deferred from the freshman and sophomore years is canceled.
4. A tuition waiver for two quarters of tuition during the junior or senior years in the School of Medicine curriculum, provided the student has completed an M.S. degree.
5. Tuition waiver for both the junior and senior years of the School of Medicine curriculum, provided the student has completed a Ph.D. degree.

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.

COURSES**CMBL 501 Steady State Cell (8)**

The generalized cell. Its structural and functional integrity in a thermodynamically hostile environment. Biochemical concepts of the flow of biological information and of free energy. Emphasis on the interplay of information and energy, the integrating role of compartmentalization, and regulation of metabolic pathways. Fall Quarter.

CMBL 502 The Cell in Transition (8)

A survey of procaryotic and eucaryotic molecular biology. Topics include genome structure and organization, recombination and repair, transcription and translation, control of gene expression, post-translational modification of proteins, protein folding and degradation, gene transfer and mobile genetic elements, control of development, methods and applications of genetic engineering, and bioinformatics. Winter Quarter.

CMBL 503 The Differentiated Cell (10)
 Biological membranes and cell fibrillar systems as a basis for studying specialized structures and functions of selected differentiated cell types. The role of cell-cell interactions in specialized tasks. Emphasis on underlying molecular mechanisms of specialized cell function. Spring Quarter.

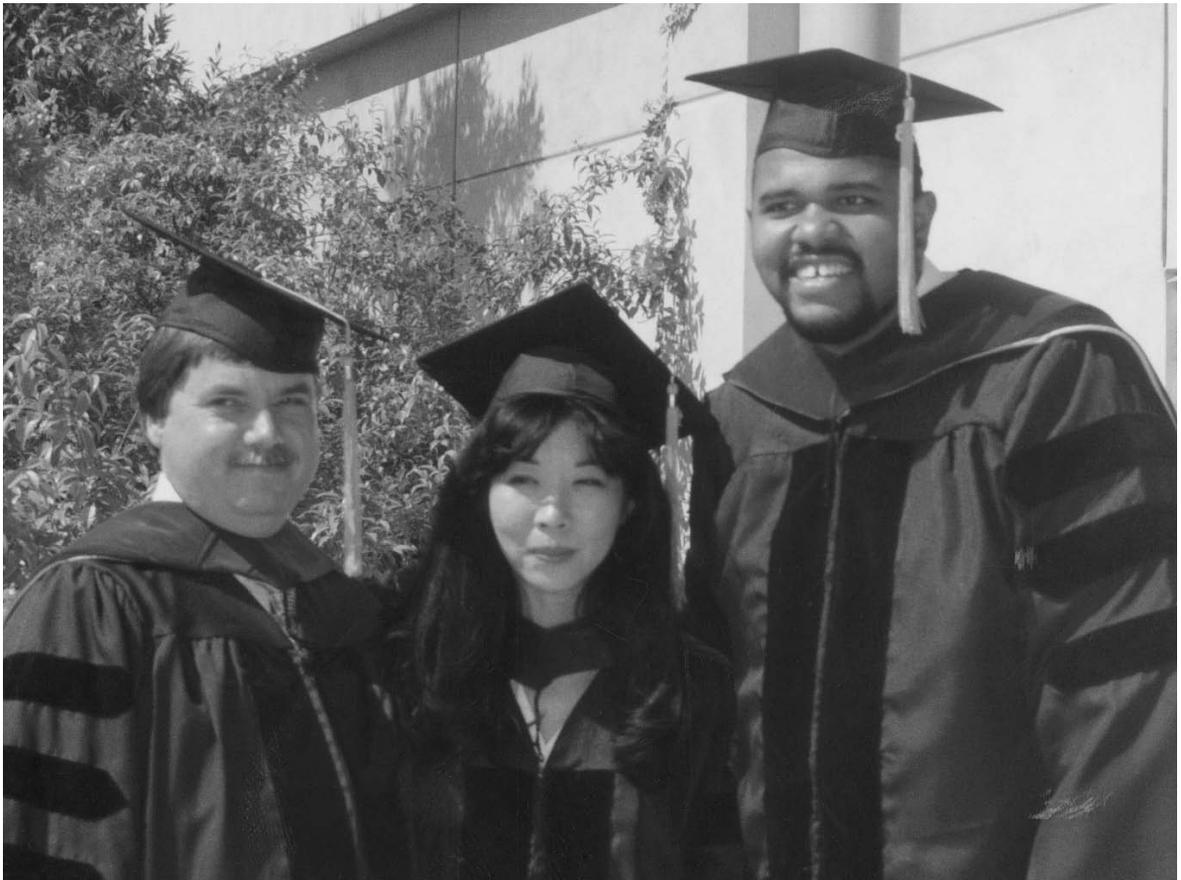
CMBL 511, 512, 513 Clinical
 Correlates (1, 1, 1)
 A three-quarter companion sequence to CMBL 501, 502, 503 that utilizes the topics of cell functions presented in the major sequence as a basis for discussion of clinical problems arising from abnormalities in those functions. Fall, Winter, Spring Quarters.

CMBL 537 Introduction to Human Genetics (1)
 Introduction to medical genetics, human chromosomal abnormalities, Mendelian inheritance, multifactorial inheritance, prenatal diagnosis, newborn screening, and genetic counseling. Spring Quarter.

CMBL 541 Cellular Structural Elements (4)
 Comprehensive description of biological membranes and cytoskeletal fibrillar systems that will form a basis for elucidating the functions of specialized cells. Spring Quarter.

CMBL 542 Signal Transduction and Regulation (3)
 Comprehensive description of signal transduction pathways and other cellular regulatory mechanisms that form the basis of receptor-response phenomena. Spring Quarter.

CMBL 543 Cell-Cell Interactions (3)
 Discussion of the role of cell-cell interactions and the mechanism for cellular specialization emphasizing the immune system. Spring Quarter.



MICROBIOLOGY AND MOLECULAR GENETICS

JAMES D. KETTERING, Ph.D. Loma Linda University GS 1974

Program Coordinator and Assistant Chair; Professor of Microbiology and Molecular Genetics
Virology, tumor immunology, medical bacteriology

The Department of Microbiology and Molecular Genetics offers programs leading to the Doctor of Philosophy and Master of Science degrees. The programs include a core curriculum that provides a broad background in molecular biology, immunology, and medical microbiology and infectious diseases. Advanced courses allow each student to develop fully an area of interest. Research strengths of the department include: signal transduction in bacteria, virulence and periodontal disease, mechanisms of cell death, cellular and tumor immunology, autoimmunity, chaperonins and protein folding, diagnostic virology, DNA restriction modification, and antimicrobial resistance.

The Doctor of Philosophy degree is designed to prepare students for a career of independent research and teaching in a university, clinical, or biotechnology setting. Students are encouraged to develop creativity and independence in addition to technical skills. A superior academic record is required for entry into the program.

The research or thesis Master of Science degree provides training for persons who will become technicians involved in biomedical research in universities or the biotechnology industry, and for medical technologists seeking specialized research training.

The nonthesis 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 a professional school such as medicine or dentistry.

In addition to these programs, combined M.D./Ph.D., M.D./M.S, D.D.S./Ph.D., or D.D.S./M.S. degrees are offered to those seeking a career in academic medicine or dentistry—combining research, teaching and clinical practice. (See sections on Combined Science/Professional Degrees and Medical Scientist Program.)

FACULTY

- LEONARD R. BULLAS, Ph.D. Montana State University 1963
Emeritus Professor of Microbiology and Molecular Genetics
Bacterial and phage molecular biology, genetics of restriction and modification
- ISTVAN FODOR, Ph.D. USSR Academy of Sciences (Moscow, Russia) 1968; D.Sc. USSR Academy of Sciences (Moscow, Russia) 1985
Professor of Microbiology and Molecular Genetics
Molecular biology, virology, recombinant vaccines, gene therapy
- DAILA S. GRIDLEY, Ph.D. Loma Linda University GS 1978
Professor of Microbiology and Molecular Genetics and of Radiation Medicine
Immunology, radiation and immunotherapy, cytokines, tumor vaccines
- BENJAMIN H. S. LAU, Ph.D. University of Kentucky 1966; M.D. Loma Linda University SM 1980
Professor of Microbiology and Molecular Genetics and of Surgery
Cellular and tumor immunology, medical bacteriology, mycology, immune-modulating and anticarcinogenic effects of phytochemicals
- JOHN E. LEWIS, Ph.D. Loma Linda University GS 1969
Professor of Microbiology and Molecular Genetics, of Pathology, and of Medicine
Immunology, medical microbiology, cell-mediated immunity, cytokines, monoclonal antibodies for bacterial identification
- BARRY L. TAYLOR, Ph.D. Case Western Reserve University 1973
Chair; Professor of Microbiology and Molecular Genetics, and of Biochemistry
Microbial physiology, signal transduction in bacterial aerotaxis and chemotaxis, oxygen receptors
- ANTHONY J. ZUCCARELLI, Ph.D. California Institute of Technology 1974
Professor of Microbiology and Molecular Genetics and of Biochemistry
Molecular genetics, genomic polymorphisms, bacterial plasmids, DNA typing of clinical microorganisms
- GIUSEPPE A. MOLINARO, M.D. Naples University (Italy) 1960
Associate Research Professor of Microbiology and Molecular Genetics and of Pathology
Immunology, T-lymphocyte responses
- JUNICHI RYU, Ph.D. Tokyo Metropolitan University (Japan) 1977
Associate Professor of Microbiology and Molecular Genetics
Molecular genetics, gene regulation, restriction-modification enzymes of enteric bacteria
- CARLOS A. CASIANO, Ph.D. University of California at Davis 1992
Assistant Professor of Microbiology and Molecular Genetics
Cell biology and immunology, autoantibodies in autoimmunity and cell biology, mechanisms of cell death
- ALAN P. ESCHER, Ph.D. Cornell University 1992
Assistant Professor of Microbiology and Molecular Genetics
Molecular biology, chaperonins, prion-like proteins, gene therapy
- HANSEL M. FLETCHER, Ph.D. Temple University 1990
Assistant Professor of Microbiology and Molecular Genetics
Molecular genetics; bacterial pathogenesis and antibiotics resistance
- MARK S. JOHNSON, Ph.D. University of Utah 1984
Assistant Research Professor of Microbiology and Molecular Genetics
Microbial biochemistry, intracellular signaling in microorganisms
- IGOR B. JOULINE (ZHULIN), Ph.D. St. Petersburg State University (Russia) 1988
Assistant Research Professor of Microbiology and Molecular Genetics
Microbial physiology and ecology, bioinformatics and genomics, redox sensing in bacteria
- SANDRA HILLIKER, Ph.D. University of Massachusetts 1974
M.B.A. University of California at Riverside 1990
Instructor of Microbiology and Molecular Genetics
Biotechnology, scientific communication

ASSOCIATE FACULTY

- GEORGE T. JAVOR, Ph.D. Columbia University 1967
Professor of Biochemistry and of Microbiology and Molecular Genetics
Bacterial physiology
- WILLIAM H. R. LANGRIDGE, Ph.D. University of Massachusetts 1973
Professor of Biochemistry, of Microbiology, and of Molecular Genetics
Plant molecular genetics, autoimmunity, plant-based vaccines and pharmaceuticals, gene therapy, recombinant insect virus systems

YIMING LI, Ph.D. Indiana University 1987
 Professor of Restorative Dentistry and of Microbiology
 and Molecular Genetics

*Biological and pharmacological effects of fluoride,
 genetic toxicity, biocompatibility, and safety
 evaluation of medical devices*

SANDRA L. NEHLSSEN-CANNARELLA, Ph.D. National
 Institute for Medical Research (London, U.K.)
 1971

Professor of Pathology, of Surgery, and of
 Microbiology and Molecular Genetics

*Cell and molecular immunology, transplantation
 immunology, maternal-fetal and developmental
 immunology*

JOHN J. ROSSI, Ph.D. University of Connecticut 1976

Adjunct Professor of Microbiology and Molecular
 Genetics and of Biochemistry (Beckman Research
 Institute, City of Hope)

Molecular biology, gene expression, ribosomes

EDOUARD M. CANTIN, Ph.D. Cambridge
 University 1976

Adjunct Associate Research Professor of Microbiology
 and Molecular Genetics (Beckman Research
 Institute, City of Hope)

*Molecular mechanisms of herpes virus latency,
 cytokines and viral infections in the brain,
 ribozyme/antisense RNA as antivirals*

LORA M. GREEN, Ph.D. University of California at
 Riverside 1987

Associate Professor of Microbiology and Molecular
 Genetics and of Medicine (Cancer Research
 Institute and Jerry L. Pettis Memorial Veterans
 Hospital)

*Cell and molecular biology, immunology, auto-
 immune diseases and cancer*

REN-JANG LIN, Ph.D. Pennsylvania State University
 1983

Adjunct Associate Professor of Microbiology and
 Molecular Genetics (Beckman Research Institute,
 City of Hope)

RNA splicing and cell cycle control, gene therapy

IRA ROY, Ph.D. Ohio State University 1965

Associate Professor of Microbiology and Molecular
 Genetics

*Diagnostic mycology, bacteriology, antimicrobial
 agents*

DONNA D. STRONG, Ph.D. University of California at
 Los Angeles 1977

Associate Professor of Medicine, of Biochemistry, and
 of Microbiology and Molecular Genetics
 (Jerry L. Pettis Memorial Veterans Hospital)

Molecular biology and recombinant DNA

DANIELA CASTANOTTO, Ph.D. University of Messina
 (Italy) 1987

Adjunct Assistant Research Professor of Microbiology
 and Molecular Genetics (Beckman Research
 Institute, City of Hope)

Molecular biology, gene therapy

WENDY HAGGREN, Ph.D. University of Texas Health
 Science Center, San Antonio 1989

Assistant Research Professor of Microbiology
 and Molecular Genetics (Jerry L. Pettis
 Memorial Veterans Hospital)

*Molecular biology of the mammalian circadian
 rhythm*



DOCTOR OF PHILOSOPHY

Students who have completed a bachelor's degree with a superior academic record may apply directly for admission to the Doctor of Philosophy degree program. This is a full-time program that can be completed by most candidates in four or five years.

The core Ph.D. degree curriculum includes:

- MICR 521 Medical Microbiology
- MICR 539 Molecular Biology of Prokaryotes and Eukaryotes
- MICR 530 Introduction to Graduate Immunology
- MICR 536 Laboratory in Gene Transfer and Gene Expression

Two elective microbiology courses (5-7 units) selected from:
MICR 531, 534, 537, 546, 565, 566, or 626
or similar didactic courses.

Required (15 units):

Cognate electives.

Required:

A minimum grade of B in all departmental courses.

Recommended/(required) cognate course:

Biochemistry (required for students who have not completed an approved course in biochemistry).

Cognate requirements for combined-degrees students:

Satisfied by courses in their professional program (M.D. or D.D.S.).

Other requirements:

Religion/ethics (3 units)

Colloquium (2 units)

Graduate seminar (1 unit)

Dissertation (3 units)

Primary requirement:

Completion of a significant, original contribution to microbiological research.

Examinations:

Candidates must pass a written comprehensive examination in three of five selected areas of microbiology and an oral comprehensive examination of a written research proposal.

Candidacy, research:

After passing the written and oral examinations, the student applies for admission to candidacy. The candidacy period is spent in full-time research.

Laboratory research requirement:

Candidates for the Doctor of Philosophy degree are assigned to laboratories and are expected to participate in research during the first year of their graduate program.

Oral defense of written dissertation:

After completing the research and writing the dissertation, the dissertation is publicly defended at an oral examination.

Teaching assistant requirement:

It is expected that students will assist in teaching a laboratory course for a minimum of one quarter.

MASTER OF SCIENCE

There are thesis and nonthesis options for the Master of Science degree. The thesis option involves intensive research on a single project and culminates in a thesis or a research publication. The nonthesis option includes rotations through different laboratory settings that provide training in a wide variety of research techniques.

Students may choose to obtain laboratory training in a hospital clinical laboratory or in an industrial laboratory. Southern California has a concentration of biotechnology companies and other research facilities. Students preparing for a career as a technician in the biotechnology industry or a university will benefit from the thesis option. Those planning to transfer to a doctoral program must enroll in the thesis option.

The core M.S. degree curriculum includes:

- MICR 521 Medical Microbiology
- MICR 539 Molecular Biology of Prokaryotes and Eukaryotes
- MICR 530 Introduction to Graduate Immunology

Required:

A grade of B- or better for core courses.

A grade of B- or better for the electives in microbiology and molecular genetics.

Religion/ethics (3 units).

Colloquium (2 units).

Graduate seminar (1 unit).

Other requirements depend on the program selected.

Required for graduation:

A minimum of 54 units.

Required for thesis option:

The above core M.S. curriculum sequence.

Elective microbiology and cognates (11 units required) (may include 5 units of a minor such as biochemistry or human physiology).

Biochemistry (required if complete biochemistry sequence has not been taken).

Research (12 units).

Thesis, leading to presentation of thesis or published paper (3 units).

Required for nonthesis option:
(a terminal degree)

The above core sequence.

Additional course work in elective microbiology and cognates (18-22 units). The electives must include a minimum of two courses from the Department of Microbiology and Molecular Genetics.

Laboratory experience (4-8 units). Involves a formal practicum in the clinical laboratory of Loma Linda University Medical Center, laboratory courses, or a research project.

The additional course work and laboratory experience replace the research and thesis requirements of the research Master of Science degree.

Comprehensive examination:

The student must also pass a comprehensive examination covering three areas of microbiology.

COMBINED-DEGREES PROGRAMS

In addition to the preceding programs, combined M.D./Ph.D. M.D./M.S., D.D.S./Ph.D. and D.D.S./M.S. degrees are offered to those with the goal of combining research and clinical practice. The graduates of a Ph.D./professional degree program usually seek careers as medical or dental school faculty. The combined M.S./professional degrees are designed to provide additional content or research experience as a background for post-graduate medical or dental education.

General information

Details of the graduate program are given in the "Student Guide" supplied by the Department of Microbiology and Molecular Genetics. For information about the requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

Prerequisites

One year of course work in each of the following is required: general biology, general chemistry, organic chemistry, and general physics. Microbiology and biochemistry are recommended.

GRE and TOEFL

The Graduate Record Examination (GRE) General Test is required. Test of English as a Foreign Language (TOEFL) is required for students whose native language is not English.

Financial aid deadline

Applications for admission requesting financial support should be completed by March 1.

COURSES

MICR 520 Basic Immunology (2.5)

Study of cellular and molecular aspects of the immune system, immune responses associated with host defense and disease processes, cellular interaction, and modern immunologic technology. Identical to the immunology section of MDCJ 513.

Prerequisite: Permission of department.
Lewis.

MICR 521 Medical Microbiology (8)

A systematic study of bacteria, fungi, viruses, and animal parasites of medical importance; pathogenic mechanisms; methods of identification and prevention; and clinical correlation.

Crosslisting: MICR 511.
Lau, Staff.

MICR 530 Introduction to Graduate Immunology (3)

Selected topics of modern immunology introduced to graduate students, with emphasis on understanding key paradigms. Identical to immunology section of CMBL 503.

MICR 531 Biological Membranes (3)

Comprehensive description of biological membranes, oxidative phosphorylation, active transport, and signal transduction. Identical to membranes, transport, and signal transduction sections of CMBL 503.

Prerequisite: A course in biochemistry.
Hessinger, Taylor.

MICR 534 Microbial Physiology (3)

Provides in-depth coverage of microbial nutrition and growth kinetics, structure and function, bioenergetics and metabolism, nutrient transport, and special bacterial groups and processes unique to microorganisms.

Prerequisite: MICR 521 and a course in biochemistry.
Taylor.

MICR 536 Laboratory in Gene Transfer and Gene Expression (4)

Intensive (two-week) laboratory course in the methods of gene transfer and gene regulation in prokaryotes and eukaryotes. Evaluation and discussion of experimental results in group sessions. Suitable for students, faculty, and postdoctoral fellows who wish to learn modern molecular biology techniques. Limited to fifteen participants.

Prerequisite: CMBL 501, 502, or equivalent.
Escher, Staff.

MICR 537 Selected Topics in Molecular Biology (2)

Critically evaluates current progress in a specific research area of molecular biology, including recently published papers and unpublished manuscripts. Students may register for multiple courses under this designation.

Prerequisite: MICR 539 or CMBL 502.
Staff.

MICR 539 Molecular Biology of Prokaryotes and Eukaryotes (8)

A survey of prokaryotic and eukaryotic molecular biology. Topics include genome structure and organization, recombination and repair, transcription and translation, control of gene expression, post-translational modification of proteins, protein folding and degradation, gene transfer and mobile genetic elements, control of development, methods and applications of genetic engineering, and bioinformatics.

Crosslistings: CMBL 502.
Prerequisite: CMBL 501 or equivalent.
Ryu, Fodor, Staff.

MICR 545 Molecular Biology Techniques Laboratory (4)

Laboratory course in modern molecular biology techniques for gene manipulation and analysis in prokaryotes and eukaryotes. Evaluation and discussion of experimental results in group sessions.

Ryu.

MICR 546 Advanced Immunology (4)
Emerging concepts of immunology first discussed by the class and then reviewed by guest lecturers on a weekly schedule.

Prerequisite: MICR 530 or equivalent.
Molinaro.

MICR 565 Virology (3)
Fundamental aspects of virus-cell relationships of selected groups of animal viruses. Lectures and a library research project. Guest lecturers.

Prerequisite: MICR 521 (MICR 511) or consent of instructor.

Kettering.

MICR 566 Cell Culture (3)
Practical aspects of growth of animal cells in culture. Experience with both primary cell cultures and established cell lines.

Gridley.

MICR 604 Seminar in Microbiology (1)
Students required to register for this course every quarter throughout their training.

MICR 605 Colloquium (1)
Presentations by peers on a topic selected and directed by a faculty member. (All students are required to attend the colloquium. Students who are registered for colloquium are required to give a presentation.)

Staff.

MICR 606 Graduate Seminar (1)
Student presentation in the form of a seminar. (The course requirement will normally be fulfilled by presentation of the dissertation or thesis seminar. Other major student presentations may also qualify.)

MICR 624 Special Problems in Microbiology (2-4)
Designed primarily for students enrolled in a course work M.S. degree program who elect to work on a research problem.

Staff.

MICR 625 Independent Study in Microbiology Literature (2-4)

In-depth exploration of a specific topic, selected in consultation with the mentor, such as the antecedents for theses or dissertation research. (A formal proposal for the scope and evaluation of the independent study must be approved by the faculty prior to enrollment in this course. This does not satisfy an elective requirement in the microbiology and molecular genetics program.)

Staff.

MICR 626 Special Topics in Microbiology (2-4)
Critically evaluates current progress in a specific research area, including recently published papers and unpublished manuscripts. (Each course is 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.)

Staff.

MICR 634 Clinical Microbiology Practicum (4)
Rotations through the clinical microbiology laboratory at Loma Linda University Medical Center. Includes exposure to all aspects of testing procedures necessary for the identification of microorganisms isolated from patient specimens. Instrumentation, automation, and rapid testing identification methods included with "hands-on" experience. Rotation to include tuberculosis and mycology, anaerobic bacteriology, blood, special microbiology, parasitology, and general bacteriology.

Prerequisite: Consent of instructor.

Lewis.

MICR 697 Research (1-5)

MICR 698 Thesis (3)

MICR 699 Dissertation (3)



NURSING

HELEN E. KING, Ph.D. Boston University 1973
Dean; Professor of Nursing

LOIS VAN CLEVE, Ph.D. Claremont Graduate School 1985
Program Coordinator; Professor of Nursing

The sections that follow describe the nursing curricula offered by the Graduate School (Master of Science and Post-Master's Certificate Programs) and list the courses for each. School of Nursing students are expected to operate under the general policies of the University and the School of Nursing and the specific policies of the Graduate School program in which they are enrolled.

A curriculum leading to a Master of Science degree with preparation for advanced nursing practice or nursing administration is offered through the Graduate School of Loma Linda University. Options available for advanced nursing practice are outlined below.

In graduate education, the student has opportunity for the intense pursuit of knowledge in a chosen field of interest. Teaching focuses on attainment of knowledge and development of advanced intellectual, clinical, leadership, and investigative skills.

The CLINICAL OPTION in Advanced Nursing Practice can be pursued in the following areas:

- Adult Nurse Practitioner
- Family Nurse Practitioner
- Pediatric Nurse Practitioner
- Pediatric Critical Care Nurse Practitioner
- Neonatal Critical Care Nurse Practitioner
- Adult and Aging Family
- Growing Family
- School Nursing

The NURSING ADMINISTRATION OPTION prepares nurses for leadership in a variety of organizational settings. The curriculum draws from the practice of nursing, management, and related fields, and includes administrative, research, and clinical components.

Convenient scheduling of classes allows one to complete the program on a full-time or part-time basis. Required nursing courses are scheduled in late afternoons to accommodate working nurses. Applications may be initiated throughout the year.

A minimum of 53-67 quarter units is required to complete the program. The sequence ideally begins in the Fall Quarter; however, students may commence their studies any term during the year; and part-time study is available.

FACULTY

ELIZABETH A. BOSSERT, D.N.S., University of California, San Francisco, 1990

Professor of Nursing
Growing Family

MICHAEL C. GALBRAITH, Ph.D. Claremont Graduate School 1989

Professor of Nursing
Psychology and research

PATRICIA S. JONES, Ph.D. Vanderbilt University, Peabody College 1977

Professor of Nursing
Adult aging and family, international nursing

FRANCES P. MILLER, Ph.D. University of California, Riverside 1985

Associate Professor of Nursing
Political process

RUTH S. WEBER, Ed.D. Loma Linda University Riverside SE 1991

Associate Professor of Nursing
Nursing administration

BETTY WINSLOW, Ph.D. University of Colorado Health Sciences Center 1994

Associate Professor of Nursing
Community health nursing

ASSOCIATE FACULTY

MARGARET A. BURNS, D.N.Sc Catholic University of America 1985

Associate Professor of Nursing
Adult and Aging Family

EVA G. MILLER, M.S. Loma Linda University 1975

Associate Professor of Nursing
Community health nursing, school nursing

CLINICAL FACULTY

RONALD M. PERKIN, M.D. University of South Florida 1976

Professor of Pediatrics SM
Pediatric critical care

CHERYL M. ACOB, M.N., P.N.P. University of California, Los Angeles 1994

Assistant Clinical Professor of Nursing
Pediatric nursing practitioner

LOIDA BRINCKHAUS, M.N., F.N.P., University of California Los Angeles 1990

Assistant Clinical Professor of Nursing
Family nurse practitioner

DOUGLAS J. FANTAZIA, M.S. Loma Linda University 1994

Assistant Clinical Professor of Nursing
Neonatal critical care nurse practitioner

ELAINE M. GACKLE, M.N., F.N.P., University of California Los Angeles 1990

Assistant Clinical Professor of Nursing
Family nurse practitioner

JOANN NASRALLAH, M.S.N., A.N.P. California State University, Long Beach, 1984

Assistant Clinical Professor of Nursing
Adult nurse practitioner

ADMISSION TO THE GRADUATE PROGRAM**Admission requirements**

The following criteria are considered for admission to the graduate program in nursing:

1. A baccalaureate degree in nursing from an accredited program (or its equivalent).
2. An undergraduate G.P.A. of 3.00 (on a 4.00 scale), both cumulative and in the nursing major.
3. A standardized interview with two graduate nursing faculty members.
4. The GRE general test recommended but not required.
5. Current California registered nurse license before enrollment in clinical nursing courses.
6. Nursing experience in the area of the desired major before beginning graduate study. One year of experience as a registered nurse is required to enter nursing administration. A minimum of one year of experience in critical care is a prerequisite to beginning the sequence of specialty courses in neonatal and pediatric critical care.

7. An A.S. degree or diploma in nursing from an accredited program and a B.S. or B.A. degree in another field can qualify the applicant for admission to the graduate program in nursing after s/he takes 20-24 quarter units of approved upper-division clinical nursing courses that include at least 8 quarter units of community health nursing with field experience.

PROGRAM REQUIREMENTS**Grades**

A minimum G.P.A. of 3.00 must be maintained in all work taken for the degree and in the nursing major.

Thesis option

The student has the option of completing a thesis within the curriculum for the master's degree. The decision is made in consultation with the student's adviser.

Candidacy

Students are eligible for candidacy after completing 24 units of required graduate course work.

Examination

A comprehensive written and oral examination is required. The examination must be taken before enrolling in the last 8 units of the program.

Curriculum change

To maintain quality education, the curriculum is subject to change without prior notice. Students in continuous attendance will meet graduation requirements of the BULLETIN under which they enter the Graduate School.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

CORE COURSE REQUIREMENTS

For the Master of Science degree in nursing, the student must complete 53-67 quarter units. Elective courses are selected in consultation with the student's adviser.

The following core courses are required of all students:

NRSG	507	Theory Development	(2)
NRSG	508	Nursing in Community Systems	(2)
NRSG	515	Health Policy: Issues and Process	(3)
NRSG	604	Nursing in Family Systems	(3)
NRSG	681, 682	Research Methods I, II	(3, 2)
STAT	514	Intermediate Statistics for Health-Science Data	(3)
RELE	524	Christian Bioethics	(3)

Students who choose the thesis option take:

NRSG	697	Research	(3)
NRSG	698	Thesis	(2)

CLINICAL OPTION

The clinical option in nursing prepares nurse specialists who have advanced nursing knowledge, clinical expertise, and functional preparation. Clinical options are offered in eight areas.

A course preceded by an asterisk (*) indicates a course that is offered alternate years.

ADULT NURSE PRACTITIONER (M.S.)

The *Adult Nurse Practitioner* clinical option prepares the nurse to exercise independent judgment in assessment, supervision, and management of sick adults with consultation, collaboration, and supervision by primary-care physicians and nursing faculty. The curriculum prepares the student to be certified by the state of California and the American Nurses Association as a nurse practitioner.

Clinical focus

*NRSG	624	The Adult and Aging Family I	(2)
NRSG	651	Advanced Physical Assessment	(3)
NRSG	561	Adult Primary Health Care I	(4)
NRSG	562	Adult Primary Health Care II	(7)
NRSG	563	Adult Primary Health Care III	(7)
NRSG	564	Adult Primary Health Care IV	(10)

Required courses

PHSL	533	Physiology I	(4)
NRSG	544	Teaching and Learning Theory	(3)
NRSG	547	Management: Principles and Practices	(3)
NRSG	555	Pharmacology	(3)

ADULT NURSE PRACTITIONER POST-MASTER'S CERTIFICATE

The *Adult Nurse Practitioner* post-master's certificate is a 36-quarter unit program designed to prepare the nurse with a master's degree in a clinical area of nursing to become certified by the Board of Registered Nursing as a nurse practitioner in the state of California.

Prerequisite: Graduate-level physiology and advanced physical assessment.

Required courses

NRSG	604	Nursing in Family Systems	(2)
NRSG	555	Pharmacology	(3)
RELE	524	Christian Bioethics	(3)
NRSG	561	Adult Primary Health Care I	(4)
NRSG	562	Adult Primary Health Care II	(7)
NRSG	563	Adult Primary Health Care III	(7)
NRSG	564	Adult Primary Health Care IV	(10)

FAMILY NURSE PRACTITIONER (M.S.)

The *Family Nurse Practitioner* clinical option prepares the nurse to exercise independent judgment in assessment, supervision, and management of sick families with consultation, collaboration, and supervision by family practice physicians and nursing faculty. The curriculum prepares the student to be certified by the state of California and the American Nurses Association as a nurse practitioner.

Clinical focus

NRSG	651	Advanced Physical Assessment	(3)
NRSG	652	Family Primary Health Care I	(4)
NRSG	653	Family Primary Health Care II	(7)
NRSG	654	Family Primary Health Care III	(7)
NRSG	655	Family Primary Health Care IV	(12)

Required courses

PHSL	533	Physiology I	(4)
NRSG	544	Teaching and Learning Theory	(3)

- NRSG 547 Management: Principles and Practices (3)
 NRSG 555 Pharmacology (3)

FAMILY NURSE PRACTITIONER POST-MASTER'S CERTIFICATE

The *Family Nurse Practitioner* post-master's certificate is a 38-quarter unit program designed to prepare the nurse with a master's degree in a clinical area of nursing to become certified by the Board of Registered Nursing as a nurse practitioner in the state of California.

Prerequisite: Graduate-level physiology and advanced physical assessment.

Required courses

- NRSG 604 Nursing in Family Systems (2)
 (may be challenged)
 NRSG 555 Pharmacology (3)
 RELE 524 Christian Bioethics (3)
 NRSG 652 Family Primary Health Care I (4)
 NRSG 653 Family Primary Health Care II (7)
 NRSG 654 Family Primary Health Care III (7)
 NRSG 655 Family Primary Health Care IV (12)

PEDIATRIC NURSE PRACTITIONER (M.S.)

The *Pediatric Nurse Practitioner* clinical option prepares the nurse to exercise independent judgment in assessment, supervision, and management of sick children with consultation, collaboration, and supervision by pediatric practice physicians and nursing faculty. The curriculum prepares the student to be certified by the state of California and the American Nurses Association as a nurse practitioner.

Clinical focus

- *NRSG 645 Parent-Child Concepts for the APN (2)
 NRSG 651 Advanced Physical Assessment (3)
 *NRSG 551 Pediatric Primary Health Care I (4)
 *NRSG 552 Pediatric Primary Health Care II (6)
 *NRSG 553 Pediatric Primary Health Care III (8)
 *NRSG 554 Pediatric Primary Health Care IV (10)

Required courses

- PHSL 533 Physiology I (4)
 NRSG 544 Teaching and Learning Theory (3)
 NRSG 547 Management: Principles and Practices (3)
 NRSG 555 Pharmacology (3)

PEDIATRIC NURSE PRACTITIONER POST-MASTER'S CERTIFICATE

The *Pediatric Nurse Practitioner* post-master's certificate is a 36-quarter unit program designed to prepare the nurse with a master's degree in a clinical area of nursing to become certified by the Board of Registered Nursing as a nurse practitioner in the state of California.

Prerequisite: Graduate-level physiology and advanced physical assessment.

Required courses

- *NRSG 645 Parent-Child Concepts for the APN (2)
 (may be challenged)
 NRSG 555 Pharmacology (3)
 RELE 524 Christian Bioethics
 *NRSG 551 Pediatric Primary Health Care I (4)
 *NRSG 552 Pediatric Primary Health Care II (6)
 *NRSG 553 Pediatric Primary Health Care III (8)
 *NRSG 554 Pediatric Primary Health Care IV (10)

PEDIATRIC CRITICAL CARE NURSE PRACTITIONER (M.S.)

The *Pediatric Critical Care Nurse Practitioner* clinical option specializes in the theory and practice of pediatric intensive-care nursing. The curriculum prepares the nurse to exercise independent judgment in assessment, supervision, and management of sick children with consultation, collaboration, and supervision by pediatric intensivists and nursing faculty. Working with families, the nurse will fill the role of consultant and educator. The curriculum prepares the student to be certified by the state of California as a nurse practitioner.

Clinical focus

- *NRSG 645 Parent-Child Concepts for the APN (2)
 *NRSG 641 Pediatric Critical Care I (4)
 *NRSG 642 Pediatric Critical Care II (6)
 *NRSG 643 Pediatric Critical Care III (8)
 *NRSG 644 Pediatric Critical Care IV: Practicum (13)

Required courses

- PHSL 533 Physiology I (4)
 NRSG 544 Teaching and Learning Theory (3)
 NRSG 547 Management: Principles and Practices (3)
 NRSG 555 Pharmacology (3)

PEDIATRIC CRITICAL CARE NURSE PRACTITIONER POST-MASTER'S CERTIFICATE

The *Pediatric Critical Care Nurse Practitioner* post-master's certificate is a 36-unit program designed to prepare the nurse with a master's degree in parent/child nursing (or equivalent to the LLU clinical major in *Growing Family*) to become certified by the Board of Registered Nursing as a nurse practitioner in the state of California.

Prerequisite: Graduate-level physiology and pharmacology.

Required courses

*NRSG	645	Parent-Child Concepts for the APN	(2)
RELE	524	Christian Bioethics	(3)
*NRSG	641	Pediatric Critical Care I	(4)
*NRSG	642	Pediatric Critical Care II	(6)
*NRSG	643	Pediatric Critical Care III	(8)
*NRSG	644	Pediatric Critical Care IV: Practicum	(13)

NEONATAL CRITICAL CARE NURSE PRACTITIONER (M.S.)

The *Neonatal Critical Care Nurse Practitioner* clinical option specializes in the theory and practice of neonatal intensive-care nursing. The curriculum prepares the nurse to exercise independent judgment in assessment, supervision, and management of sick newborns with consultation, collaboration, and general supervision of neonatologists and nursing faculty. Working with families, the nurse will fill the role of consultant and educator. The curriculum prepares the student to be certified by the state of California and the American Nurses Association as a nurse practitioner.

Clinical focus

*NRSG	645	Parent-Child Concepts for the APN	(2)
*NRSG	619	Neonatal Critical Care I	(4)
*NRSG	620	Neonatal Critical Care II	(6)
*NRSG	621	Neonatal Critical Care III	(8)
*NRSG	622	Neonatal Critical Care IV: Practicum	(13)

Required courses

PHSL	533	Physiology I	(4)
NRSG	544	Teaching and Learning Theory	(3)
NRSG	547	Management: Principles and Practices	(3)
NRSG	555	Pharmacology	(3)

NEONATAL CRITICAL CARE NURSE PRACTITIONER POST-MASTER'S CERTIFICATE

The *Neonatal Critical Care Nurse Practitioner* post-master's certificate is a 36-unit program designed to prepare the nurse with a master's degree in parent/child nursing (or equivalent to the LLU clinical major in *Growing Family*) to become certified by the California Board of Registered Nursing as a nurse practitioner in the state of California.

Prerequisite: Graduate-level physiology and pharmacology.

Required courses

*NRSG	645	Parent-Child Concepts for the APN	(2)
RELE	524	Christian Bioethics	(3)
*NRSG	619	Neonatal Critical Care I	(4)
*NRSG	620	Neonatal Critical Care II	(6)
*NRSG	621	Neonatal Critical Care III	(8)
*NRSG	622	Neonatal Critical Care IV: Practicum	(13)

ADULT AND AGING FAMILY (M.S.)

The *Adult and Aging Family* clinical option prepares students for a variety of leadership roles in nursing, including clinical specialization and teaching. Clinical and theoretical content focuses on adult and aging clients and families. The program offers opportunities to develop knowledge and expertise for advanced practice in oncology nursing, coronary-care nursing, and gerontological nursing. The curriculum includes preparation for certification by the American Nurses Association as a clinical nurse specialist in either medical-surgical nursing or gerontological nursing after completing the required practice hours.

Clinical focus

*NRSG	624	The Adult and Aging Family I	(3)
*NRSG	626	The Adult and Aging Family II	(3)
*NRSG	628	Clinical Practicum: Adult and Aging Family	(3)
NRSG	651	Advanced Physical Assessment	(3)

Required courses

PHSL	533	Physiology I	(4)
NRSG	547	Management: Principles and Practices	(3)

Teaching option

NRSG	544	Teaching and Learning Theory	(3)
*NRSG	545	Teaching Practicum	(3)
*NRSG	546	Curriculum Development in Higher Education	(3)

Advanced practice option

NRSG	544	Teaching and Learning Theory	(3)
PHSL	534	Physiology II	(3)

GROWING FAMILY (M.S.)

The *Growing Family* clinical option prepares students for a variety of leadership roles in nursing, including clinical specialization and teaching. The curriculum offers opportunity for the student to choose an emphasis providing advanced nursing care to families in the early phase of childbearing or in care of children. The curriculum includes preparation for certification by the American Nurses Association as a child and adolescent nurse specialist or as a maternal-child health nurse specialist after completing the required practice hours.

Clinical focus

*NRSG 645 Parent-Child Concepts for the APN (3)

*NRSG 646 Current Pediatric Issues for the APN (3)

*NRSG 617 Clinical Practicum: Growing Family (3)

NRSG 651 Advanced Physical Assessment (3)

Required courses

NRSG 547 Management: Principles and Practices (3)

PHSL 533 Physiology I (4)

Teaching option

NRSG 544 Teaching and Learning Theory (3)

*NRSG 545 Teaching Practicum (3)

*NRSG 546 Curriculum Development in Higher Education (3)

Advanced practice option

NRSG 544 Teaching and Learning Theory (3)

PHSL 534 Physiology II

SCHOOL NURSING (M.S.)**

The *School Nursing* clinical option prepares students to meet both the requirements for a health services (school nurse) credential issued by the state of California and a Master of Science degree. It builds on the content of the baccalaureate degree and has a strong emphasis in advanced nursing theories, cultural and behavioral concepts, research, and nursing issues. The role of the school nurse encompasses a broad range of activities, including health-promotion education, illness prevention and detection, counseling and guidance, and specialized health services to students and their families.

Prerequisite: EDPC 460 Exceptional Child (or equivalent) (3).

Clinical focus

*NRSG 512 School Nursing Services (4-6)

NRSG 544 Teaching and Learning Theory (3)

*NRSG 645 Parent-Child Concepts for the APN (3)

*NRSG 646 Current Pediatric Issues for the APN (3)

*NRSG 546 Curriculum Development in Higher Education (3)

NRSG 547 Management: Principles and Practices (3)

NRSG 651 Advanced Physical Assessment (3)

** Public health nursing certificate required

NURSING ADMINISTRATION OPTION**NURSING MANAGEMENT POST-BACCALAUREATE CERTIFICATE**

The postbaccalaureate certificate program in *Nursing Management* is a 25-quarter unit program designed for the nurse with a baccalaureate degree who is interested in a career in nursing management.

Admission requirements

The following are admission requirements for the program:

1. Current employment in a first-level or middle-management position, or employment in a nursing management position for at least two of the past five years.
2. Current California nurse licensure.
3. Baccalaureate degree with a major in nursing, with a cumulative G.P.A. of 3.0.

Required courses

NRSG 507 Theory Development (2)

NRSG 515 Health Policy: Issues and Process (3)

*NRSG 543 Nursing Administration (3)

HADM 514 Health Care Economics (3)

or
HADM 564 Health Care Finance (3)

HADM 528 Organizational Behavior in Health Care (3)

HADM 541, 542 Financial Accounting of Health Care Organizations I, II (3, 3)

Electives

Electives may be chosen in the areas of marketing, finance, legal and regulatory issues, and economics.

M.S. option

Upon completion of the certificate program, the student may apply for acceptance into the M.S. degree program in nursing administration. Courses completed with a grade of B or higher will apply toward the M.S. degree.

NURSING ADMINISTRATION (M.S.)

The *Nursing Administration* option prepares nurses for leadership in a variety of organizational settings. The curriculum draws from the practice of nursing, management, and related fields, and includes administration, research, and clinical components.

Administration focus

NRSNG	—	Clinical course	(3)
*NRSNG	541	Nursing Administration Practicum I	(3)
*NRSNG	542	Nursing Administration Practicum II	(3)
*NRSNG	543	Nursing Administration	(3)

Required courses

HADM	541, 542	Financial Accounting of Health Care Organizations I, II	(3, 3)
HADM	528	Organizational Behavior in Health Care	(3)
HADM	514	Health Care Economics	(3)
or			
HADM	564	Health Care Finance	(3)

COURSES

NRSNG 507 Theory Development (2)

Studies the components of theory and the process and progress of theory development in nursing. Explores the relationship of theory to nursing practice and research. Examines conceptual models in nursing for their application and value in practice.

NRSNG 508 Nursing in Community Systems (2)

Utilizes the perspective of population-focused primary health care and examines theoretical frameworks and strategies for working with population groups in community systems. Functions of assessment, planning, intervention, and assurance in providing advanced practice nursing to populations at risk.

NRSNG 509 Guided Study (1-6)

Opportunity for study in a particular area of nursing, under faculty direction.

NRSNG 512 School Nursing Services (4-6)

Explores the role of the school nurse and the administrative styles in school health programs. School health program planning. Methods of implementation and evaluation examined within the context of school systems, family systems, and health care-delivery systems. Students registered for 5 or 6 units are involved in clinical experience designed to develop competencies in school nursing. Offered alternate years.

NRSNG 515 Health Policy: Issues and Process (3)

Examines the impact of the sociopolitical system. Current trends and issues affecting the changing profession of nursing; as well as the impact of nursing on these systems in the workplace, government, professional organizations, and the community.

NRSNG 541, 542 Nursing Administration Practicum I, II (3, 3)

Observation and practice in selected levels of nursing administration.

Prerequisite: NRSNG 543; HADM 528 or equivalent; 6 quarter units of clinical nursing.

NRSNG 543 Nursing Administration (3)

Study, application, and evaluation of principles of management as they apply to nursing leadership.

Prerequisite: NRSNG 507, 604; HADM 528.

NRSNG 544 Teaching and Learning Theory (3)

Exploration of the components of the teaching-learning process. Opportunity provided for students to practice specific teaching strategies.

NRSNG 545 Teaching Practicum (3)

Designed to assist the student in developing the ability to teach nursing in the clinical area of choice. Emphasis on the nurse-teacher as facilitator of learning. Integration of knowledge and skills related to educational methodology and clinical nursing. Practice in teaching students in clinical and classroom settings.

Prerequisite or concurrent: NRSNG 544, 546; and 12 quarter units of clinical nursing.

NRSNG 546 Curriculum Development in Higher Education (3)

Examines principles of curriculum development—including the selection, organization, and evaluation of learning experiences—with emphasis on the nursing major. Examines the nature, place, and interrelationship of general and specialized education in higher education.

NRSNG 547 Management: Principles and Practices (3)

Analysis of administrative issues in health care settings. Organizational complexities, power distribution, political strategies, interdependence of management, and clinical teams. Focuses on the application of selected management theory to the practice of nursing.

NRSNG 551 Pediatric Primary Health Care I (4)

Introduction to the problem-oriented approach to assessment and diagnosis. Prepares the nurse practitioner student as primary-care clinician, evaluator, and educator through integration of the traditional nursing and nurse practitioner roles.

Prerequisite: NRSNG 651.

NRSNG 552 Pediatric Primary Health Care II (6)

Includes aspects of health maintenance and promotion and evaluation of common health problems, integrating the student's understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.

Prerequisite: NRSNG 551.

NRS 553 Pediatric Primary Health Care III (8)
Continues the aspects of health maintenance and promotion and evaluation of common health problems—integrating the student’s understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.

Prerequisite: NRS 552.

NRS 554 Pediatric Primary Health Care IV (10)
Final course in the pediatric primary health care series, aimed at preparing the nurse practitioner student to function independently and collaboratively with other health professionals.

Prerequisite: NRS 553.

NRS 555 Pharmacology (3)

Overview of the major drug classifications and discussion of the therapeutic use of drugs in the maintenance and strengthening of the client system lines of resistance and defense.

NRS 561 Adult Primary Health Care I (4)

Introduction to the problem-oriented approach to assessment and diagnosis. Prepares the nurse practitioner student as primary-care clinician, evaluator, and educator through integration of the traditional nursing and nurse practitioner roles.

Prerequisite: NRS 651.

NRS 562 Adult Primary Health Care II (7)

Aspects of health maintenance and promotion and evaluation of common health problems integrating the student’s understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.

Prerequisite: NRS 561.

NRS 563 Adult Primary Health Care III (7)

Continues the aspects of health maintenance and promotion and evaluation of common health problems—integrating the student’s understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.

Prerequisite: NRS 562.

NRS 564 Adult Primary Health Care IV (10)

Final course in the adult primary health care series, aimed at preparing the nurse practitioner student to function independently and collaboratively with other health professionals.

Prerequisite: NRS 563.

NRS 604 Nursing in Family Systems (2, 3)

Concepts and theories guiding advanced nursing practice to families, including systems; stress and coping; role; change; family-assessment models. Clinical experience concurrent.

NRS 617 Clinical Practicum: Growing Family (3)

Designed to assist the student in developing expertise as a clinical specialist in a selected area of nursing practice, the Growing Family. Includes intensive clinical practice under the guidance of a preceptor.

Prerequisite: NRS 507, 604, 645, 646.

NRS 619 Neonatal Critical Care I (4)

Focuses on maternal conditions that affect the fetus/newborn during the perinatal period. Concepts and principles of genetics, embryology, growth and development, psychosocial aspects, and physiology/pathophysiology as they relate to the caregiver role of the clinical nurse specialist/practitioner.

Prerequisite: NRS 507, 604, 645.

NRS 620 Neonatal Critical Care II (6)

Focuses on the physiology of the well neonate and pathophysiology of the critically ill neonate. Concepts and principles of neonatal disease entities and disorders studied as they relate to clinical management strategies and the caregiver role of the clinical nurse specialist/practitioner.

Prerequisite: NRS 619.

NRS 621 Neonatal Critical Care III (8)

Prepares students for their management role as practitioner and clinical specialist, utilizing the theories and principles of nursing and medical management, problem solving, record keeping, and role definition.

Prerequisite: NRS 620.

NRS 622 Neonatal Critical Care IV: Practicum (13)

Synthesizes concepts, principles, theories, knowledge, and skills from the preceding advanced neonatal critical care nursing courses to the practice setting.

Prerequisite: NRS 621.

NRS 624 The Adult and Aging Family I (3)

Addresses concepts and theories relevant to nursing practice with adults who are experiencing/responding to health-related problems associated with an acute or chronic illness, or the aging process. Focuses on promoting effective individual and family coping. Clinical experience concurrent.

Prerequisite: NRS 507, 604.

NRS 626 The Adult and Aging Family II (3)

Focuses on the aging adult in the context of family and contemporary society. Issues related to the needs and care of elderly individuals, factors affecting their well-being, and the role of the nurse in promoting wellness both for the client and family. Clinical experience concurrent.

Prerequisite: NRS 624.

NRS 628 Clinical Practicum: Adult and Aging Family (3)

Designed to assist the student in developing expertise as a clinical specialist in a selected area of the adult and aging family. Includes intensive clinical practice under the guidance of a preceptor.

Prerequisite: NRS 626.

NRSNG 641 Pediatric Critical Care I (4)
Focuses on the physiology of the well infant/child and pathophysiology of the critically ill infant/child. Disease entities and disorders studied as they relate to clinical management strategies and the caregiver role of the clinical nurse specialist/practitioner.
Prerequisite: NRSNG 507, 604, 645.

NRSNG 642 Pediatric Critical Care II (6)
Nursing assessment and clinical management strategies for children with critical illness and trauma. Emphasis on understanding principles of pathophysiology, pharmacology, and nutrition; and the effect of critical illness on the family system.
Prerequisite: NRSNG 641.

NRSNG 643 Pediatric Critical Care III (8)
Prepares students for the roles of their practice domain: caregiver, educator, consultant, and researcher. Principles of nursing and medical management, problem solving, and record keeping applied. Opportunity for increasing clinical skill.
Prerequisite: NRSNG 642.

NRSNG 644 Pediatric Critical Care IV: Practicum (13)
Synthesis and application of concepts, principles, theories, knowledge, and skills from the preceding pediatric critical care nursing courses to the practice setting. Opportunity to experience all aspects of the CNS/practitioner role.
Prerequisite: NRSNG 643.

NRSNG 645 Parent-Child Concepts for the APN (2-3)
Focuses on theories central to the parent-child relationship and on concepts relevant to their response to health care and illness. Application focused on the child and parents interacting with the advanced practice nurse in a variety of settings.

NRSNG 646 Current Pediatric Issues for the APN (2-3)
Examines current issues in pediatric health care based on changes in society and the health care system. Focus on application of this knowledge by the advanced practice nurse in a variety of settings.

NRSNG 651 Advanced Physical Assessment (3)
In-depth review of physical assessment skills and knowledge to prepare the student to successfully conduct a complete history and physical throughout patient's life span. Incorporates lecture, audiovisual aids, laboratory skills practicum, and individual study.

NRSNG 652 Family Primary Health Care I (4)
Introduction to the problem-oriented approach to assessment and diagnosis. Prepares the nurse practitioner student as primary-care clinician, evaluator, and educator through integration of the traditional nursing and nurse practitioner roles.
Prerequisite: NRSNG 651.

NRSNG 653 Family Primary Health Care II (7)
Aspects of health maintenance and promotion and evaluation of common health problems—integrating the student's understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.
Prerequisite: NRSNG 652.

NRSNG 654 Family Primary Health Care III (7)
Advanced course in continuing the aspects of health maintenance and promotion and evaluation of common health problems—integrating the student's understanding of pathophysiology, epidemiology, pharmacology, diagnostic studies, and physical assessment skills to formulate diagnoses (medical and nursing) and management plans.
Prerequisite: NRSNG 653.

NRSNG 655 Family Primary Health Care IV (12)
Final course in the family primary health care series, aimed at preparing the nurse practitioner student to function independently and collaboratively with other health professionals within a family-oriented setting.
Prerequisite: NRSNG 654.

NRSNG 681 Research Methods I (3)
Guides the student in understanding scientific thinking and research methods beyond the introductory level. Research literature in nursing and related fields used to illustrate the application of principles of research. Development of a research area of interest by identifying a research problem and reviewing the relevant literature.
Prerequisite: NRSNG 507, 604; STAT 514.

NRSNG 682 Research Methods II (2)
Application of research concepts in the completion of a research proposal. Focuses on design issues and management and analysis of data.
Prerequisite: NRSNG 681.

NRSNG 697 Research (3)

NRSNG 698 Thesis (2)

NUTRITION

JOAN SABATÉ, M.D. Universidad Autonoma de Barcelona (Spain) 1977

Dr.P.H. Loma Linda University PH 1989

Chair and Program Coordinator

Associate Professor of Nutrition and of Biostatistics and Epidemiology

Nutritional epidemiology, methods of nutrition research, nutritional assessment

The Department of Nutrition, in collaboration with other departments of the University, offers programs leading to the Master of Science degree in the field of nutrition. To meet the specific needs of prospective students who desire training in nutrition, three clearly defined emphases are offered: nutritional sciences, clinical nutrition, and nutrition care management. In addition, a master's degree in public health nutrition is being offered through the School of Public Health.

The program in *nutritional sciences* has the following objectives:

1. To provide a basic science approach to understanding advanced areas in human nutrition.
2. To enhance research skills by developing or applying advanced laboratory techniques in human nutrition research.

This program is suitable for persons pursuing a doctoral degree in nutrition or other related areas and for persons preparing to teach at the secondary or college level. It provides background experience to those interested in research careers in academia or industry and provides advanced training in basic nutrition for physicians and other health professionals.

The program in *clinical nutrition* has the following objectives:

1. To provide the student with training needed in specialized areas of clinical nutrition.
2. To prepare the student to become eligible to be a certified nutrition support dietitian (CNSD) and to practice in other advanced clinical areas.

This program is suitable for persons pursuing careers as managers of free-standing out-patient clinics, treatment centers, or wellness centers; as chief clinical dietitians in acute-care facilities; and as research dietitians. It provides specialized training in medical- nutrition therapy for advanced-level practice and provides advanced educational opportunities in clinical nutrition for physicians and other health professionals.

Both nutrition programs give emphasis to the role of diet, particularly vegetarian diet, in health promotion and disease prevention and treatment. The programs are interdisciplinary and require a project or a research thesis.

The program in *nutrition care management* has the following objectives:

1. Provide students a strong background in nutrition.
2. Prepare students for management of facilities providing institutional services in varied settings.

The program in nutrition care management is suitable for those planning careers in institutional settings with food services divisions. It provides a strong background in the fundamentals of nutrition and of organizational and management skills, as well as exposure to finance and technology.

FACULTY

PATRICIA K. JOHNSTON, Dr.P.H. University of California at Los Angeles 1987
Associate Dean PH; Professor of Nutrition
Public health nutrition, maternal and child nutrition, nutrition and aging, minerals

ELLA HADDAD, Dr.P.H. Loma Linda University PH 1979
Associate Professor of Nutrition
Advanced nutrition, public health nutrition, nutrition assessment

SUJATHA RAJARAM, Ph.D. Purdue University 1993
Assistant Professor of Nutrition
Advanced nutrition, nutritional biochemistry, sports and exercise nutrition

ASSOCIATE FACULTY

KATHLEEN K. ZOLBER, Ph.D. University of Wisconsin 1968
Emeritus Professor of Nutrition
Food systems administration

KENNETH I. BURKE, Ph.D. Florida State University 1973
Professor of Nutrition and Dietetics
Food science

BERTRUM C. CONNELL, Ph.D. University of Missouri at Columbia 1981
Professor of Nutrition and Dietetics
Food systems management

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

MASTER OF SCIENCE

Admission

Applicants must meet the general Graduate School admission requirements as well as those specific to the program in nutrition, as stated below.

Prerequisites

Applicants for the program in nutritional sciences must hold a baccalaureate degree in science, or be a physician or other health professional. Applicants for the program in clinical nutrition must hold a baccalaureate degree, be a registered dietitian, a physician, or dentist; or be RD eligible. Specific courses required as prerequisites for both programs are microbiology, physiology, general and organic chemistry. For the program in nutritional sciences, applicants must have taken a complete sequence of general and organic chemistry. Applicants to both programs must have an

JONI PAGGENKAMPER, M.S. Texas Woman's University 1988
Assistant Professor of Nutrition and Dietetics
Renal disease, clinical nutrition

MAXINE TAYLOR, M.S. Loma Linda University 1975
Assistant Professor of Nutrition and Dietetics
Administrative dietetics

CRYSTAL WHITTEN, M.S. Loma Linda University GS 1985
Assistant Professor of Nutrition and Dietetics
Hyperlipidemias, clinical nutrition

CLINICAL FACULTY

ZAIDA CORDERO-MACINTYRE, M.S. Loma Linda University GS 1974
Assistant Professor of Nutrition
Drug-nutrient interactions, clinical nutrition

ELAINE FLEMING, M.P.H. Loma Linda University PH 1975
Assistant Professor of Nutrition
Community nutrition, nutrition and aging, ethnic food practices

GEORGIA HODGKIN, Ed.D. Loma Linda University SE 1991
Assistant Professor of Nutrition
Nutrition-care management, nutrition and aging

CINDY KOSCH, M.S. Loma Linda University GS 1986
Clinical Assistant Professor of Nutrition
Metabolic nutrition care

overall G.P.A. of 3.0 or better in their undergraduate course work and must provide acceptable scores on the general test of the Graduate Record Examination, as well as a clear statement of personal and professional goals. Evidence of computer literacy must be provided; however, computer requirements may be taken concurrently and in addition to the required courses.

CURRICULUM

NUTRITIONAL SCIENCES PROGRAM

Required courses:

NUTR	504	Nutritional Metabolism	(5)
NUTR	517	Advanced Nutrition I	(4)
NUTR	518	Advanced Nutrition II	(4)
NUTR	539	Research Methods in Nutrition	(2)
NUTR	605	Seminar in Nutrition	(1,1)
NUTR	694	Research	(5)
NUTR	695	Thesis	(2)
STAT	___	Statistics	(4-6)
REL_	___	Religion	(3)
Area of emphasis and nutrition electives			(15-17)
TOTAL UNITS REQUIRED (48)			

Possible areas of emphasis:

- Biochemistry
- Physiology
- Pharmacology
- Molecular Biology
- Nutrition

Additional requirements:

In addition to the course work, students are required to attend the Department of Nutrition colloquia and Graduate School seminars, and pass a comprehensive examination and the oral defense of their thesis.

CLINICAL NUTRITION PROGRAM

Required courses:

PHSL	533	Physiology I	(4)
PHSL	534	Physiology II	(3)
NUTR	504	Nutritional Metabolism	(5)
NUTR	517	Advanced Nutrition I	(4)
NUTR	518	Advanced Nutrition II	(4)
NUTR	539	Research Methods in Nutrition	(2)
NUTR	554	Critical Care Nutrition I	(3)
NUTR	555	Critical Care Nutrition II	(3)
NUTR	577	Nutrition-Care Management	(3)
NUTR	597	Special Topics in Clinical Nutrition	(1,1)
REL_	___	Religion	(3)

Project option:

STAT	509	General Statistics	(4)
___	___	Approved electives	(12)
NUTR	___	Project	(4)

Thesis option:

STAT	___	Statistics	(5)
NUTR	694	Research	(5)
NUTR	695	Thesis	(2)

TOTAL UNITS REQUIRED:

Project option	(56)
Thesis option	(48)

Additional requirements:

In addition to the course work, students are required to attend the Department of Nutrition colloquia and grand rounds, pass a comprehensive examination, and either present the project or pass the oral defense of their thesis.

NUTRITION CARE MANAGEMENT PROGRAM

Required courses:

NUTR	517	Advanced Nutrition I	(4)
NUTR	518	Advanced Nutrition II	(4)
NUTR	539	Research Methods	(2)
NUTR	564	Contemporary Issues of Vegetarian Diets	(2)
NUTR	577	Advanced Nutrition Care Management	(3)

NUTR	605	Seminar	(1, 1)
AHCJ	504	Current Issues in Health Care	(3)
AHCJ	536	Health Care Financial Management in Information Systems	(3)
AHCJ	537	Organizational Structure and Behavior	(3)
AHCJ	539	Human Factors in Technology Management	(3)
DTCS	559	Nutrition Care Marketing	(3)
DTCS	601	Nutrition Systems Operations Management	(3)
DTCS	604	Strategic Management in Nutrition Care	(3)
REL_	5__	Religion elective	(3)

Project option:

AHCJ	531	Research and Statistics	(3)
DTCS	696	Directed Study/Special Project	(1-4)
___	___	Electives	(9)

Thesis option:

AHCJ	531	Research and Statistics	(3)
DTCS	694	Research	(4)
DTCS	695	Thesis	(2)

TOTAL UNITS REQUIRED:

Project option	(56)
Thesis option	(50)

Other programs in nutrition

Professional programs leading to the Master of Public Health and the Doctor of Public Health degrees are offered through the School of Public Health and are described in the BULLETIN of that school.

COURSES

AHCJ 504 Current Issues in Health Care (3)
Review and discussions of concerns relating to the health field, including legislation, regulations, professional organizations. A project and/or paper required.

AHCJ 531 Research and Statistics II (3)

AHCJ 536 Health Care Financial Management in Information Systems (3)

The finances of health care, including financial statements, reimbursement models of fee-for-service, capitation, managed care, and risk pools. Concepts of modeling and scenario planning, with emphasis on return on investment. Health information-system technology strategic business plan presented.

AHCJ 537 Organizational Structure and Behavior in Information Systems (3)

Understanding, predicting, and influencing human behavior in an organization. Theories, models, strategies, and experiences in organizational behavior through which managers can find their own solutions in specific situations.

AHCJ 539 Human Factors in Technology Management (3)

Management theory applied to human resources and the flow of information throughout an institution. Recruiting, hiring, promoting, workload assignments, discipline. Legal and ethical issues. Managing people as individuals and in groups. Motivating, organizing, and directing teams.

DTCS 601 Nutrition Systems Operations Management (3)

Use of quantitative methods to analyze and improve business processes within an organization. Regression analysis, simulation, decision analysis, capacity planning, inventory models, linear programming, scheduling, and cost-benefit analysis.

DTCS 604 Strategic Management in Nutrition Care (3)

Decision making and planned change through strategic planning process. Performance review and evaluation of services and resource administration. Strategic plan and contingency plans, mission statement, objectives, courses of action, and resource allocation.

NUTR 504 Nutritional Metabolism (5)

Study of the static and dynamic aspects of the metabolism of carbohydrates, lipids, amino acids, proteins, nucleic acids, cations, anions, enzyme kinetics, hormones, vitamins, and minerals in the normal healthy human.

NUTR 509 Public Health Nutrition (3)

Introduction to the concepts of nutrition as related to public health. Includes life-cycle issues as well as discussion of major nutrition-related diseases and their prevention. Not applicable toward a major in nutrition.

NUTR 510 Advanced Public Health Nutrition (3)

Study of the applied and preventive aspects of nutrition as related to public health.

Prerequisite: NUTR 504.

NUTR 517 Advanced Nutrition I: Carbohydrates and Lipids (4)

Advanced study of the nutrition, metabolism, and function of carbohydrates and lipids as related to health and disease.

Prerequisite: NUTR 504.

NUTR 518 Advanced Nutrition II: Proteins, Vitamins, and Minerals (4)

Advanced study of the nutrition, metabolism, and function of proteins, vitamins, and minerals as related to health and disease.

Prerequisite: NUTR 504.

NUTR 525 Nutrition Policy, Programs, and Services (3)

Development of professional skills in management of nutrition programs. Includes legislative advocacy and analysis of current nutrition programs at local, state, and federal levels. Laboratory included.

NUTR 527 Assessment of Nutritional Status (2)

Techniques of individual nutrition assessment: dietary intake and evaluation, use of computer software (1 unit); anthropometric, clinical, and biochemical methodologies (1 unit); principles and practice in nutrition counseling in a supervised community setting (1 unit). Laboratory or practicum included in each unit.

Prerequisite: Basic nutrition or consent of instructor.

NUTR 528 Symposium: Adventist Philosophy of Nutrition (1)

The science of nutrition as related to the Seventh-day Adventist philosophy of health.

NUTR 534 Maternal and Child Nutrition (3)

Role of nutrition in human growth and development during the prenatal period, lactation, infancy, and childhood.

NUTR 536 Nutrition and Aging (2)

Effect of nutrition on aging and chronic degenerative diseases, and their effects on nutritional status. Geriatric nutrition screening and assessment. Anorexia of aging. Nutrition support, supplement use, and services for older Americans.

Prerequisite: Basic nutrition or consent of instructor.

NUTR 537 Community Programs Laboratory (1)

Supervised nutrition intervention in the community. Design, implementation, and evaluation of nutrition programs. May be repeated for a total of three units.

Prerequisite: HPRO 509.

Prerequisite or concurrent: HPRO 536, NUTR 578.

NUTR 539 Research Methods in Nutrition (2)

Discussion of the steps in the research process as they relate to basic and clinical nutrition investigation. Validity of biological parameters and dietary intake measurements, study design, subject selection, and ethical issues.

Prerequisite: STAT 509 or equivalent.

NUTR 543 Concepts in Nutritional Epidemiology (3)

Designed to prepare students for conducting research relating diet to health/disease outcomes. Review of methodological issues related to dietary assessment for clinical/metabolic and epidemiological research. Topics include: variation in diet, measurement error and correction for its effects, advantages and limitations of different diet assessment techniques, design and development of a food-frequency instrument, total energy intake in analyses.

Prerequisite: STAT 521; EPDM 509; NUTR 527 or consent of instructor.

NUTR 545 Clinical Nutrition (4)

Medical nutrition therapy and care for a variety of clinical disorders with nutritional implications. Laboratory included.

Prerequisite: Basic nutrition, physiology or equivalent.

NUTR 554 Critical Care Nutrition I (3)

Current issues related to the nutritional needs of patients with diabetes, heart disease, and renal disease. Drug-nutrient interactions, laboratory values, treatment modalities, and their effect on nutrition in the critical care of these patients. Counseling strategies for each.

Prerequisite: RD, RD eligible with appropriate experience, M.D., or consent of instructors.

NUTR 555 Critical Care Nutrition II (3)

Current issues related to the nutritional needs of the preterm neonate, transplant, oncology, AIDS, and COPD patients. In-depth study of enteral/parenteral feeding products and their administration. Counseling strategies for the client and/or caregiver in each instance.

Prerequisite: RD, RD eligible with appropriate experience, M.D., or consent of instructor.

NUTR 564 Contemporary Issues of Vegetarian Diets (1-2)

Introduction to contemporary issues and controversies related to vegetarian diets. Background information on the history and rationale of vegetarian diets; ecologic and environmental issues; health benefits as well as risks of the vegetarian lifestyle.

NUTR 565 Ethnic Food Practices (2)

Introduction to major ethnic and religious food practices in the United States. Focuses on cultural background and reported data for the purpose of preparing health professionals to serve their clients in a culturally sensitive manner.

NUTR 575 Food Systems Management (3)

Development of administrative skills in effective management of food systems. Qualitative and quantitative standards, budget development and analysis, labor-management relations, computer-assisted information system.

Prerequisite: HADM 509 or equivalent.

NUTR 577 Advanced Nutrition Care Management (3)

Translation of institutional mission into goals, objectives, and standards of care. Application of operations analysis, financial management, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Ethical and legal behavior. Staff recruitment, selection, development, and retention. Development of quality-assurance indicators. Skills in managing the human and technological resources available to the registered dietitian.

Prerequisite: RD, RD eligible with appropriate experience, M.D., or consent of instructor.

NUTR 578 Exercise Nutrition (2-3)

Nutritional needs of professional and recreational athletes. The role of macro- and micronutrients as ergogenic aids. Overview of current research in the areas of exercise nutrition. Third unit requires a term paper on current research topic in exercise nutrition.

Prerequisite: NUTR 504 or HPRO 573.

NUTR 597 Special Topics in Clinical Nutrition (1)

Investigation and discussion of current topics in clinical nutrition; may be repeated for credit.

Prerequisite: NUTR 554, NUTR 555

NUTR 605 Seminar in Nutrition (1)

Designed to explore 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 694 Research (1-12)

Independent research for doctoral-degree candidates and qualified master's degree students on problems currently being studied in the department or other department they collaborate with. Research program arranged with faculty member(s) involved. Minimum of one hundred hours required for each unit of credit. Written report required.

Prerequisite: Consent of instructor responsible for supervision and the program adviser.

NUTR 695 Thesis (2)

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)

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.

PHARMACOLOGY

MARVIN A. PETERS, Ph.D. University of Iowa 1969
 Program Coordinator; Professor of Pharmacology
Drug metabolism, biochemical pharmacology, neuropharmacology

The Pharmacology Program in cooperation with other departments of the University, offers an interdisciplinary program with emphasis in cellular and molecular pharmacology or in systems pharmacology leading to the Doctor of Philosophy, concurrent D.D.S./Ph.D., or concurrent M.D./Ph.D. degree. The student may choose to emphasize either a cell or molecular pharmacology curriculum with selected interdisciplinary courses and seminars coordinated by the faculties in the Departments of Pharmacology, Biochemistry, and Microbiology; or a systems pharmacology curriculum with selected interdisciplinary courses and seminars coordinated by the faculties in the Departments of Pharmacology, Anatomy, and Physiology. These degree programs provide opportunities for qualified students to prepare for careers in teaching and research.

FACULTY

SUE PIPER DUCKLES, Ph.D. University of California at San Francisco 1973
 Adjunct Professor of Pharmacology
Comparative pharmacology and toxicology

IAN M. FRASER, Ph.D., Cambridge University 1952
 Professor of Physiology and Pharmacology
Drug metabolism, chemotherapy

DAVID A. HESSINGER, Ph.D. University of Miami 1970
 Professor of Physiology and Pharmacology
Cell biology, sensory transduction, marine toxicology

MAILEN KOOTSEY, Ph.D.
 Chair; Professor of Physiology and Pharmacology
Cardiac electrophysiology, computer simulation

WILLIAM J. PEARCE, Ph.D. University of Michigan 1979
 Professor of Physiology and Pharmacology
Cardiovascular physiology, control of cerebral circulation

ALLEN STROTHER, Ph.D. Texas A and M University 1963
 Emeritus Professor of Pharmacology
Drug metabolism, biochemical pharmacology, nutrition

ROBERT W. TEEL, Ph.D. Loma Linda University GS 1972
 Professor of Physiology and Pharmacology
Carcinogen metabolism, chemoprevention of cancer

BERNARD TILTON, M.D., Loma Linda University SM 1948
 Emeritus Professor of Pharmacology

JOHN BUCHHOLZ, Ph.D. Loma Linda University GS 1989
 Associate Professor of Pharmacology
Drug metabolism

C. RAYMOND CRESS, Ph.D. Oregon State University 1970
 Associate Professor of Pharmacology
Toxicology

RAMON GONZALEZ, JR., Ph.D. Wake Forest University 1973
 Associate Professor of Physiology and Pharmacology
Cardiovascular physiology, control of circulation

LUBO ZHANG, Ph.D. Iowa State University, Ames 1990
 Associate Professor of Pharmacology
Biochemical pharmacology

RONDA D. DAVIS, M.D., Ph.D. University of Washington, Seattle 1994
 Assistant Professor of Physiology and Pharmacology
Medicinal chemistry

ASSOCIATE FACULTY

RALPH E. CUTLER, M.D. University of California at Los Angeles 1956
 Professor of Pharmacology; Chief, Clinical Pharmacology Section, Loma Linda University
Clinical pharmacology

DOCTOR OF PHILOSOPHY

Prerequisites

The incoming student must have completed the prerequisites or have made suitable arrangements to do so, as stated below and in the Programs and Degrees and the Academic Practices sections of division I of this BULLETIN.

The optimum undergraduate preparation for a student to do well in graduate pharmacology is a major in chemistry with a minor in biology, or a biology major with a chemistry minor. Either combination should include a good background in elementary physics.

Admission

A student may be admitted to a program of study toward the Doctor of Philosophy degree in pharmacology after having completed an undergraduate program or after successfully completing a master's degree in one of the natural sciences. Applicants to a graduate program in pharmacology are expected to have a baccalaureate degree with the following minimum prerequisites in their undergraduate preparation (quarter units):

Prerequisites:

Biology	(8)
Chemistry (including general, quantitative, and organic chemistry)	(20)
Physics	(8)

With the consent of the department, applicants who do not meet the foregoing requirements may be admitted to the Graduate School on a provisional basis until the deficiencies are removed.

Financial aid

Applications for admission requesting financial support should be completed by February 1.

Master's degree credit toward doctoral degree

Applicants having completed a master's degree elsewhere may receive up to 48 quarter units of academic credit toward the doctoral degree. The amount of credit given will depend on the course work taken during the master's degree program.

Terminal master's degree

Incoming students will not be accepted into the program with the intent of completing a master's degree only. However, if a student pursuing a Ph.D. degree finds it impossible or undesirable to continue, a terminal master's degree may be awarded, providing s/he has completed a minimum of 48 quarter units. Of this total, 30 units must be in pharmacology.

Program requirements

The student may select 18 units of cognate courses in consultation with the departmental adviser. A maximum of 12 of the 30 units of pharmacology may be in research leading to the preparation and successful oral defense of a formal thesis, or the results may be in the form of a publishable scientific paper.

Ph.D. degree

A student pursuing the Ph.D. degree will be required to take a minimum of four academic years of full-time work (approximately 100 quarter units). A minimum of 30 units of course work must be in the major field of study, with an additional 26 to 43 units of course work in selected cognates. An additional 20 to 30 units of research, 4 units of seminar, and 3 to 4 units for writing and defense of the dissertation will also be required.

The candidate must take comprehensive written and oral examinations over the major field of study and prepare an acceptable dissertation based on the research program, as stated in division II of the Graduate School BULLETIN.

COMBINED-DEGREES PROGRAMS

In each combined degrees program, some Graduate School credit may be accepted for certain courses taken toward the professional degree. Consent for such credit must be obtained from the Department of Pharmacology and the Graduate School after the courses are completed with satisfactory grades. For a course taken in a professional curriculum to be accepted for graduate credit, the student must maintain the competence required for the respective graduate level.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

COURSES

PHRM 511, 512 General and Systematic Pharmacology I, II (5, 3)

Principles of drug action: drug receptors, absorption and fate of drugs, drug toxicity, and drug development. Systematic consideration of the pharmacology and the therapeutic value of the drugs used in medicine. Demonstration and laboratory exercises illustrating the effects of drugs in man or animals.

Staff.

PHRM 534 Topics in Pharmacology for Dentistry (2)

Lectures and discussions dealing with pharmacologic agents used in dentistry. Emphasis on the current agents used in dental anesthesia, both local and general. Offered on demand.

Fraser, Staff.

PHRM 535 Clinical Pharmacology (3)

Lectures, discussions, ward rounds, and/or laboratory exercises dealing with therapeutic problems related to common medicinal agents. Offered on demand.

Cutler, Staff.

PHRM 544 Topics in Advanced Pharmacology (3)
Lectures and discussions dealing with current advanced concepts in pharmacology, such as structure-action relationships, mechanisms of action, and metabolism and detoxification of therapeutic agents. Offered on demand.

Fraser, Staff.

PHRM 545 Laboratory in Advanced Pharmacology (1-2)

Experimental studies illustrating the didactic material presented in PHRM 544. Offered on demand.

Fraser, Staff.

PHRM 554 Neuropharmacology (4)

Systematic discussion of drugs that affect primarily the nervous system, with major emphasis on mechanism of action.

Peters, Staff.

PHRM 555 Laboratory in Neuropharmacology (1)

Experimental studies illustrating the didactic material presented in PHRM 554.

Peters, Staff.

PHRM 564 Cardiovascular and Renal Pharmacology (3)

Systematic discussion of drugs that affect primarily the cardiovascular and renal systems, with major emphasis on mechanism of action. Offered on demand.

Cutler, Staff.

PHRM 565 Laboratory in Cardiovascular and Renal Pharmacology (1)

Experimental studies illustrating the didactic material presented in PHRM 564. Offered on demand.

Cutler, Staff.

PHRM 574 Chemotherapy (3)

Systematic discussion of drugs that are used primarily in the treatment of infections, with major emphasis on mechanism of action. Offered on demand.

Fraser, Staff.

PHRM 575 Laboratory in Chemotherapy (1)
Experimental studies illustrating the didactic material presented in PHRM 574. Offered on demand.

Fraser, Staff.

PHRM 584 Drug Metabolism and Biochemical Pharmacology (3)

Detailed discussion of the fate of drugs in the body, together with related aspects of biochemical actions of drugs.

Strother, Staff.

PHRM 585 Laboratory in Drug Metabolism and Biochemical Pharmacology (1)

Experimental studies illustrating the didactic material presented in PHRM 584.

Strother, Peters.

PHRM 586 Toxicology (3)

Discussion of deleterious effects of drugs and common poisons. Measures that can be taken to combat poisoning. Offered on demand.

Cress, Staff.

PHRM 605 Integrative Biology Graduate Seminar (1)

Seminar coordinated by the Departments of Anatomy and of Pharmacology and Physiology. Reports from current literature and the presentation of student and faculty research on various aspects of regulatory and integrative biology as applied to cells, tissues, organs, and systems. Students and faculty expected to participate in a discussion and critical evaluation of the presentation.

PHRM 684 Special Problems in Pharmacology (2-6)

Assignments in literature reviews and/or laboratory exercises.

PHRM 697 Research (1-6)

PHRM 698 Thesis (1-6)

PHRM 699 Dissertation (1-6)

PHYSIOLOGY

JOHN LEONORA, Ph.D. University of Wisconsin 1957
 Cochair; Program Coordinator; Professor of Physiology
Endocrinology

The graduate program in physiology provides a Christian environment in which Ph.D. degree candidates may pursue curricula oriented to their specific interests. Individual attention is assured by maintenance of a small student/faculty ratio. Research opportunities are available in cell biology; cardiovascular, respiratory, neuro-, reproductive, endocrine, bone, and neonatal physiology and cancer.

FACULTY

W. ROSS ADEY, M.D. University of Adelaide
 (Australia) 1949
 Distinguished Professor of Physiology
Neurophysiology

LAWRENCE D. LONGO, M.D. Loma Linda University
 SM 1954
 Distinguished Professor of Gynecology and Obstetrics
 and of Physiology
Placental exchange, fetal physiology

CHARLES A. DUCSAY, Ph.D. University of Florida 1980
 Professor of Physiology and of Pediatrics
Reproductive physiology, endocrinology

RAYMOND D. GILBERT, Ph.D. University of Florida at
 Gainesville 1971
 Professor of Physiology
Fetal cardiovascular physiology

DAVID A. HESSINGER, Ph.D. University of Miami 1970
 Professor of Physiology and Pharmacology
*Cell biology, sensory transduction, marine
 toxicology*

SANDRA L. NEHLSSEN-CANNARELLA, Ph.D. National
 Institute for Medical Research, Medical Research
 Council (London) 1971
 Professor of Surgery and of Microbiology; Research
 Professor of Pathology and Immunology
Immunology

WILLIAM J. PEARCE, Ph.D. University of Michigan
 1979
 Professor of Physiology and Pharmacology
*Cardiovascular physiology, control of cerebral
 circulation*

GORDON G. POWER, M.D. University of Pennsylvania
 1961
 Professor of Gynecology and Obstetrics and of
 Physiology
Placental exchange, fetal physiology

ROBERT W. TEEL, Ph.D. Loma Linda University
 GS 1972
 Professor of Physiology
Carcinogen metabolism, chemoprevention of cancer

STEVEN M. YELLON, Ph.D. University of Connecticut
 1981
 Professor of Physiology and of Pediatrics
*Reproductive endocrinology, neuroendocrinology,
 and biological rhythms*

ELWOOD S. McCLUSKEY, Ph.D. Stanford Univer-
 sity 1959
 Emeritus Associate Professor of Physiology
Comparative physiology

DAISY DE LEÓN, Ph.D., University of California at
 Davis 1987
 Associate Professor of Physiology
Endocrinology, breast cancer

MARINO DE LEÓN, Ph.D., University of California at
 Davis 1987
 Associate Professor of Physiology
Neurophysiology, molecular neurobiology

RAMON R. GONZALEZ, Jr., Ph.D. Wake Forest
 University 1973
 Associate Professor of Physiology
Cardiovascular physiology, control of circulation

RAYMOND G. HALL, Jr., Ph.D. Loma Linda University
 GS 1968
 Associate Professor of Physiology
Cell physiology

GEORGE MAEDA, Ph.D. Loma Linda University
 GS 1976
 Associate Professor of Physiology
Neurophysiology

JEAN-MARC TIECHE, Ph.D. Loma Linda University
 GS 1979
 Assistant Research Professor of Physiology
Endocrinology

ASSOCIATE FACULTY

MURRAY E. BRANDSTATER, M.B., B.S. Melbourne University (Australia) 1957 Ph.D. University of Minnesota 1972

Professor of Rehabilitation Medicine
Neuromuscular physiology

WILLIAM H. FLETCHER, Ph.D. University of California at Berkeley 1972

Professor of Anatomy and of Physiology
Neurophysiology

JOHN ROSSI, Ph.D. University of Connecticut at Storrs 1976

Adjunct Research Professor of Microbiology and Molecular Genetics
Microbial genetics

SUZANNE M. BAWIN, Ph.D. University of California at Los Angeles 1972

Associate Research Professor of Physiology and of Neurosurgery
Electrophysiological studies of epileptiform activity

SUBBURAMAN MOHAN, Ph.D. University of Bangalore (India) 1978

Associate Professor of Physiology, of Medicine, and of Periodontics
Bone matrix proteins and growth factors

LORA M. GREEN, Ph.D. University of California at Riverside, 1987

Assistant Professor of Microbiology and of Physiology
Cell and molecular biology

PHILIP J. ROOS, M.D. Loma Linda University SM 1976

Assistant Professor of Medicine and of Physiology
Pulmonary physiology

DOCTOR OF PHILOSOPHY

Prerequisites

The equivalent of a major in one field of science or mathematics and a minor in another is prerequisite. Undergraduate courses should include zoology, chemistry through physical chemistry, and general physics. Mathematics through calculus is highly recommended.

Financial aid deadline

Applications for admission requesting financial support should be completed by February 1.

Admission

A student may be admitted to a program of study toward the Doctor of Philosophy or a master's degree after having completed an undergraduate program as specified above.

Master's degree credit toward doctoral degree

Applicants having completed a master's degree elsewhere may receive up to 48 quarter units of academic credit toward the doctoral degree. The amount of credit given will depend on the course work taken during the master's degree program.

PROGRAM REQUIREMENTS

Master's degree

The master's degree is a nonthesis program which requires 48 quarter units. In addition to physiology (30 units), the student may select 18 units of cognate courses in consultation with the departmental adviser. The candidate must take a comprehensive written examination in all of the major areas of physiology.

If a student pursuing a Ph.D. degree finds it impossible or undesirable to continue, a terminal master's degree may be awarded, providing s/he has completed a minimum of 48 quarter units. Of this total, 30 units must be in physiology.

Ph.D. degree

A student pursuing the Ph.D. degree will be required to take a minimum of four academic

years of full-time work (approximately 100 quarter units). A minimum of 30 units of course work must be in the major field of study, with an additional 26 to 43 units of course work in selected cognates. An additional 20 to 30 units of research, 4 units of seminar, and 3 to 4 units for writing and defense of the dissertation will also be required.

The candidate must take a comprehensive written examination in all of the major areas of physiology. In addition, the student must take an oral examination over his/her area of special interest and related areas; and prepare an acceptable dissertation based on the research program, as stated in section I of this BULLETIN.

COMBINED-DEGREES PROGRAM

The program in physiology, in cooperation with other departments of the University, offers an interdisciplinary program with emphasis in either systems or cell physiology leading to the Doctor of Philosophy, concurrent M.D./Ph.D., or concurrent D.D.S./Ph.D. degrees. The physiology curriculum includes selected interdisciplinary courses and seminars coordinated by the faculties in the Departments of Physiology, Anatomy, and Pharmacology.

In the combined-degrees programs, some Graduate School credit may be accepted for certain courses taken toward the professional degree. Consent for such credit must be obtained from the program in physiology and the Graduate School after the courses are completed with satisfactory grades. For a course taken in a professional curriculum to be accepted for graduate credit, the student must maintain the competence required for the respective graduate level.

General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

COURSES

PHSL 501 Neurophysiology (3)

Basic lecture course on function of the nervous system, primarily designed for dental students and others requiring a rudimentary understanding of nervous processes. Beginning with the electrical activity of neurons, topics include communication between cells, skeletal muscle function, sensory systems, control of motor activity, and higher functions such as sleep and brain electrical activity.

Prerequisite: ANAT 505 Neuroanatomy, or consent of the instructor.

Maeda.

PHSL 502 Basic Neurophysiology (3)

Intensive four-week course including rudimentary neuroanatomy, electrophysiology of neurons, skeletal muscle, synaptic transmission, sensory systems, and motor control. Discussion of higher functions, such as sleep and brain electrical activity.

Maeda.

PHSL 511, 512 Medical Physiology I (1 + 5); II (4)

Physiological basis of normal and selected pathological conditions, modern concepts of homeostasis and negative-feedback control systems. Utilization of modern electronic instrumentation to study function in man or experimental animals in laboratory sessions.

Staff.

PHSL 533, 534 Physiology I, II (4, 3)

Study of basic human physiology at the cellular and systemic levels, and of pathological conditions. Laboratory sessions utilizing modern electronic instrumentation to study function in man and experimental animals. Designed for students in all applied and basic sciences except physiology.

Hall.

PHSL 535 Comparative Physiology (5)

Comparison of the major animal groups, from protozoa to mammals, with emphasis on analysis of diversity. Lecture 4 units, laboratory 1 unit. Offered alternate years.

Prerequisite: Zoology (preferably invertebrate), physiology (or biochemistry).

Hall, McCluskey.

PHSL 537 Neuroscience (8)

Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology.

Staff.PHSL 541 Cell and Molecular Biology (4)

Life processes fundamental to animal, plant, and microorganism; a graduate-level introduction. Lecture 3 units, laboratory 1 unit each term. Offered alternate years.

Prerequisite: Organic chemistry and one of the following—biochemistry, molecular biology, or cell biology. Physics desirable.

Hall, McCluskey.

Courses 550-587 are advanced lecture and conference courses exploring the latest concepts in the respective area.

Prerequisite or concurrent: PHSL 511, 512; or the equivalent.

PHSL 550 Properties of the Nervous System (3)

Critical analysis of current neurophysiological data attempting to characterize the vertebrate nervous system. Emphasis on selected topics covering neuronal topology, intracellular recordings, ultrastructure, evoked potentials, and neurotransmitter chemistry. Offered alternate years.

Prerequisite: Consent of the instructor.

Maeda.

PHSL 555 Biology of Cancer (Lecture) (3)

Interdisciplinary approach to study of the causation, characterization, and prevention of cancer. Offered alternate years.

Teel, Hall.

PHSL 556 Biology of Cancer (Laboratory) (2)

Introduction to techniques essential to research investigations in cancer. Offered alternate years.

Teel, Hall.

PHSL 558 Physiology of Exercise and Inactivity (3)

Effects of exercise and inactivity on the physiological systems of the body, including the skeletal, muscular, cardiovascular, respiratory, and others. Emphasis at the cellular and molecular levels. Study not only of immediate changes in the body necessary to meet the demands of exercise, but also the long-term adaptive changes. Offered alternate years.

Prerequisite: Medical physiology.

Hall.

PHSL 567 Respiratory Physiology (3)

Intensive course encouraging student participation in the principles and application of functional anatomy, gaseous physics, and diffusional processes; respiratory mechanics, blood gases, and reaction kinetics; uneven ventilation/blood flow, high altitude, exercise, and pulmonary function testing. Original reference reading required. Open to graduate, medical, and other students and technicians with experience in and commitment to the field. Offered alternate years.

Longo, Power.

PHSL 569 Oxygenation of the Fetus and Newborn (2)

Dynamics and control of oxygen delivery to tissues. Exploration of any or all the steps in the pathway linking blood-oxygen transport, control of blood flow to the brain and other organs, theoretical and experimental aspects of oxygen diffusion in tissues, and the control of cellular respiration. Offered alternate years.

Longo.

PHSL 576 Vascular Smooth Muscle (3)

Study of the structure and function of vascular smooth muscle and the mechanism(s) controlling its function.

Pearce.

PHSL 577 Cardiac Physiology (3)

Didactic course dealing with the developmental, transitional, and adult anatomy of the heart; as well as its electrical, mechanical, and metabolic processes in health and disease. Offered alternate years.

Prerequisite: An advanced physiology course or consent of the instructor.

Gonzalez.

PHSL 578 Vascular Physiology (3)

Study of the physical principles which govern flow of fluids (rheology), functional anatomy, and reflexes of the peripheral circulation. Also considered is the role of the peripheral vasculature in the control of cardiac output and blood flow to special regions, such as the brain, heart, skeletal muscle, etc. Offered alternate years.

Prerequisite: An advanced physiology course or permission of the instructor.

Gilbert.

PHSL 584 Readings in Neurophysiology (2)

Seminar tracing the development of twentieth-century ideas about the nervous system. The writings of three early neurobiologists (Sherrington, Pavlov, Herrick) emphasized in context with classical and current understanding of the nervous system.

Prerequisite: Consent of the instructor.

Maeda.

PHSL 585 Endocrinology (3)

Study of the physiologic effects of hormones secreted by the hypothalamus, pituitary, thyroid, adrenals, parathyroids, and pancreas. Emphasis on the specific effects on carbohydrate, protein, lipid, water, and electrolyte metabolism. Offered alternate years.

Leonora.

PHSL 587 Physiology of Reproduction (2)

Study of the development of the male and female reproductive systems, neural and hormonal control of reproductive function, fetal development, and parturition. Offered alternate years.

Yellon, Ducsay.

PHSL 595 Readings in Physiology (arranged)

Assigned reading and conferences on special problems in physiology.

Staff.

PHSL 604 Perinatal Biology Graduate

Seminar (1)

Yellon.

PHSL 605 Integrative Biology Graduate

Seminar (1)

Coordinated by the Departments of Anatomy and of Pharmacology and Physiology. Reports from current literature and the presentation of student and faculty research on various aspects of regulatory and integrative biology as applied to cells, tissues, organs, and systems. Students and faculty expected to participate in a discussion and critical evaluation of the presentation.

PHSL 694 Special Problems in Physiology

(arranged)

PHSL 697 Research (1-18)

PHSL 698 Thesis (1)

PHSL 699 Dissertation (2)

PSYCHOLOGY

ALVIN J. STRAATMEYER, Ph.D. ABPP University of South Dakota 1974
 Director of Clinical Training; Professor of Psychology
Geropsychology, hypnosis, death and grief intervention and research

KITI FREIER, Ph.D. Finch University of Health Sciences, The Chicago Medical School 1989
 Chair; Program Coordinator; Associate Professor of Psychology and of Pediatrics
Child/pediatric neuro- and health psychology, high-risk children and youth

The Department of Psychology offers a combination of innovative training opportunities in clinical and experimental psychology: the Doctor of Psychology (Psy.D.) and Doctor of Philosophy (Ph.D.) degrees are offered in the area of clinical psychology; the Ph.D. degree is also offered with emphases in a number of experimental areas; and combined-degrees programs—Psy.D./Dr.P.H., Psy.D./M.P.H., Psy.D./M.A., Ph.D./M.P.H., and Ph.D./M.A.—are offered in coordination with the School of Public Health and the Faculty of Religion.

The Doctor of Psychology (Psy.D.) degree in clinical psychology, influenced by the practitioner-scholar model, emphasizes training in clinical practice based on the understanding and application of scientific psychological principles and research.

The specific objective of the Psy.D. program is to train students to be *practitioner-scholars* which, according to the Loma Linda University model, means training them with (a) a solid academic foundation, (b) the highest level of clinical skills, and (c) the ability to apply research relevant to clinical issues and cases.

Among the outcome measures used to determine the Psy.D. program's success in achieving the above-mentioned objectives are the following:

1. Academic foundations—course evaluations and the comprehensive examination.
2. Clinical skills—ongoing clinical evaluations, the quality and type of internships obtained, and the final clinical proficiency examination.
3. Application of research—the doctoral project; involvement in community-based program development, evaluation, and consultation; and membership in professional organizations.

The Doctor of Philosophy (Ph.D.) degree, with an emphasis in clinical psychology, has been informed by the traditional scientist-practitioner model, which emphasizes training in research and clinical practice.

The specific objective of the Ph.D. degree program in clinical psychology is to train students to be *scientist-practitioners* which, according to the Loma Linda University Ph.D. clinical model, means that they will be given (a) a solid academic foundation, (b)

high-level training in the empirical methods of science so that they are capable of conducting independent and original research, and (c) the skills to be highly competent clinicians. Thus constantly and reciprocally the research and practice will inform each other.

Among the outcome measures used to determine the clinical Ph.D. degree program's success in achieving the above-mentioned objectives are the following:

1. Academic foundations—course evaluations and the comprehensive examination.
2. Training in empirical methods of science—a second-year project or master's thesis; a doctoral dissertation; presentations, publications, and grants received; research and teaching assistantships; teaching positions in area colleges; and membership in scientific/professional organizations.
3. Clinical skills—ongoing clinical evaluations, the quality and type of internships obtained, and the final clinical proficiency examination.

The Doctor of Philosophy (Ph.D.) degree in experimental psychology is designed to train students for research and academic careers in basic as well as applied psychology. Applications for the experimental Ph.D. degree are currently accepted in two areas:

1. General experimental (e.g., psychophysiology, perception, cognition and performance, and development); and
2. Applied social psychology (e.g., crosscultural and health psychology). Additional areas will become available with the planned expansion of the faculty in coming years.

The Doctor of Psychology/Doctor of Philosophy (Psy.D./Dr.P.H.) combined-degrees program combines training in psychology and health sciences to prepare individuals who will be qualified in the application of psychology to health promotion, preventive medicine, and health care, as well as for clinical practice and research.

In the foregoing (Psy.D. clinical, Ph.D. clinical, Ph.D. experimental, Psy.D./Dr.P.H.), the Department of Psychology emphasizes research and practice based on the scientific principles and methods of psychology and related disciplines. This emphasis in psychological science takes place within the context of an approach to human health and welfare, which is consistent with the institutional motto—"To Make Man Whole." Within this context, a systematic attempt is made, through the wholeness component of the curriculum, to promote an understanding of human behavior in relation to the psychological, physical, spiritual, and social/cultural aspects of being human. In this way the Department of Psychology provides, in addition to the traditional training in psychology, a positive environment for the study of cultural, social, and spiritual issues relevant to psychological research and practice in contemporary American society and around the world.

Two options are available as students proceed toward their doctoral degree: a Master of Arts degree in clinical psychology or a Master of Arts degree in experimental psychology. A terminal Master of Arts degree in experimental psychology is available to a limited number of students each year. In both programs, separate application to and acceptance by the Graduate School for the master's degree is required.

FACULTY

HECTOR BETANCOURT, Ph.D. University of California at Los Angeles 1983

Professor of Psychology
Attribution theory, crosscultural psychology, prosocial behavior, conflict and violence

TODD BURLEY, Ph.D. University of Tennessee 1972

Clinical Professor of Psychology
Cognition and phenomenology, developmental phenomenology, neuropsychological correlates of phenomenological processes, effects of EMDR desensitisation techniques with PTSD, and clinical judgment in psychological assessment

LOUIS JENKINS, Ph.D. The Pennsylvania State University 1973

Professor of Psychology
Health-related behaviors, high-risk populations, clinical neuropsychology/brain-behavior relationships, biological bases of behavior, diversity issues, psychology and religion

MATT RIGGS, Ph.D. Kansas State University 1989

Professor of Psychology
Statistical methods, experimental design, measurement, industrial/organizational psychology

PAUL HAERICH, Ph.D. University of Florida 1989

Academic Affairs Coordinator; Associate Professor of Psychology
Psychobiology, psychophysiology of cognition and emotion

KELLY R. MORTON, Ph.D. Bowling Green State University 1992

Associate Professor of Psychology/Family Medicine
The development of the self, moral development, adult development, bioethics, sexual abuse, memory

JANET SONNE, Ph.D. University of California at Los Angeles 1981

Student Affairs Coordinator; Associate Professor of Psychology
Ethical and legal issues in the practice of clinical psychology, clergy misconduct, PTSD in victims of abuse, psychosocial sequelae in pediatric leukemia patients and their families

JOHN FLORA-TOSTADO, Ph.D., ABPP University of Illinois 1974

Director of Psychological Services Clinic; Assistant Clinical Professor
Individual/child psychotherapy, clinical psychology training and supervision, integrated health care-delivery systems, managing clinical information/data, new mental/behavioral health care-delivery systems

ASSOCIATE FACULTY

JERRY W. LEE, Ph.D. University of North Carolina 1976

Professor of Health Promotion and Education
Social and health psychology, smoking withdrawal, associations between religion and health

JOHNNY RAMIREZ, Ed.D. Harvard University 1993

Professor of Religion
Theology, psychology, and culture

MICHAEL GALBRAITH, Ph.D. Claremont Graduate School 1989

Associate Professor of Nursing
Psychiatric/mental health nursing, health psychology

MARK HAVILAND, Ph.D. University of Colorado 1979

Associate Professor of Psychiatry
Affect deficits/alexithymia, depression, psychoactive substance dependence, posttraumatic stress disorders, measurement and statistics

HELEN HOPP MARSHAK, Ph.D. University of Washington 1991

Associate Professor of Health Promotion and Education
Theories of health-behavior change, attitude assessment, cognitive responses to diagnostic feedback

MICHAEL MASKIN, Ph.D., ABPP Fordham University 1973

Director of Training, Psychology Service
Assistant Professor of Psychiatry/Psychology
Clinical psychology training, preparation and competency, forensic psychology, group psychotherapy and treatment approaches, multi-disciplinary staff teaching and consultation

ALANE SAMARZA, Ph.D. California School of Professional Psychology at Los Angeles 1986

Assistant Professor of Family Medicine, of Clinical Psychiatry, and of Psychology
Behavioral science/health psychology issues, diagnosis and management of psychological aspects of illness/psychological disorders, family dynamics, crisis intervention

MICHAEL GOLDSTEIN, Psy.D., University of Denver 1983

Staff Psychologist, In-patient Coordinator
Group psychotherapy, addictive disorders, program/outcome evaluation, health psychology, and computer applications

**CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO FACULTY**

As part of a consortial agreement between the Departments of Psychology at Loma Linda University and California State University at San Bernardino (CSUSB), a select number of professors whose primary appointment is at CSUSB have an appointment in psychology at LLU. These faculty members teach, mentor, and supervise students in research and clinical practice on a regular basis. The following are the current CSUSB faculty members who are part of the graduate psychology faculty at LLU:

- GLORIA COWAN, Ph.D. Rutgers University 1964
Adjunct Professor of Psychology
Gender issues: power, pornography, rape, and codependency; social issues: hate speech and attitudes toward immigrants, and women's hostility toward women
- DIANE F. HALPERN, Ph.D. University of Cincinnati 1979
Adjunct Professor of Psychology
Cognitive psychology, with specialization in individual differences and critical thinking
- CHARLES D. HOFFMAN, Ph.D. Adelphi University 1972
Adjunct Professor of Psychology
Gender roles, the psychology of men, fathering and family relations, divorce and its aftermath
- ELIZABETH A. KLONOFF, Ph.D. University of Oregon 1988
Adjunct Professor of Psychology
Psychophysiological disorders in children and adults, behavioral medicine/health psychology, behavior therapy
- EDWARD TEYBER, Ph.D. Michigan State University 1977
Adjunct Professor of Psychology
Clinical training, relational aspects of psychotherapy, family therapy, children and divorce
- FAITH MCCLURE, Ph.D. University of California at Los Angeles 1989
Adjunct Professor of Psychology
Multicultural issues in mental health, treatment outcome, abuse, coping, and resilience
- DAVID V. CHAVEZ, Ph.D. University of California at Berkeley 1988
Adjunct Professor of Psychology
Ethnicity and mental health, developmental psycho-pathology, psychotherapy with families and children, and applied psychology
- MICHAEL R. LEWIN, Ph.D. Oklahoma State University 1992
Adjunct Professor of Psychology
Cognitive-behavioral treatment of anxiety disorders, experimental psychopathology, cross-cultural psychology and psychopathology

CLINICAL FACULTY

- JOHN ANTHONY BENJAMIN, Ph.D. California State School of Professional Psychology 1977
Adjunct Clinical Professor of Psychology
- FREEMAN DUNN, Ph.D. Brigham Young University 1980
Adjunct Clinical Professor of Psychology
- CHRISTOPHER EBBE, Ph.D. University of Missouri at Columbia 1971
Adjunct Clinical Professor of Psychology
- ANNE K. ESHELMAN, Ph.D. Wayne State University 1982
Adjunct Clinical Professor of Psychology
- JULIANNE FLORA-TOSTADO, Ph.D. University of Utah 1981
Adjunct Clinical Professor of Psychology
- JOHN C. FREELAND, Ph.D. University of Mississippi 1985
Adjunct Clinical Professor of Psychology
- OWEN FUDIM, Ph.D. University of California at Los Angeles 1979
Adjunct Clinical Professor of Psychology
- G. E. JOSH HASKETT, Ph.D. University of North Carolina 1971
Adjunct Clinical Professor of Psychology
- MARK KETTERER, Ph.D. University of Maryland 1981
Adjunct Clinical Professor of Psychology
- WOLFGANG A. KLEBEL, Ph.D. Fuller Seminary 1976
Adjunct Clinical Professor of Psychology
- PHILIP LANZISERA, Ph.D. University of Detroit 1975
Adjunct Clinical Professor of Psychology
- DAUN HACKETT MARTIN, Ph.D. Oklahoma State University 1967
Adjunct Clinical Professor of Psychology
- CLIFFORD M. MIYASHIRO, Ph.D. Ohio University 1975
Adjunct Clinical Professor of Psychology
- CRAIG A. MUIR, Ph.D. University of Southern California 1976
Adjunct Clinical Professor of Psychology
- ROBERT STEPHEN SMITH, Ph.D. United States International University 1980
Adjunct Clinical Professor of Psychology
- ROBERT CONBOY, Ph.D. United States International University 1990
Adjunct Associate Clinical Professor of Psychology
- ARLEEN CROMWELL, Psy.D. Chicago School of Professional Psychology 1991
Adjunct Associate Clinical Professor of Psychology
- LAWRENCE DUNNING, Ph.D. Brigham Young University 1992
Adjunct Associate Clinical Professor of Psychology
- DARIN FEATHERSTONE, Ph.D. Brigham Young University 1990
Adjunct Associate Clinical Professor of Psychology

REBECCA FOO-ROBESON, Ph.D. University of
Southern California 1991
Adjunct Associate Clinical Professor of Psychology

JOSE A. JORGE, Ph.D. United States International
University, San Diego 1990
Adjunct Associate Clinical Professor of Psychology

BROCK KILBOURNE, Ph.D. University of Nevada at
Reno 1983
Adjunct Associate Clinical Professor of Psychology

JACK ROBERT MARTIN, Ph.D. University of
Kansas 1981
Adjunct Associate Clinical Professor of Psychology

KURT L. REH, Psy.D. Biola University 1991
Adjunct Associate Clinical Professor of Psychology

ROBIN SABLOSKY, Ph.D. California School of
Professional Psychology at Los Angeles 1987
Adjunct Associate Clinical Professor of Psychology

KAREN SALTER-MOSS, Ph.D. University of Victoria
(British Columbia) 1989
Adjunct Associate Clinical Professor of Psychology

JACQUELINE KURCH TUREK, Ph.D. University of
North Dakota 1988
Adjunct Associate Clinical Professor of Psychology

THOMAS C. WALLACE, Ph.D. Andrews University 1989
Adjunct Associate Clinical Professor of Psychology

NANCY A. BLUM, Ph.D. Emory University 1993
Adjunct Assistant Clinical Professor of Psychology

ELAINE HURST, Psy.D. Pepperdine University 1990
Adjunct Assistant Clinical Professor of Psychology

GENERAL REQUIREMENTS— ALL DOCTORAL DEGREES

The following general requirements apply to all doctoral programs in the Department of Psychology. Note that the first three sections—foundations, methodology, and wholeness—are referred to as the core curriculum [Parts I, II, III].

CORE CURRICULUM Part I: FOUNDATIONS OF PSYCHOLOGICAL SCIENCE (28 units)

- | | | |
|-----------|--|-----|
| PSYC 524 | History, Systems, and Philosophy of Psychology | (4) |
| PSYC 544 | Foundations of Learning and Behavior | (4) |
| PSYC 545 | Cognitive Foundations | (4) |
| PSYC 551 | Psychobiological Foundations | (3) |
| PSYC 551L | Psychobiological Foundations Laboratory | (1) |
| PSYC 564 | Foundations of Social Psychology and Culture | (4) |
| PSYC 574 | Foundations of Personality Theory | (4) |
| PSYC 575 | Foundations of Human Development | |

CORE CURRICULUM Part II: QUANTITATIVE PSYCHOLOGY/RESEARCH METHODOLOGY (14 units)

- | | | |
|----------|---|-----|
| PSYC 501 | Advanced Statistics I | (4) |
| PSYC 502 | Advanced Statistics II | (4) |
| PSYC 505 | Research Methods in Psychological Science | (4) |
| PSYC 511 | Psychometric Foundations | (2) |

CORE CURRICULUM Part III: WHOLENESS (18 units)

An integral part of the mission of Loma Linda University involves meeting the academic needs of students and professionals from different cultural and social realities around the world as well as here at home. The Department of Psychology's wholeness curriculum reflects this commitment and is grounded in the University's educational philosophy and wholistic approach to human health and welfare. This approach emphasizes the importance of the physical, spiritual, and socio-cultural dimensions of human existence in psychological research and practice. It implies, for instance, recognition of the importance of religion, culture, and the physical and social environment in the lives of those we pledge to serve. This aspect of the curriculum is intended to encourage tolerance for human diversity as well as a genuine interest in the understanding of psychological phenomena within the context of all aspects of being human.

- *PSYC 534/RELR 584 Culture, Psychology, and Religion (3)
 - *PSYC 535/RELR 585 Psychological Study of Religion (3)
 - PSYC 554 Health Psychology (4)
 - PSYC 566 Crosscultural Psychology (2)
 - PSYC 567 Ethnic Diversity and Community Issues (2)
 - PSYC 568 Sex Roles and Gender Issues (2)
 - Elective Seminar in Religion and Psychology (2)
- * One of these two courses should be registered with the RELR prefix.

COLLOQUIA (3 units)
 PSYC 591A, B, C Colloquium (1)

Students enroll for 1 unit each year for three years and participate in a series of lectures presented by distinguished speakers in the various areas of scientific and professional psychology. A critical report based on each of the presentations attended is required.

COMPREHENSIVE EXAMINATION

A written comprehensive examination must be taken after completion of the core curriculum and minimum specialty area course work. This examination, which will normally occur after the second year of study, is intended to evaluate the candidate's general knowledge and understanding of the various areas of psychological science as well as the ability to integrate and use such knowledge for the purposes of developing research and applications.

LANGUAGE REQUIREMENT

Students are required to demonstrate proficiency in a language other than English. This language should be relevant to psychological research or the practice of psychology, particularly with underserved populations. This requirement is normally satisfied by demonstrating the ability to read or converse at the AFMLT Low-Intermediate level (e.g., through traditional classroom courses). Alternative methods of satisfying this requirement (e.g., spending significant time in another culture actively involved in activities relevant to academic or professional psychology) must be approved by the faculty of the Department of Psychology.

CLINICAL SPECIALTY CURRICULUM—REQUIREMENTS FOR DOCTORAL LEVEL

The requirements of the clinical curriculum apply to all students enrolled in the Psy.D. program, the Psy.D./Dr.P.H. combined-degrees program, and the Ph.D. degree program in clinical psychology.

- Clinical Psychology: General (21 units)**
- PSYC 525 Introduction to Clinical Psychology (2)
 - PSYC 526 Ethics and Legal Issues in Clinical Psychology (2)
 - PSYC 552 Brain and Behavior (3)
 - PSYC 555 Psychopharmacology (2)
 - PSYC 571 Psychopathology (4)
 - PSYC 572 Child Psychopathology (2)
 - PSYC 684 Human Sexual Behavior and Therapy (2)
 - PSYC 685 Drug Addiction and Therapy (2)
 - PSYC 686 Elder, Partner, and Child Abuse (2)

- Psychological Assessment (12 units)**
- PSYC 512 Assessment I (2)
 - PSYC 512L Practice Laboratory (1)
 - PSYC 513 Assessment II (2)
 - PSYC 513L Practice Laboratory (1)
 - PSYC 514 Assessment III (2)
 - PSYC 514L Practice Laboratory (1)
 - PSYC 515 Assessment IV (2)
 - PSYC 515L Practice Laboratory (1)

- Psychological Treatment (14 units)**
- PSYC 581 Behavioral and Cognitive Therapy (4)
 - PSYC 581L Practice Laboratory (1)
 - PSYC 582 Psychodynamic Therapy (2)
 - PSYC 582L Practice Laboratory (1)
 - PSYC 583 Humanistic/Phenomenological Therapy (2)
 - PSYC 583L Practice Laboratory (1)
 - PSYC 584 Conjoint and Group Therapy (2)
 - PSYC 584L Practice Laboratory (1)

- Practica and Internship (16 units)**
- PSYC 782 Practicum I (3)
 - PSYC 783 Practicum II (3)
 - PSYC 784 Practicum III (3)
 - PSYC 785 Practicum IV (3)
 - PSYC 799 Internship (.5-1)

- Clinical proficiency examination**
- This examination is taken toward the end of the internship and is intended to demonstrate the student's highest level of competency up to that time. This will include demonstrating skill in:
1. conceptualizing the presenting problem;
 2. obtaining information regarding personal history, interpersonal functioning, and present status;
 3. synthesizing psychodiagnostic data;
 4. justifying diagnostic impressions;
 5. applying relevant research to treatment planning;
 6. formulating a comprehensive treatment plan;
 7. engaging in effective intervention; and
 8. evaluating treatment progress and outcome.

Professional, legal, and ethical issues are also covered in this examination.

REQUIREMENTS SPECIFIC TO EACH DOCTORAL DEGREE

DOCTOR OF PSYCHOLOGY–PSY.D. CLINICAL PSYCHOLOGY

Admission

Applicants must meet the requirements of the Graduate School as outlined in the current edition of the Graduate School BULLETIN. In addition to the general test of the Graduate Record Examination (GRE), the psychology subject test is also required of all applicants.

Prerequisites

Undergraduate preparation should include successful completion of one course in history and systems of psychology; one course in biology (anatomy and physiology recommended); one course in physics or chemistry; one course in anthropology or sociology; one course in statistics and one course in mathematics; two courses from learning, physiological psychology, cognition, or sensation and perception; two courses from developmental, personality, or social psychology. Students are required to demonstrate proficiency using a computer operating system and at least one of the packages for statistical analysis (e.g., SPSS). Students can take a course offered by the Department of Psychology in order to meet this requirement.

COURSE OF STUDY CLINICAL EMPHASIS

The course of study for the Doctor of Psychology (Psy.D.) degree includes a minimum of 168 units of academic credit. In addition to the general requirements and the clinical specialty curriculum detailed above, the student will complete the requirements indicated below:

Professional concentration (16)

Psy.D. students will complete 16 units in an area of interest which reflects a professional concentration. This must include:

- | | | |
|----------|---|-------|
| PSYC 681 | Clinical Supervision: Concepts, Principles, and Functions | (2) |
| PSYC 683 | Management, Consultation, and Professional Practice | (2) |
| PSYC 781 | Second-Year Practicum | (2-6) |

The remaining 10 units are chosen by the student.

Doctoral research

A doctoral project is required of all students in the Psy.D. program. This project involves research, generally of an applied nature, either qualitative or quantitative; and must be developed in consultation with the student's supervisory committee.

Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of (1) the core curriculum [Parts I, II, III], (2) minimum clinical specialty course work, (3) the practicum (PSYC 782-785), and (4) the comprehensive examination; and upon (5) acceptance of the doctoral project proposal and (6) recommendation of the faculty.

Course requirements

In preparation for their doctoral research, students must complete PSYC 506 Qualitative Methods in Clinical Psychology, and PSYC 507 Program Evaluation. In addition, students will complete PSYC 691, 692, 693 Psy.D. Research I, II, III for a total of 8 units. The student will complete 4 units of PSYC 698 while working on the project.

Proposal

A formal proposal must be submitted to and approved by a faculty supervisory committee.

Defense

Upon completion of the doctoral project, a public defense before the supervisory committee is required.

DOCTOR OF PHILOSOPHY—PH.D. CLINICAL PSYCHOLOGY; EXPERIMENTAL PSYCHOLOGY

Admission

Applicants must meet the requirements of the Graduate School as outlined in the current edition of the Graduate School BULLETIN. In addition to the general test of the Graduate Record Examination (GRE), the psychology subject test is also required of all applicants.

Prerequisites

Undergraduate preparation should include successful completion of one course in history and systems of psychology; one course in biology (anatomy and physiology recommended); one course in physics or chemistry; one course in anthropology or sociology; one course in statistics and one course in mathematics; two courses from learning, physiological psychology, cognition, or sensation and perception; two courses from developmental, personality, or social psychology. Students are required to demonstrate proficiency using a computer operating system and at least one of the packages for statistical analysis (e.g., SPSS). Students can take a course offered by the Department of Psychology in order to meet this requirement.

COURSE OF STUDY

CLINICAL EMPHASIS

The course of study for the Doctor of Philosophy degree with a clinical emphasis includes a minimum of 204 units of academic credit. In addition to the general requirements and the clinical specialty curriculum detailed above, the student will complete the requirements that follow:

Minor concentration (12)

Ph.D. degree students will complete 12 units in an area other than their major concentration relevant to psychological research and therapy. The area of concentration and the courses to be included must be approved by the department.

Examples of possible areas of minor concentration include, but are not limited to, health psychology (or related areas, such as preventive care or health promotion and education); psychology and religion; psychology and culture/ethnic diversity; psychology and biology; development; psychopharmacology; neuropsychology.

Doctoral dissertation

A doctoral dissertation is required of all students in the Ph.D. degree program. This project should involve an original research contribution to the field and must be developed in consultation with the student's supervisory committee.

In preparation for the doctoral dissertation, as a second-year project, students must complete 12 units of PSYC 595 Directed Research and

PSYC 503 Advanced Multivariate Statistics. These units normally will be completed by the beginning of the third year of study.

Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of (1) the core curriculum [Parts I, II, III], (2) minimum clinical specialty course work, (3) practicum (PSYC 782-785), (4) the comprehensive examination; and (5) a second-year project; and upon (6) acceptance of the doctoral dissertation proposal and (7) recommendation of the faculty.

Course requirements

While working on the dissertation, candidates must complete two units of PSYC 604 Advanced Topics in Multivariate Analysis, at least 36 units of doctoral research (PSYC 697), and 4 units of PSYC 699.

Qualifying examination

A proposal for the dissertation must be submitted to and approved by the faculty supervisory committee after a formal presentation and defense before the committee.

Defense

Upon completion of the doctoral dissertation, a public defense before the supervisory committee is required.

COURSE OF STUDY

EXPERIMENTAL EMPHASIS

The course of study for the Doctor of Philosophy degree with an experimental emphasis includes a minimum of 155 units of academic credit, including the foregoing general requirements. The Ph.D. degree with an experimental emphasis will include the following:

Advanced courses and seminars in major area of concentration (24 units).

Minor concentration (12)

Ph.D. degree students will complete 12 units in an area other than their major concentration relevant to psychological research and therapy. The area of concentration and the courses to be included must be approved by the department.

Examples of possible areas of minor concentration include, but are not limited to, health psychology (or related areas, such as preventive care or health promotion and education); psychology and religion; psychology and culture/ethnic diversity; psychology and biology; development; psychopharmacology; neuropsychology.

Doctoral dissertation

A doctoral dissertation is required of all students in the Ph.D. degree program. This project should involve an original research contribution to the field and should be developed in consultation with the student's supervisory committee.

As a second-year project, students must complete 12 units of PSYC 595 Directed Research and

PSYC 503 Advanced Multivariate Statistics. These units normally will be completed by the end of the second year of study.

Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of (1) the core curriculum [Parts I, II, III], (2) minimum experimental specialty-area course work, (3) the comprehensive examination; and (4) a second-year project; and upon (5) acceptance of the doctoral dissertation proposal and (6) recommendation of the faculty.

Course requirements

While working on the dissertation, candidates must complete PSYC 604 Advanced Topics in Multivariate Analysis, at least 36 units of doctoral research (PSYC 697), and 4 units of PSYC 699.

Qualifying examination

A proposal must be submitted to and approved by the faculty supervisory committee after a formal presentation and defense before the committee.

Defense

Upon completion of the doctoral dissertation, a public defense before the supervisory committee is required.

COMBINED-DEGREES PROGRAMS PSY.D./DR.P.H.; PSY.D./M.P.H.; PSY.D./M.A.; PH.D./M.P.H.; PH.D./M.A.

Doctor of Psychology/Doctor of Public Health

Admission

For acceptance into the Doctor of Psychology/Doctor of Public Health (Psy.D./Dr.P.H.) combined-degrees program, applicants must meet the respective requirements of both degrees as outlined in the Graduate School BULLETIN and the School of Public Health BULLETIN. Application must be made to each school, and each school will process the application separately.

COURSE OF STUDY

The course of study for the Psy.D./Dr.P.H. combined-degrees program consists of a minimum of 225 units as outlined below. In addition to the general requirements [Parts I, II, III] for all doctoral degree students in psychology and the specialty curriculum in clinical psychology, those in the Psy.D./Dr.P.H. combined-degrees program must complete the following requirements:

Co-requisites (16 units)

ENVN 509	Principles of Environmental Health	(3)
EPDM 509	Principles of Epidemiology I	(3)
HADM 509	Principles of Administration in Public Health	(3)
HPRO 509	Health-Behavior Change	(3)
HPRO 536	Program Planning	(3)
SHCJ 605	Philosophy of Public Health	(1)

Biomedical Sciences (37 units)

ANAT 503	Human Histology	(5)
HPRO 518	Pathology of Human Systems	(4)
HPRO 519	Pharmacology	(3)
HPRO 533	Human Anatomy and Physiology	(6)
HPRO 534	Human Anatomy and Physiology	(6)
NUTR 504	Nutritional Metabolism	(5)
NUTR 517	Advanced Human Nutrition I	(4)
NUTR 518	Advanced Human Nutrition II	(4)

Preventive Care (29 units)

HPRO 515	Mind-Body Integration and Health	(3)
HPRO 526	Lifestyle-Disease Risk Reduction	(3)
HPRO 527	Weight Management and Disorders of Eating	(3)
HPRO 553	Addiction Theory and Program Development	(3)
HPRO 573	Exercise Physiology I	(3)
HPRO 578	Exercise Physiology II	(3)
HPRO 584	Aging and Health	(3)
HPRO 586	Introduction to Preventive Care	(1)

HPRO 606 Preventive Care Seminar	(2,2)
NUTR 545 Clinical Nutrition	(3)
Practica	
HPRO 704 Preliminary Clinical Experience	(400 hours)
TOTAL UNITS (225)	

Doctor of Psychology /Master of Public Health
 Doctor of Philosophy/Master of Public Health

Students who are interested in health psychology and areas related to health care promotion may choose a degree track leading to an M.P.H. degree. In this case, 24 of the units in the doctoral degree program in psychology can be applied towards the M.P.H. degree. These units for dual counting are determined by the corresponding program in the School of Public Health in conjunction with the Department of Psychology. The remaining units for the completion of the M.P.H. degree will depend on the specific area of public health (e.g., preventive care, health promotion, or health administration) and will be decided by the corresponding program coordinators.

For course listings, see the BULLETIN of the School of Public Health in the chosen area(s) of emphasis.

Doctor of Psychology /Master of Arts
 Doctor of Philosophy/Master of Arts

Students who are interested in ethics may take a Master of Arts in biomedical and clinical ethics combined with their psychology degree. In this case, 24 units in the doctoral program may be applied to the Master of Arts degree, provided the course requirements for each program are fully satisfied.

COURSES

PSYC 501 Advanced Statistics I (4)
 General introduction to statistical analysis detailing the descriptive/inferential distinction and covering sampling distributions (e.g., normal, binomial), hypothesis testing, and basic parametric and non-parametric techniques.

PSYC 502 Advanced Statistics II (4)
 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 or consent of the instructor.

PSYC 503 Advanced Multivariate Statistics III (2)
 Broad introduction using linear (matrix) algebra to maximum likelihood estimation generally, using several important multivariate statistical techniques, including but not limited to multivariate analysis of variance, multivariate regression, path analysis and structural equations causal modeling, log-linear models, and time series analysis; alternatives to maximum likelihood estimation are also evaluated.

Prerequisite: PSYC 502 or consent of the instructor.

PSYC 505 Research Methods in Psychological Science (4)
 Comprehensive examination of research methods in psychology, from the formulation of research problems to the design, execution, and report of findings. Experimental and quasi-experimental designs, as well as field and case studies included. The exploratory-confirmatory distinction in scientific epistemology and its implications for research and theory. Review and critical analysis of research literature from various areas of contemporary psychological science.

Prerequisite: PSYC 502 or consent of the instructor.

PSYC 506 Qualitative Methods in Clinical Psychology (2)
 Examines a broad range of qualitative research methods in clinical psychology, including case studies, ethnographic studies, archival evaluations, survey methods, and other data-collection procedures and inductive methods of analysis that provide an understanding of naturally occurring human and social problems in which findings are not dependent on statistical analysis or summary.

PSYC 507 Program Evaluation (2)
 Covers the methodology and tools for doing qualitative research and program evaluation.
 Prerequisite: PSYC 515.

PSYC 511 Psychometric Foundations (2)
 Advanced orientation to psychological instruments; their theoretical derivation, construction, and use. Emphasis on reliability, validity, and factor structures.

Prerequisite: PSYC 501 or consent of the instructor.

PSYC 512 Assessment I (2)
 Instruction in administering, scoring, interpreting, and report writing relevant to various adult and child intelligence and achievement instruments, such as the WAIS-III, WISC-III, WPPSI-R, KBIT, Stanford-Binet, WIAT, PIAT, KABC, WRAT-3, and the Woodcock-Johnson batteries. Consideration of the empirical reliability and validity data for each instrument.

Prerequisite: PSYC 511 or consent of the instructor.

PSYC 512L Assessment I Practice Lab (1)
 Supervised experiences in administering, scoring, interpreting, and writing reports relevant to various adult and child intelligence and achievement instruments.

Concurrent: PSYC 512.

PSYC 513 Assessment II (2)

Instruction in administering, scoring, interpreting, and writing reports relevant to various adult and child objective personality instruments, including the MMPI-2, MMPI-A, MACI, PIC, 16PF, CDI, BDI, and BAI. Consideration of the empirical reliability and validity data for each instrument.

Prerequisite: PSYC 512 or consent of the instructor.

PSYC 513L Assessment II Practice Laboratory (1)

Supervised experiences in administering, scoring, interpreting, and writing reports relevant to various adult and child objective personality instruments.

Concurrent: PSYC 513.

PSYC 514 Assessment III (2)

Administering, scoring, interpreting, and writing reports relevant to various adult and child projective personality instruments including the Rorschach, TAT, CAT, and House-Tree-Person. Consideration of the empirical reliability and validity data for each instrument.

Prerequisite: PSYC 513 or consent of the instructor.

PSYC 514L Assessment III Practice Laboratory (1)

Supervised experiences in administering, scoring, interpreting, and report writing relevant to various adult and child projective personality instruments.

Concurrent: PSYC 514.

PSYC 515 Assessment IV (2)

Instruction in the integration of results of intellectual, achievement, objective personality, and projective personality assessment techniques; and the composition of full-battery reports.

Prerequisite: PSYC 514 or consent of the instructor.

PSYC 515L Assessment IV Practice Laboratory (1)

Supervised experiences integrating the results of assessment batteries and composing full-battery reports.

Concurrent: PSYC 515.

PSYC 524 History, Systems, and Philosophy of Psychology (4)

Builds on the coverage of the history and systems of psychology provided in most undergraduate courses. Focuses on how different approaches to psychology (e.g., the schools of psychology) have defined the field, what topics and information they have considered as a part of psychology, and what mechanisms and criteria for advancing the field these approaches have considered acceptable. Examination of current trends in light of their contributions to the development of psychology as a science and as a profession.

PSYC 525 Introduction to Clinical Psychology (2)

Introduction to the development and current status of clinical psychology within the context of professional and basic psychology. Examination of the practice of clinical psychology in light of the psychological principles and scientific methods on which it is based. Surveys methods and contemporary professional and ethical issues, providing the context within which the role of the doctoral-level clinical psychologist is compared to that of other professionals and technicians. Examination of commonalities and areas of collaboration as well as differences.

PSYC 526 Ethics and Legal Issues in Clinical Psychology (2)

Overview of current ethical and legal standards for the conduct of psychology. 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 534 Culture, Psychology, and Religion (3)

Introduction to the major contours of Western culture as they relate to various schools of psychological thought. The influence of religious beliefs in their inception. Theological critique of various world views that have guided psychological schools of thought. Topics include liberalism and modernism, pietism and evangelicalism, the Enlightenment and Romantic movements.

PSYC 535 Psychological Study of Religion (3)

Surveys research areas, methods, and issues in the study of religion and spirituality from a psychological perspective. Emphasizes understanding of religious phenomena relative to the scientific study of human behavior and psychological functioning. Examination of the philosophical foundations of research in psychology, sociology, and anthropology in order to provide an eclectic approach to research in this area. Topics include ethnographic approaches to religious experience, conversion, religiosity, faith and moral development, worship, rituals, and crosscultural manifestations of religion.

PSYC 536 Seminar in Psychology and Religion (2)

Focuses on an aspect of integration of psychology and religion.

PSYC 544 Foundations of Learning and Behavior (4)

Surveys the major theories, methods, and applications in the psychology of learning. Includes classical, operant, and cognitive aspects, with emphasis on contemporary issues in research and applications as well as laboratory training with animals.

PSYC 545 Cognitive Foundations (4)

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 551 Psychobiological Foundations (3)
A basic course in psychobiology. Neuroanatomy, the physiology of the neuron, and neural communication. Includes consideration of the visual, auditory, and somesthetic sensation and perception. Concludes with coverage of the structure and function of the motor systems. Consideration of visuospatial, visuo-perceptual, visuoconstructive disorders, and apraxia.

PSYC 551L Psychobiological Foundations Laboratory (1)

Laboratory experience to accompany PSYC 551 Psychobiological Foundations. Focuses on neuroanatomy through dissection of appropriate specimens.

Concurrent: PSYC 551.

PSYC 552 Brain and Behavior (3)
Builds on the foundations of psychobiology to examine the neurophysiological bases of molar behaviors, including consideration of sleep and biological rhythms; language; learning and memory; motivated behaviors (e.g., aggression, hunger, thirst, sex); emotion; and psychological dysfunction (e.g., schizophrenia, anxiety disorders, addictions).

Prerequisite: PSYC 551 or consent of the instructor.

PSYC 554 Health Psychology (4)
An overview of the field of clinical health psychology. The biopsychosocial model and the management of chronic illness is used as a framework in which to address assessment and intervention principles, cultural influences, bioethics, and dying and death issues.

PSYC 555 Psychopharmacology (2)
Advanced coverage of neurotransmitter systems, with particular emphasis on the mechanism of action of various psychoactive substances.

Prerequisite: PSYC 551

PSYC 564 Foundations of Social Psychology and Culture (4)

General survey of 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 566 Crosscultural Psychology (2)
Crosscultural variations in psychological processes and human behavior examined in light of the role of culture and implications for the universality of psychological principles. Crosscultural research, theory, and interventions examined in terms of their implications for the understanding of crosscultural variations and the universality of psychological knowledge; the implications for the study and practice of psychology in a multicultural society and interdependent world. Includes basic areas, such as personality, developmental and social psychology, as well as clinical and other professional areas.

PSYC 567 Ethnic Diversity and Community Issues (2)

Surveys theories, research, and interventions dealing with culture and ethnicity in mental health and clinical practice. Focuses on working with ethnic minorities while emphasizing the effects of culture, ethnicity, and socioeconomic factors in the behavior of all ethnic minority as well as mainstream individuals and groups. The role of cultural and socioeconomic factors in psychological processes, psychopathology, psychological assessment, and intervention examined within the context of human diversity and community.

PSYC 568 Sex Roles and Gender Issues (2)
Seminar covering research literature on the differences between males and females, masculinity, femininity, and androgyny; and the roles and cultural expectations of the sexes. Examines the antecedents and consequences of sex-based prejudice and discrimination within the context of contemporary social issues and culture.

PSYC 571 Adult Psychopathology (4)
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)
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-IV 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.

Prerequisite: PSYC 571 or consent of instructor.

PSYC 574 Foundations of Personality Theory (4)

Surveys the major theories and contemporary areas of development in the field of personality. Examines theories in light of contemporary research evidence in areas dealing with individual patterns of thinking, feeling, and acting; as well as developments in areas such as the biological, cultural, and social foundations of human behavior. Evaluates theories based on criteria such as stimulation of research and applications. Attempts to integrate knowledge from the various basic areas of scientific psychology, such as learning, motivation, and emotion, in order to advance the understanding of current issues and trends in personality theory, research, measurement, and applications.

PSYC 575 Foundations of Human Developmental Psychology (4)

Human development considered from conception through old age, including social, cognitive, and physiological aspects of development as well as personality. Emphasizes contemporary developments in research, theory, and applications.

PSYC 581 Psychological Treatment I: Behavior and Cognitive Therapies (4)

Basis for understanding behavior therapy, the concepts and techniques of classical conditioning and operant conditioning interventions, and the empirical data regarding the efficacy of this treatment orientation.

Prerequisite: PSYC 571 or consent of instructor.

PSYC 581L Behavior and Cognitive Therapies Practice Laboratory (1)

Supervised experience observing and/or engaging in behavior therapy in laboratory assignments.

Concurrent: PSYC 581.

PSYC 582 Psychological Treatment II: Psychodynamic Therapy (2)

Basis for understanding psychodynamic therapy (from psychoanalysis to object relations therapy to short-term psychodynamic therapy), the concepts and techniques of various types of psychodynamic interventions, and the empirical data regarding the efficacy of this treatment orientation.

Prerequisite: PSYC 571 or consent of instructor.

PSYC 582L Psychodynamic Therapy Practice Laboratory (1)

Supervised experience observing and/or engaging in psychodynamic therapy.

Concurrent: PSYC 582.

PSYC 583 Psychological Treatment III: Humanistic/Phenomenological Approaches to Therapy (2)

Overview of the various humanistic/phenomenological approaches to therapy, including client-centered and Gestalt therapies. Student develops an understanding of concepts and techniques of the various approaches, as well as the empirical data regarding the efficacy of these treatment orientations.

Prerequisite: PSYC 571 or consent of instructor.

PSYC 583L Humanistic/Phenomenological Therapy Practice Laboratory (1)

Provides the student with supervised experience observing and/or engaging in humanistic/phenomenological therapy.

Concurrent: PSYC 583.

PSYC 584 Psychological Treatment IV: Conjoint and Group Psychotherapies (2)

Provides the student with understanding of conjoint and group psychotherapies. The concepts and techniques of conjoint and group psychotherapies presented, as well as the empirical data regarding the efficacy of these interventions.

Prerequisite: PSYC 571 or consent of instructor.

PSYC 584L Conjoint and Group Psychotherapies Practice Laboratory (1)

Supervised experience observing and/or engaging in conjoint or group therapy.

Concurrent: PSYC 584.

PSYC 591 A, B, C Colloquium (1)

Students participate in a series of lectures presented by distinguished speakers in the various areas of scientific and professional psychology. Students prepare a critical report critiquing each of the presentations attended.

PSYC 594 Readings in Psychology (1-4)

PSYC 595 Directed Research (1-4)

Academic credit for research leading to the second-year project. A total of 12 units is required. No more than 4 units can be in progress at one time.

PSYC 596 Directed Study (1-4)

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 (1-12)

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 598 Master's Thesis (1-4)

Required course for all master's degree students in psychology, experimental option.

PSYC 604 Advance Topics in Multivariate Analyses (2)

A course in advanced topics in statistical analysis and research methods in psychology.

Prerequisite: PSYC 503, 505.

PSYC 614 Neuropsychological Assessment (2)

Instruction in the administration, scoring, interpretation, and report write-up of various neuropsychological instruments and batteries, including the Halstead Reitan Neuropsychological Battery, the Luria Nebraska Neuropsychological Battery, and others. Consideration of the empirical reliability and validity of data for each instrument; supervised practice in their use and interpretation.

PSYC 624 Techniques in Clinical Management (2)

Seminar course designed to provide students who have had little to no clinical case management experience with the basic information and skills needed to work effectively with psychological assessment and therapy clinics. Open only to those accepted in a clinical psychology doctoral program.

Prerequisite: PSYC 525.

PSYC 646 The Nature of Emotion (3)

Seminar course which considers the fundamental questions in the scientific investigation of the emotions, including the theories of emotional taxonomy, the expression of emotion in neurophysiological and muscular systems, facial expression and the universality of emotions, the cognitive foundations of emotional processing and expression, and emotional memory.

PSYC 655 Principles in Psychophysiology (3)
Seminar course in basic methodological, inferential, and conceptual issues in psychophysiology. Beginning with principles of inference and psychophysiological constructs, the course considers each of the major physiological systems, including the electrodermal, skeletomotor, electrocortical, cardiovascular, pulmonary, and sexual response systems. Major papers, both current and historical, relevant to these systems and the major conceptual lines of research.

Prerequisite: PSYC 551 or consent of instructor.

PSYC 674 Infant/Toddler Development (2)
Infant development from 0 through 36 months of age, examining milestones of cognitive, motor, and psychosocial development. Developmental scales and instruments which address these aspects of infant/toddler development examined within the context of assessment and intervention.

PSYC 675 Cognitive Development (2)
Current research and theory regarding cognitive development across the lifespan. Readings focused on development in adolescence and in young, middle, and late adulthood. Specific topics to be covered include: intelligence, creativity, memory and autobiographical memory, consciousness, spatial cognition, imagery, social cognition, and moral reasoning. Explores changes in cognition over adulthood with consideration of how these changes effect an individual's growth and development in other domains.

Prerequisite: PSYC 575 or consent of the instructor.

PSYC 681 Clinical Supervision: Concepts, Principles, and Functions (2)
Seminar course in the basic skills and corresponding knowledge of clinical psychology supervision. Different theoretical approaches to conceptualizing the clinical supervisor-supervisee dyad and the supervisory process. Principles, methods, and techniques of individual, group, and live supervision. Supervision interpersonal issues and dilemmas, multicultural context, ethical and legal considerations, and research issues and methods. Prepares the student to become a supervision trainee.

PSYC 682 Psychotherapy Supervision Practicum (2)
A supervised practice experience in psychotherapy supervision. Designed to enhance the supervision trainee's awareness of: what experiences and personal tendencies s/he brings to the process of supervising; how to increase his/her skills in managing the supervisory relationship to the benefit of the supervisee and the trainee's own professional development; and how to enrich his/her understanding of reciprocal meanings and concepts. Provides information which can be used by the student in making decisions about further training in psychotherapy supervision and possibly about pursuing a specialty in psychotherapy supervision.

Prerequisite: PSYC 681 or consent of the instructor.

PSYC 683 Management, Consultation and Professional Practice (2)
Seminar course in the management, consultative, and business skills needed by the clinical psychologist to fit into contemporary integrated health and mental health care-delivery systems (i.e., a health maintenance organization or an independent practice association). Explores the wide range of roles psychologists are playing in developing, evaluating, and administering behavior health care services. Special emphasis given to examining how the psychologist's clinical and research skills can enhance his/her ability to adapt to a changing marketplace.

PSYC 684 Human Sexual Behavior and Therapy (2)
Human sexuality in contemporary society. Physiological, psychological, sociocultural, and developmental factors associated with human sexuality. Interventions for sexual dysfunctions and sexual well-being. Designed to fulfill California state licensing requirements for psychologists.

PSYC 685 Drug Addiction and Therapy (2)
Overview of the definitions, incidence, detection, assessment, effects, and the ethical, legal, and therapeutic management of substance abuse. Designed to fulfill California state licensing requirements for psychologists.

PSYC 686 Child, Partner, and Elder Abuse (2)
Overview of 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. Designed to fulfill California state licensing requirements for psychologists.

PSYC 687 Cognitive Behavioral Treatment of Anxiety Disorders (3)
Advanced course in the assessment of cognitive behavioral treatment of the DSM-IV anxiety disorders. Concurrent group-therapy experience observing/engaging in cognitive behavioral therapy with adult clients.

Prerequisite: PSYC 581 or consent of instructor.

PSYC 688 Empirically Validated Treatments of Depression (2)
Advanced course in the clinical assessment and treatment of DSM-IV unipolar depressive disorders. Three empirically validated treatments: cognitive therapy, behavioral therapy, and interpersonal psychotherapy of depression. Outlines the continual assessment of clinical outcome. Depression-group experience in which students will observe and/or participate in a treatment group.

Prerequisite: PSYC 581 or consent of instructor.

PSYC 691 Psy.D. Research (3)

Development and implementation of the Psy.D. dissertation. Research methods and applications reviewed. Students develop dissertation topic and complete a first draft of the literature review.

Prerequisite: PSYC 502, 505; admission to Psy.D. program.

PSYC 692 Psy.D. Research (3)

Development and implementation of the Psy.D. dissertation. Statistical methods and applications reviewed. Students complete the literature review and begin work on the methods section.

Prerequisite: PSYC 691, admission to Psy.D. program.

PSYC 693 Psy.D. Research (2)

Development and implementation of the Psy.D. doctoral project. Student forms the supervisory committee and, with the input of the committee, completes the preliminary draft of the doctoral project proposals. Practice for the oral defense of the doctoral project proposal.

Prerequisite: PSYC 692, admission to Psy.D. program.

PSYC 694 Seminar in Advanced Topics in Psychology (1-4)

PSYC 697 Doctoral Research (1-12)

Academic credit for dissertation research. A total of 36 units required. (No more than 12 units can be in progress at any time.)

PSYC 698 Doctoral Project (1-4)

Course credit for work on doctoral project. (Students must enroll for at least 1 unit during each quarter from the acceptance of the proposal until the project is complete.)

Prerequisite: PSYC 505, and advancement to candidacy

PSYC 699 Doctoral Dissertation (1-4)

Course credit for work on doctoral dissertation. (Students must enroll for at least 1 unit during each quarter from the acceptance of the proposal until the dissertation is complete.)

Prerequisite: advancement to doctoral candidacy.

PSYC 781 Second-Year Practicum (2-6)

Required units 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 up to five times for a total of 6 units.

PSYC 782 Practicum I (3)

Provides students with a pre-internship level of clinical psychology training which will be more intensive, extensive, and continuous than anything they have previously experienced in the academic/clinical aspects of the program. A highly integrated component in the student's entire sequence of training and education at Loma Linda University. Practicum provides (a) access to greater numbers of practicing psychologists who can serve as valid role models; (b) further education and experience in the areas of psychological assessment, diagnostic conceptualizations, and scientifically based treatment regimens; and (c) additional training with regard to the ethical, legal, and professional standards of the profession of clinical psychology.

Prerequisite: Completion of two years of the clinical psychology program at Loma Linda University; good academic and professional standing in the program.

PSYC 783, 784, 785 Practicum II, III, IV (3, 3, 3)

PSYC 798 Pre-Internship (1)

Elective clinical experience for students who have successfully completed the practicum year.

May be repeated to a maximum of 4 units.

PSYC 799 Internship (1, 1, 1, 1)

(must be repeated to a total of 4 units)

Prerequisite: Advancement to candidacy and completion of all academic course work.

PSYC 799L Internship (250-500 hours)

Prerequisite: Advancement to candidacy and completion of all academic course work.



SOCIAL WORK

JAMES F. DYER, Jr., M.S.W. West Virginia University 1966
Program Coordinator; Associate Professor of Social Work

The profession of social work centers on the improvement of the quality of life for people and the enhancement of human potential for full productive participation in society. With this philosophy at its core, the master's degree program in social work emphasizes ecological systems, a perspective that focuses on the interaction of a person or system in relation to his/her environment. Reflecting this stance is Loma Linda University's philosophy "To Make Man Whole" and its heritage as an international leader in the delivery of services in health care and related facilities. It is the combination of these influences that has guided the development of the foundation curriculum, professional concentrations, 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 social work professionals who will possess the knowledge, values, and skills to equip them for a dedicated life of advanced practice in health and mental health institutions and agencies.

GOALS

The social work faculty assert the following program goals:

1. To concentrate its resources toward the development and deployment of quality graduate social work education that supports the common knowledge, values, and skills of the profession.
2. To express through its curriculum and selection of faculty, respect and appreciation for the needs and concerns of diverse cultural, racial, and ethnic groups; the oppressed; and special populations.
3. To express through its curriculum and selection of faculty, emphasis on international and behaviorally specific programs that are part of the larger institution's orientation.
4. To focus its responsive efforts to meeting the educational needs of social work in health and mental health institutions and agencies in the surrounding vicinity, specifically addressing the high rates of poverty, infant mortality rates, and underutilization and access to health and mental health services.
5. To develop and advance its collaborative relations with practice, policy, research, and instructional health and mental health care institutions and agencies within the surrounding vicinity.

6. To dedicate its assets in faculty and facilities to foster research and knowledge development in an effort to create, examine, and diffuse information with social work and allied profession.

7. To dedicate its assets in faculty scholarship and practice for the creation of advanced curricula in health and mental health with concentrations in a) advanced clinical practice; and b) policy, planning, and administration.

8. To permit programmatic change in response to information obtained through the program's avenues of continuous renewal.

9. To provide and integrate in the foundation and advanced curricula substantive content and applications in social work research as to reflect contemporary issues, students' practicum experiences, and students' future needs for knowledge and skill for the assessment and renewal of effective practice, policies and programs.

FACULTY

BEVERLY J. BUCKLES, M.S.W. Eastern Washington University, D.S.W. Adelphi University 1989
Chair; Professor of Social Work

DONNA L. FRANKLIN, M. S. W. University of Southern California 1973, Ph.D. University of Southern California 1982
Professor of Social Work

IGNATIUS I. YACoub, Ph.D. Claremont Graduate School 1976
Professor of Management and Administration

CRAIG R. JACKSON, M.S.W. Wayne State University 1976; J.D., Western State University College of Law 1993
Associate Professor of Social Work

DIANNA SIMON, M.S.W. University of California at Berkeley, Ph.D. University of Southern California 1993
Associate Professor of Social Work

TERRENCE J. FORRESTER, M.S. University of Louisville 1979
Assistant Professor of Social Work

G. VICTORIA JACKSON, M.S.W. University of Michigan 1972
Assistant Professor of Social Work

SUSIE LORING, M.S.W. Michigan State University 1988
Director of Field Education; Assistant Professor of Social Work

MASTER OF SOCIAL WORK

Prerequisite preparation

Graduate social work education builds on a broad liberal arts (general education) foundation. Consistent with this view, the program assesses the liberal arts foundation of students applying to the M.S.W. degree program from two perspectives:

1) Course work (minimum of one course) that provides students with foundation concepts and/or skills in each of the following:

	(quarter units*)
Interviewing and counseling	(3)
Human biology: the interrelatedness of human biology and social functioning	(3)
Human growth and development	(3)
Crosscultural issues	(3)
Computer literacy (Windows)	(1.5)
Introductory statistics	(3)

2) A balance of course work in four liberal arts areas:

Humanities (e.g., history, philosophy, literature, art, music, etc.)	(20-24)
English and communication skills (e.g., oral and written communication media, etc.)	(8-12)
Mathematics and natural sciences (e.g., mathematics, human biology, physiology, etc.)	(12-16)
Social sciences (e.g., psychology, sociology, anthropology, human development, ethnic studies, economics, political science or government, etc.)	(12-16)

*Units values represent quarter system of measurement.

Students not meeting the minimum number of units in any of the foregoing areas are required to complete additional course work before beginning the program.

Admissions Requirements

The admissions requirements for the Master of Social Work are:

G.P.A. 3.0

Structured interview
and

GRE or Millers Analogies Test
or

Two years related paid-work experience.

Individuals for whom the M. S. W. degree may not be an appropriate option may be admitted into the postbaccalaureate certificate program in case management, available beginning in the 1998-99 academic year.

Curriculum

The 78-unit curriculum of the M.S.W. degree program provides the mix of academic, experiential, and research experiences essential for M.S.W. degree students.

General overview

The program begins with the PROFESSIONAL FOUNDATION content (first-year courses) common to all graduate social work education. Courses during this first year of study are divided into five professional areas: human behavior in a crosscultural environment, social welfare policy and services, practice theory and skills, social research, and field practicum. These five areas are strengthened by the integration of social work values and ethics, as well as knowledge of special populations (i.e., issues of gender, race, class, disability, and oppression).

The advanced curriculum of the program is divided into four subdivisions.

1. The first of these, CONJOINING CURRICULUM AND PROCESSES, serves as an integrative bridge, furthering the infusion of the first year's foundation underpinnings with the program's advanced curriculum.
2. The ADVANCED CURRICULUM NUCLEUS, includes course work common to all second-year students.
3. The third subdivision is represented by the core courses of two concentrations:
 - a) the CONCENTRATION CORE: CLINICAL PRACTICE; and b) the CONCENTRATION CORE: POLICY, PLANNING, AND ADMINISTRATION.
4. The last division of the advanced curriculum is referred to as the CULMINATING CURRICULUM AND PROCESSES. This subdivision serves as a capstone academic experience, facilitating the final stage of reflection and review in the development of a scholar-practitioner.

Each of these curricular subdivisions articulates through the progressive presentation and integration of knowledge, practice roles, and intervention modes of the depth and breadth of proficiency expected in advanced practice within health and mental health.

PROFESSIONAL CONCENTRATIONS IN HEALTH AND MENTAL HEALTH

The Social Work Program offers two concentrations for professional practice, which are the focus of the second-year study: clinical practice; and policy, planning, and administration:

Clinical practice concentration

The clinical practice concentration requires mastery of advanced practice roles, modes of intervention, and methods used in clinical health and mental health settings. Study is required regarding the integration of clinical practice theories, diagnostic assessment, problem-solving skills and techniques; as well as the impact of policy upon the availability of treatment, treatment modalities, and expectation of outcomes.

Students' experiences and knowledge are expanded through the selection of practicum sites and electives concerning special population and problem areas. These include, but are not limited to, children-at-risk, geriatric dilemmas, mental disorders, substance abuse, and family conflict. The integration of cultural diversity as a factor guiding the analysis and intervention with clinical populations is incorporated in the totality of the concentration.

Policy, planning, and administration concentration

The policy, planning, and administration concentration represents a specialized study designed to prepare students for management roles in health and mental health care organizations. As such, this concentration focuses on providing students with an understanding of and the skills for: 1) interdisciplinary practice; 2) systems establishment and maintenance to assist individuals, families, and groups managing health and illness in context of the life cycle; 3) social change promotion in health and mental health care organizations; and 4) health and mental health policy analysis. In this way, students have an opportunity to integrate and explore health and mental health practices and policies from their underlying value base, and to explore the impact of cultural definitions on health, illness, and systems designs.

CENTRAL ACADEMIC EXPERIENCES AND PROCESSES

Field practicum

Field practicum is regarded as an integral part of the M.S.W. degree program because it offers an opportunity for students to integrate and apply theoretical and research knowledge with social work practice and intervention 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 generic to advanced social work practice.

Emphasis during the foundation practicum (540 hours) is placed on achieving generic social work knowledge, values, and skills, including developing rapport with agency personnel and clients, acquiring interviewing skills, and obtaining beginning-level psychosocial assessment and intervention capabilities. Content of the concurrent seminar further supports this perspective as it provides students with opportunities to integrate their practicum experiences with their developing professional identity.

Second-year practicums (660 hours) reflect students' choice of concentration and provide the depth and breadth of learning opportunities underpinning the acquisition of advanced practice capabilities. More specifically, advanced practicum experiences are expected to promote increased insight and understanding of agency and/or client systems as these build on the professional foundation skills achieved during the students' first year of study.

Research

The M.S.W. degree program may include completion of an individually authored thesis or completion of course work in applied research. These study options aim to develop knowledge for the advancement of social work practice and to 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 Graduate School and the department.

Academic review process

At the end of the first full year, students are required to successfully complete a qualifying examination. The intents of this process are to: 1) assist faculty in assessing students' individual strengths and areas for improvement, 2) provide feedback to students, 3) promote an environment of students' individual self-evaluation, and 4) heighten participation in students' individualized academic development. When all but 12 units of core course work are completed, students are eligible to take the program's culminating final review. This oral presentation of the students' individualized objectives and professional development during their second year of study is seen as the capstone of their academic experience, facilitating the final stage of reflection and review in the development of a scholar-practitioner.

Program options—full- and part-time models

Alternate program options have been designed to address the varying needs of students. As such, the program offers, a full-time two-year option, a three-year part-time option and a four-year part-time option.

Advanced standing

Students are not admitted into the M.S.W. degree program with advanced standing. Rather, the advanced standing recognizes the accomplishments in knowledge and skills of individuals who have received a baccalaureate degree from an accredited social work program. This recognition assumes that advanced standing candidates have the possibility of meeting the proficiency outcomes expected of M.S.W. degree students completing the foundation curriculum. As such, advanced standing candidates are eligible for waiver of up to 21 course units of first-year course work and 320 hours of first-year field practicum. The curriculum for students who are granted advanced standing spreads across two academic years. This allows students an appropriate time frame for completion of the thesis or advanced research course work and for socialization into the profession, as well as opportunity to take advantage of the rich interdisciplinary options available at Loma Linda University. Note: Students are not allowed to waive foundation courses where content is required by California state law. In addition, students who demonstrate difficulty in the application of foundation skills in their practicum (regardless of receipt of advanced standing designation) may have previously granted course waivers revoked or denied.

Transfer students

Individuals transferring from other accredited M.S.W. degree programs may transfer units for didactic course work in accordance with University policy. Field practicum experiences are nontransferable.

PROGRAM OF STUDY REQUIRED COGNATES

(required of all students)

- | | |
|------------------------------------|-----|
| RELE 522 Bioethics for Social Work | (4) |
| GSCJ 515 Graduate Research Writing | (2) |

PROFESSIONAL FOUNDATION

(required of all students)

(*Indicates students graduating from an accredited B.S.W. degree program are eligible to waive this course.)

Sequence I—Human Behavior and Crosscultural Environment

- | | |
|--|------|
| SOWK 511 Human Behavior in a Crosscultural
Environment I | (3)* |
| SOWK 512 Human Behavior in a Crosscultural
Environment II | (3)* |

Sequence II—Social Welfare Policy and Services

- SOWK 515 Social Policy I (3)*
- SOWK 615 Social Policy II (3)*

Sequence III—Social Research

- SOWK 547 Research Methods I (3)
- SOWK 549 Research Methods II (3)

Sequence IV—Practice

- SOWK 517 Foundation Practice I: Individuals (3)*
- SOWK 518 Foundation Practice II: Groups (3)*
- SOWK 519 Foundation Practice III: Organizations and Communities (3)*
- SOWK 520 Foundation Practice IV: Families (3)
- SOWK 671 Foundation Practice V: Social Work Administration (3)

Sequence V—Field Practicum

- SOWK 500 Professional Colloquium (10 hours)*
- SOWK 578 Field Orientation (1)
- SOWK 587 A, B, C Field Practicum and Seminar (180, 180, 180 = 540 total practicum hours: required for all students)

QUALIFYING EXAMINATION

CONJOINING CURRICULUM AND PROCESSES

(required of all students)

- SOWK 613 Human Behavior in a Crosscultural Environment III (3)
- SOWK 660 Advanced Theory and Practice for Working with Ethnically Diverse Clients (3)
- SOWK 682 Legal and Ethical Aspects of Health and Mental Health (3)

ADVANCED CURRICULUM NUCLEUS
(required of all students)

- SOWK 600 Advanced Professional Colloquium (10 hours)
- SOWK 687 A, B, C Advanced Practicum and Seminar (220, 220, 220=660 total practicum hours: required for all students)
- SOWK 695 A, B, C Advanced Research Methods (2, 2, 2)
- or
- SOWK 697 Applied Research (2, 2)
- and
- SOWK 698 Thesis (2)

CONCENTRATION CORES

Students take courses in one of the following concentrations:

CLINICAL PRACTICE

- SOWK 661 Time-Limited Services and Interventions (3)
- SOWK 663 Advanced Social Work Practice with Individuals (3)
- SOWK 665 Advanced Social Work Practice with Groups (3)
- SOWK 667 Advanced Integrative Practice (3)

POLICY, PLANNING, AND ADMINISTRATION

- SOWK 676A Human Resources Planning and Development Seminar (3)
- SOWK 672 Advanced Practice in Organizations and Systems (3)
- SOWK 673 Program Planning and Evaluation (3)
- SOWK 683 Advanced Policy Analysis (3)

CULMINATING CURRICULUM AND PROCESSES

(required of all students)

- SOWK 675 Supervision (3)

CULMINATING REVIEW

SELECTIVE COURSES

(8 units required)

Note: Students (including those in the child welfare track) may take one 2-unit elective outside of the Department (within the University). Students choosing this option must have their selection approved prior to registration to assure it supports their concentration (or the required child welfare competencies).

Population groups

- SOWK 650 Treatment with Children and Adolescents in Trauma (2)**
- SOWK 652 Social Problems within Minority Populations (2)**
- SOWK 653 Interventions with Special-Needs Children (2)
- SOWK 654 Therapeutic Interventions with Older Adults (2)**
- SOWK 658 Children's Psychotherapy (2)
- SOWK 659 Interventions with the Chronically Mentally Ill (2)**
- SOWK 666 Women's Clinical Issues and Treatment (2)**
- SOWK 668 Men's Clinical Issues and Treatment (2)**
- SOWK 669 Child and Adolescent Clinical Issues and Treatment (2)

Problem areas

SOWK 649 Social Work and Health Care	(2)
SOWK 651 Health Care Interventions with High-Risk Families and Communities	(2)
SOWK 656 Religion and Spirituality in Direct Practice	(2)
SOWK 674 Fiscal and Information Management	**
SOWK 676B Human Resources Planning and Development Seminar	(1)
SOWK 680 Children and Families Policies and Services	(2)
SOWK 681 Health and Mental Health Policies and Services	(2)
SOWK 684 Advanced Policy Project	(2)**
SOWK 685 International Environment of Social Welfare	(2)

**Courses offered as special sessions dependent on students' interest and minimum enrollment.

TOTAL DEGREE UNITS (78)

PRACTICUM HOURS (1200)

COLLOQUIUM HOURS (20)

COURSES

GSCJ 515 Graduate Research Writing (2)
Provides skills for critical writing, including organization, development of idea, and presentation of conclusion. Develops skills that will be applicable to the preparation of term papers in the students' disciplines. Course may be challenged through successful passing of a test designed to assess critical writing skills.

SOWK 500 Colloquium (10 colloquium units)
Seminar of selected topics on contemporary social work issues and social issues affecting the delivery of social work services. (Program handbook outlines method of verifying attendance.)

SOWK 511 Human Behavior and Crosscultural Environment I (3)

The first of a three-part sequence which provides the basis for understanding human development and life transitions throughout the life span within an ecological perspective. Orients the student to the generalistic, social work approach to understanding human behavior in a crosscultural context. Focuses on normal behavior from birth through adolescence.

Prerequisite: Program prerequisites in human growth and development, human biology concepts, and crosscultural issues.

SOWK 512 Human Behavior and Crosscultural Environment II (3)

The second course in the three-part sequence. Explores the dynamic of human behavior from young adulthood to senescence, as affected by and expressed in a Crosscultural context. Provides a foundation of knowledge on which to build social work practice skills.

Prerequisite: Program prerequisites in human growth and development, human biology concepts, and crosscultural issues.

SOWK 515 Social Policy I (3)

Orientation to the beliefs, values, and historical foundations of the social work profession. Emphasis on examining societal, professional, and crosscultural perspectives and contradictions as these have influenced the development of contemporary social policies and services.

SOWK 517 Foundation Practice I: Individuals (3)

The first of the practice sequences. Provides the foundation for generic social work practice as it emphasizes an ecological systems approach within a crosscultural context. Provides knowledge of social work principles, ethics, and values that assure a professional approach to individual client needs arising from an assessment of personal and social issues and problems. (Students must take this course before or concurrent with social work practicum.)

SOWK 518 Foundation Practice II: Groups (3)

The second of the practice sequence. Focuses on introducing the student to group work methods. Emphasizes differentiation among the types of individuals, situations, and presenting problems best served by group interviews.

SOWK 519 Foundation Practice III: Organizations and Communities (3)

The third of the practice sequence. Incorporates generic concepts of the generalists' approach in organizational and community settings. Provides knowledge and understanding concerning group formation and empowerment. Assists the student in understanding him-/herself as a member of, and an active participant in, community organizations and institutions.

SOWK 520 Foundation Practice IV: Families (3)

The fourth class of the practice sequence. Provides students with an introduction to 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 547 Research Methods I (3)

Reviews the quantitative and qualitative methodological techniques used in designing and analyzing social work research and practice. Primary emphasis placed on preparing students for practice evaluation.

Prerequisite: Introduction to computing and an introductory statistics course.

SOWK 549 Research Methods II (3)

Provides students with a didactic laboratory exploration of computer-based statistical analysis. Includes review of statistical techniques such as correlation, chi-square, analysis of variance, and multiple regression. Primary emphasis placed on using and interpreting statistics most common to research designs employed in social work research and practice evaluation.

Prerequisite: Introduction to computing, introductory statistics, and SOWK 547.

SOWK 578 Field Orientation (1)

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.

Prerequisite: PSYC 414.

SOWK 587 A, B, C Field Practicum and Seminar (180, 180, 180)

Provides students with experiential learning opportunities in foundation social work practice. Students placed at practicum social work sites, as determined by the program's director of field education. Students complete 180 hours for each of three consecutive quarters. Note: 20 hours of each quarter's practicum time is spent in a required concurrent seminar designed to intensify students' acquisition of skills and their professional development.

SOWK 595 Professional Development Tutorial (2)

Tutorial course work 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 are enrolled in the course as a result of a corrective action plan developed with the Department of Social Work's Academic Standards Committee.

SOWK 600 Advanced Colloquium (10 colloquium units)

Advanced seminars on contemporary topics in social work affecting the delivery of services. Second-year students select colloquia to attend which are related to their designated concentration. (Program handbook outlines method of verifying colloquia attendance.)

SOWK 613 Human Behavior and Crosscultural Environment III (3)

Third course in a three-part sequence. Presents more complex definitions of dysfunction. Encourages appreciation for sensitivity to the associated needs and issues of affected populations. Facilitates increased application and respect for social work values, policies, and ethics.

Prerequisite: SOWK 511, 512.

SOWK 615 Social Policy II (3)

Second course of the social policy sequence. Emphasizes the structure and processes of social programs, and reviews methodologies for the analysis and development of social policies as applied to social welfare programs. Addresses the professional values and ethics of social change through political and social action.

Prerequisite: SOWK 515.

SOWK 649 Social Work and Health Care (2)

Considers the physiological, psychological, and social components of various illnesses/conditions encountered in health care settings—themes include: the effect of these components on social functioning or rehabilitative and habilitative processes; the common psychological reactions of people to medical treatment; the medical team's respective roles and value orientation, and the impact of these on the patient and his/her family; and issues of loss and death. Special attention given to interventions specific to health care settings versus those of traditional agencies, and to methods appropriate to interdisciplinary practice.

SOWK 650 Children and Adolescents in Trauma (2)

Provides students with a comprehensive understanding of assessing, intervening with, and treating children and adolescents experiencing trauma. Most common traumatic events to be examined are those associated with sexual abuse, life threatening conditions, and severe familial disruption. The processes of assessing and diagnosing the source and severity of commonly associated behaviors, conduct, and mood disorders examined. Explores applicable intervention and treatment strategies.

SOWK 651 Health Care Interventions with High-Risk Families and Communities (2)

Special health care needs of high-risk populations (including the poor, ethnic and racial minorities, recent immigrants, and children in high-risk environments). Primary causes of poor health among these groups, and development of realistic goals and strategies for responding to health care systems. Social work's role in the development of interdisciplinary community health care systems services reviewed.

SOWK 652 Social Problems within Racial and Ethnic Minority Populations (2)

Overview of the most significant social problems affecting racial and ethnic minority populations. Focuses initially on examining the interactive nature of environmental stresses and successful functioning. Further emphasis placed on the unique practice role of social work in structuring interventions and culturally appropriate treatment approaches.

SOWK 653 Interventions with Special-Needs Children (2)

Focuses on practice with children and families in relationship to environmental stability. Attention given to examining how the physical and mental health of children are directly associated with family and environmental permanency. Emphasizes development of parental and social support capacities, as well as the requisite professional knowledge and skills to help children deal with identity issues and concerns of joining a new family. Addresses the impacts of race, ethnicity, gender, economic deprivation, physical illness, and disability.

SOWK 654 Therapeutic Interventions with Older Adults (2)

Designed to integrate the theories and practice skills needed for effective practice with older adults and their families. Focuses both on the significance of the older client's history as well as the influences of race, ethnicity, and gender on behavior within the clients environmental context. Assessment and intervention methods which bridge health and mental health services emphasized. Examines service delivery and case-management systems, as well as individual, family, and small-group intervention approaches.

SOWK 656 Religion and Spirituality in Direct Practice (2)

Acquaints students with predominant theories regarding religion and spirituality from the "person-in-the-situation" perspective. Theoretical orientations include psychodynamic, philosophical, and sociocultural. Examines the implications of these theories in terms of their impact on professional practice.

SOWK 658 Children's Psychotherapy (2)

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. Discussion of diagnosis, phases of treatment, and special communication issues. Research, ethical, and value issues addressed.

SOWK 659 Interventions with the Chronically Mentally Ill (2)

Provides students with an understanding of theories and techniques of direct interventions useful in helping those with major mental disorders to cope with their illnesses and aspects of their life situations. Topics include dangerous behavior, acute psychotic episodes, definitions of long-term chronic disability, enhancing social skills and social support systems, case management, and the interaction of medication and social functioning.

SOWK 660 Advanced Theory and Practice with Ethnically Diverse Clients (3)

Theories and concepts of ethnicity explored, with particular focus on their usefulness for understanding ethnic diversity in psychosocial functioning. Examines norms, values, and adaptive coping styles; generational and gender issues in the formation of

ethnic identity; the impact of social, political, and economic deprivation on development; attitudes toward health and mental health; degrees of acculturation; styles in the use of help; and other patterns. Students explore their own ethnicity-related styles and identities as well as the potential "fit" between worker and client values and beliefs. Students learn how to apply ethnicity concepts in case situations, including the exploration of ethnic factors in the assessment of functioning and in the development of the therapeutic relationship. Particular attention given to practice with people of color and recent immigrants. Prevailing models of social work practice critically examined in terms of their sensitivity to issues of ethnic diversity.

SOWK 661 Time-Limited Services and Interventions (3)

Examines the rationales and assumptions of brief treatment, presenting the techniques and strategies of time-limited services as compared with extended models of treatment. Examines the nature and characteristics of crisis versus traumatic events for their long-term effects on psychosocial functioning. Continuum also examined as it guides assessment, treatment modalities and settings, and interdisciplinary interactions.

SOWK 663 Advanced Social Work Practice with Individuals (3)

Focuses on developing students' knowledge and skills in advanced clinical social work with individuals. Classification, evaluation, and diagnosis of the psychiatric disorders described in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Emphasis placed on diagnostic and psychosocial evaluation, psychiatric epidemiology, genetic factors in mental illness, and the major categories of drugs used in treating psychiatric disorders.

SOWK 665 Advanced Social Work Practice with Groups (3)

Deepens knowledge of group processes and treatment. Through lecture, discussion, use of case material, and experiential learning in the classroom, the group is examined for its therapeutic impact on individual members. Emphasizes assessment and interventional skills in relation to the development of the group and to the ego functioning of individuals in therapeutic groups.

SOWK 666 Women's Clinical Issues and Treatment (2)

Presents students with the major psychosocial considerations and modalities applicable for working with women in clinical settings. Racial, ethnic, and political-economic issues addressed.

SOWK 667 Advanced Integrative Practice (3)
Provides students in the clinical concentration an opportunity to deepen their knowledge and integration of advanced theories and treatment modalities. Emphasis placed on developing students' skill in selecting practice methods appropriate for working with client populations presenting complex, multidimensional considerations for diagnosis and treatment. Special attention given to furthering students' appreciation for practice evaluation and interdisciplinary interactions as guided by an "autonomy in collegiality" perspective. Underscores the responsibilities of clinical social workers to anticipate and respond to social, political, and other environmental factors changing the nature and availability of services.

SOWK 668 Men's Clinical Interventions and Treatment (2)

Focuses on psychosocial issues faced by men, which have implications for clinical interventions. Attention given to appreciating the influence of life stage, role definitions, race, ethnicity, and gender orientation. Focuses on the psychosocial, emotional, economic, and familial impact of health-status change (including chronic illness, disability, and AIDS).

SOWK 669 Child and Adolescent Clinical Issues and Treatment (2)

Explores the use of creative and expressive techniques as alternatives to traditional assessment and intervention methods used with children and adolescents in medical, mental health, and other community-intervention settings. Students gain knowledge and skill in the use of play therapy, art therapy, programmed writing, and other expressive intervention techniques.

SOWK 671 Foundation Practice V: Social Work Administration (3)

Provides macro practice knowledge, skills, and perspectives of administrative practices with which to develop, support, and maintain effective service delivery. Topics include role identification and development, 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 672 Advanced Practice in Organizations and Systems (3)

Explores the complexities of large organizations and bureaucratic systems. Examines formal and informal structures, communication patterns, and philosophical approaches as these affect the effectiveness and efficiency of services delivery, worker motivation, resource procurement and allocation. Accomplishes the objectives of the course through the application of diverse organizational and diffusion theories and perspectives as a means to increase students' understanding of their practicum experiences in the policy, planning, and administration concentration.

SOWK 673 Program Planning and Evaluation (3)

Introduces 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. Integration of the course focus takes place through the development of a comprehensive program proposal for the students' practicum agency or other identified community group.

SOWK 675 Supervision (3)

Examines the supervisory process in relation to clinical, administrative, educational, and supportive functions. Emphasizes supervisory knowledge, skills, and techniques necessary for the development of staff capable of functioning creatively and independently.

SOWK 676 A Human Resources Planning and Development (3)

Examines the complexities of human-resources management in large organizations and/or with diverse employee populations. Strengthens students' knowledge and professional decision-making relative to the implementation of federal, state, and local policies (i.e., affirmative action, nondiscrimination, sexual harassment, etc.). Permission of instructor required for students not in the policy/administration concentration.

SOWK 676 B Human Resources Planning and Development Seminar (3)

Selective course taken to supplement SOWK 676 A deepens students' exposure to leading edge discussions on the legal and ethical aspects of human resources management and contemporary issues affectin morale and productivity in today's work environments (e.g., familial dysfunction of employees, single-parent families, care-provider roles of employees, and co-worker violence). Learning is supported through guest speakers and panel discussions. Permission of instructor is required for students not in the policy/administration concentration.

SOWK 677 Integrative Practicum (220 hours)
Provides the parallel practicum experience for SOWK 678. Students placed at practicum sites, as determined by the program director of field education. Students' successful completion of this one quarter (220 hours) of integrative practicum experience is viewed as further evidence of their appropriateness to receive the advanced standing designation and to progress to SOWK 687.

SOWK 678 Integrative Seminar (2)

Required of students with advanced standing. Designed to provide a bridge quarter to integrate the B.S.W. degree experience with the second year of the M.S.W. degree program. Emphasizes reviewing the knowledge, values, and skills of generic social work practice; and defines the additional competencies required for advanced practice. Assists instructor and students in identifying and addressing individualized needs for further development, including application of professional ethics and judgment, use of self as a therapeutic tool, and self-awareness. At the culmination of this course, students also formulate conceptual and experiential learning objectives for their second year of study.

SOWK 680 Children and Families Policies and Services (2)

Designed to provide students with an understanding of the major social policy issues affecting the current organization and delivery of human services for children and families. Analysis of 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 Health and Mental Health Policy and Services (2)

Provides a conceptual understanding of the development and organization of the health and mental health systems within institutional and community-based settings as they stem from national and local policy perspectives. Consideration of major issues dealing with the economics of health, health planning, and health legislation. Review of health and mental health programs based on selected cross-national comparisons.

SOWK 682 Legal/Ethical Aspects in Health/Mental Health (3)

Focus on those instances when legal mandates or concerns interact with and affect the practice of social work. Overview of the sources of legal authority, the judicial system, and the legal standards applicable to particular proceedings. Examines the legal implications of the social worker/client relationship. Specific emphasis placed on consent to treatment. Examines the statutes and judicial decisions that govern the confidentiality implicit in a social worker/client relationship. Examines the statutes and judicial decisions which permit or place an obligation on social workers to breach client confidentiality. Course content explored in the context of common and high-risk situations.

SOWK 683 Advanced Policy Practice (3)

Deepens students' understanding of both the conceptual and analytical requirements of policy analysis through the integration of behavioral, political, economic, and sociometric frameworks for understanding human conditions. Students gain experience in structuring and defining policy problems, establishing criteria for policy choices, mapping alternative strategies, and applying appropriate analytical and research methods to policy questions. Use of cost-benefit analysis, cost-effectiveness analysis, and decision analysis as means toward developing formal augmentation toward sustained change.

SOWK 684 Advanced Policy Projects (2)

Understanding of the interconnections between politics, policy-making, and policy analysis enhanced 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 687 A, B, C Advanced Practicum and Seminar (220, 220, 220)

Provides students with advanced social work experience in their selected concentration. Advanced practicums are assigned by the program's director of field education. Students complete 220 hours for each of three consecutive quarters. Note: 20 hours of each quarter's practicum time is spent in a required concurrent seminar designed to intensify students' acquisition of skills and their professional development.

Prerequisite: Successful completion of SOWK 578; SOWK 587 A, B, C (SOWK 676, 677 for advanced-standing students).

SOWK 695 A, B, C Advanced Research Methods (2, 2, 2)

A three-quarter, sequential course that supports students choosing to advance their knowledge through the examination and application of a broad spectrum of research methods used in professional practice settings. Course work combines didactic course work with laboratory experiences integrated into the student's advanced practicum in which the student makes use of the identified research designs and techniques. Emphasis placed on developing student's ability to differentiate and apply the most appropriate and widely used research designs and methods at the micro, mezzo, and macro levels of practice, i.e., qualitative versus quantitative or combined formats. At each level attention is given to preparing the student to work with the increasing federal and state requirements for demonstrating intervention effectiveness.

SOWK 697 Applied Research (2, 2)

Course 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.

SOWK 698 Thesis (2)

Thesis represents the culminating work of the students' independent research. Students register for thesis during the quarter in which they defend their research and submit their final document to the department and Graduate School. As with all other components of the research process, students receive direction through this process from their research adviser.



SPEECH-LANGUAGE PATHOLOGY

JEAN B. LOWRY, Ph.D. Kent State University 1973

Chair and Program Coordinator; Professor of Speech-Language Pathology and Audiology
Phonology, fluency disorders

The purposes of this graduate program are to offer preparation for careers in the professional practice of speech-language pathology, to provide a basis for graduate study and research at a more advanced level, and to encourage the development of capacity for independent growth. The courses are designed to increase understanding in the basic sciences of communication; to develop competence in the practice of speech-language pathology and audiology; and to promote a sense of responsibility toward the speech, language, and hearing handicapped and toward the community.

The clinical services of the Department of Speech-Language Pathology and Audiology, Loma Linda University Medical Center, and affiliated facilities provide opportunity to obtain breadth of experience in a variety of settings. Study in related disciplines at the advanced level is available through course offerings in the professional schools of the University and in the Graduate School.

FACULTY

KEIKO I. KHOO, M.S., M.A. Loma Linda University GS
1979

Associate Professor of Speech-Language Pathology
and Audiology

Diagnostic and rehabilitative audiology

JEAN E. MAKI, Ph.D. Michigan State University 1975

Associate Professor of Speech-Language Pathology
and Audiology

Speech and hearing science, deafness

MARCIA C. HILL, M.A. Western Michigan
University 1984

Assistant Professor of Speech-Language Pathology and
Audiology

Stroke, traumatic brain injury

PAIGE S. SHAUGHNESSY, Ph.D. University of Utah
1985

Assistant Professor of Speech-Language Pathology and
Audiology

*Aphasia, traumatic brain injury, multicultural
studies*

LISA R. STERLING-OLSON, M.S. University of
Wisconsin at Madison 1988

Assistant Professor of Speech-Language Pathology and
Audiology

Child language disorders, diagnostics

SUSAN A. STEFFANI, Ph.D. University of Oregon 1992

Assistant Professor of Speech-Language Pathology and
Audiology

Child language disorders, multicultural studies

CLINICAL FACULTY

MELISSA K. BACKSTROM, M.S. University of
Redlands 1987

Clinical Instructor in Speech-Language Pathology and
Audiology

Stroke, dysphagia

LINDA M. DYE, M.A. Ohio University 1984

Clinical Instructor in Speech-Language Pathology and
Audiology

*Diagnostic audiology, aural rehabilitation,
cochlear implants*

GARY A. LUCAS, M.S. Vanderbilt University 1974

Clinical Instructor in Speech-Language Pathology and
Audiology

Traumatic brain injury, voice

DAVID G. MCGANN, M.S. Colorado State
University 1973

Clinical Instructor in Speech-Language Pathology and
Audiology

Diagnostic audiology

ELIZABETH A. PIOLI, M.A. Indiana University 1973

Clinical Instructor in Speech-Language Pathology and
Audiology

Stroke, traumatic brain injury

JULIA. SPILLER, M.S. University of Redlands 1976

Clinical Instructor in Speech-Language Pathology and
Audiology

Stroke, traumatic brain injury, laryngectomy

SPEECH-LANGUAGE PATHOLOGY

Admission

Acceptable undergraduate preparation includes a bachelor's degree in speech-language pathology and audiology or in communicative disorders. Applicants having an undergraduate degree in another discipline are admitted for the first year of prerequisites through the School of Allied Health Professions.

Graduate study in speech-language pathology leads to the Master of Science degree. The program provides opportunity for the graduate (a) to satisfy all academic and clinical requirements for the Certificate of Clinical Competence and the California License in Speech-Language Pathology, or (b) to prepare for doctoral study or careers in related fields.

The program does not offer a master's degree in audiology. Courses and clinical practica are available for students wishing to increase their breadth of knowledge and experience in audiology.

The speech-language pathology program is accredited by the Educational Standards Board of The American Speech-Language and Hearing Association. The program is approved by the Commission for Teacher Credentialing to prepare students for the California Clinical Rehabilitative Services Credential in Language, Speech, and Hearing. This credential is a requirement for working as a speech, language, and hearing specialist in California public schools. Course requirements for the credential vary from those listed for the degree. Credential requirements may be obtained by contacting the department. The student's undergraduate course work must be evaluated in accordance with state of California credential requirements.

The program of study consists of completing (a) required graduate-level courses, (b) supervised clinical practice, and (c) research or comprehensive examinations.

Students completing both the degree and requirements for the California Clinical Rehabilitative Services Credential will complete 45 academic units and 6 units of student teaching.

DEGREE REQUIREMENTS

The following are requirements for the Master of Science degree specific to this program:

1. A minimum of one quarter in residence as a graduate student.
2. A minimum of 48 quarter units of graduate credit, including: SPPA 524, 535, 544, 554, 564, 575, 576, 577, 585, 586, 587, 598, 679, 682, 684, 685, 687, and 688; also religion (one course for a minimum of 3 units).
3. Evidence that the student has completed 350 clock hours of supervised clinical practice, including 250 clock hours at the graduate level. Transfer students who have met the

clinical experience requirements for certification must complete an additional 50 clock hours of practicum.

4. Master's thesis/project or comprehensive examinations.
5. For thesis or project, demonstrated working knowledge of statistics or successful completion of a graduate statistics course.

Option A: Research

Option A requires completion of 1-6 units of SPPA 698 Thesis and an oral examination; or completion of 2-4 units of SPPA 697 Research and an oral presentation of research. Typically, a student will complete a total of 6 units of thesis and/or research.

Option B: Comprehensive examinations

Option B requires completion of written comprehensive examinations.

GENERAL REQUIREMENTS

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations section of the Graduate School BULLETIN.

COURSES

SPPA 524 Language Disorders of Children, Advanced (3)

Lectures and discussions dealing with assessment and management of the preschool, primary, and adolescent school-age child with language disabilities. A study of the classic and contemporary literature relating to differential diagnosis and therapeutic procedures. Consideration given to language disabilities of childhood, learning disabilities, autism, and mental retardation.

SPAA 535 Voice Disorders (3)

Discussion of 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.

SPAA 544 Cleft Palate (3)

Focuses primarily on diagnostic and intervention techniques used by the speech language pathologist. Emphasizes functioning of a craniofacial team; and the interaction of professionals in the areas of medicine, surgery, orthodontia, prosthetics, genetics, dentistry, social work, psychology, and speech-language pathology.

SPPA 554 Swallowing Disorders (3)

Lecture and discussion of the speech-language pathologist's role in the diagnosis and treatment of swallowing disorders in children and adults. Ethical and cultural issues also addressed. Emphasis on analysis of current literature and clinical applications. Selected laboratory experiences.

SPPA 564 Aural Rehabilitation and Hearing Aids (3)

Study of the mechanisms for achieving hearing rehabilitation, including amplification, speech reading, auditory training, hearing-aid orientation, and speech conservation. Consideration given to hearing aid function and philosophies of rehabilitation for the hearing impaired (e.g., auditory, aural, manual, and total communication).

SPPA 567 Clinical Practice in Speech-Language Pathology/Audiology, Advanced (1-6)

Supervised practice in diagnosis and therapy. Thirty clock hours required for each unit of credit. Maximum of 6 units of clinical practicum apply toward a major in speech-language pathology and audiology.

Prerequisite: Consent of the supervisor.

SPPA 568 Clinical Practice in Speech-Language Pathology Diagnostics (1-3)

Supervised practice in diagnostics. Study of the principles of diagnostics applicable to communication.

SPPA 575 Instrumentation in Communication Disorders (1)

Lecture, discussion, and laboratory experience in the areas of speech acoustics, speech production and perception, psychoacoustics, and speech and hearing physiology.

SPPA 577 Applied Psycholinguistics (3)

Mental processes underlying the acquisition and use of language. Structure and meaning of language. Perception and cognition.

SPPA 585 Professional Aspects of Speech-Language Pathology and Audiology (2)

Study of the ethical, business, and legal considerations in organizing and administering programs: accountability; record keeping; case selection; case load; supervision; staffing; budgeting; and inter-agency cooperation in schools, clinics, and private practice.

SPPA 586 Advanced Diagnostics in Speech-Language Pathology (3)

Explores the theory underlying clinical evaluation and diagnosis of speech-language pathology. Addresses issues regarding formal/informal evaluation measures, observations, and test interpretation.

SPPA 587 Counseling in Communication Disorders (2)

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.

SPPA 588 Directed Teaching in Speech-Language Pathology (3-6)

Supervised therapy on the elementary and/or secondary level and/or in a classroom for the severely language-handicapped child. (No more than 6 units of clinical practicum applicable toward the master's degree. This includes directed teaching.)

SPPA 596 Workshop in Speech-Language Pathology/Audiology (1-4)

(May be repeated with new content for additional credit.)

SPPA 598 Research Methods and Professional Literature in Speech-Language Pathology (3)

Lecture and discussion designed to facilitate the student's ability to read and interpret professional literature, develop research ideas, and develop professional writing skills.

SEMINARS

The following seminars will analyze the current literature relating to theory, research, and applications within the area of consideration.

Prerequisite: A content course in which the area of consideration has been studied, or consent of the instructor.

- SPPA 679 Seminar: Motor Speech Disorders / Augmentative Communication (3)
- SPPA 682 Seminar: Traumatic Brain Injury (3)
- SPPA 684 Seminar: Adult Language Disorders (3)
- SPPA 685 Seminar: Stuttering (3)
- SPPA 687 Seminar: Open Seminar (2-3)
- SPPA 688 Seminar: Articulation (3)
- SPPA 697 Research (2-4)
- SPPA 698 Thesis (1-6)
- SPPA 699 Directed Study (1-3)

Independent study on a research project selected in consultation with the adviser. 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.

IV

FACULTY OF RELIGION

Statement of Mission

Faculty

Courses

FACULTY OF RELIGION

GERALD R. WINSLOW, Ph.D. Graduate Theological Union, 1979
Dean; Professor of Christian Ethics
Christian Ethics

STATEMENT OF MISSION

The Faculty of Religion is committed to the following four tasks as informed by the teachings and practice of the Seventh-day Adventist heritage and mission:

1. To promote Christian wholeness for faculty and students in their personal and professional lives and witness.
2. To provide a religion curriculum with the following emphases:
 - Foundational Studies (biblical, theological, mission, and historical).
 - Ethical Studies (personal, professional, and social).
 - Relational Studies (applied theology, clinical ministry, and psychology of religion).
3. To foster and support research in the foundational, ethical, and relational disciplines.
4. To serve the University, the church, and the larger world community by personal involvement in fostering deeper spirituality, theological integrity, and social justice.

FULL-TIME FACULTY

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|--|---|
| <p>RANDALL L. ROBERTS, 1994. M.Div. Andrews University 1985; M.A. United States International University 1991; D.Min. Fuller Theological Seminary 1996
Associate Dean and Assistant Professor of Religion
<i>Theology and Ministry</i></p> <p>IVAN T. BLAZEN, 1993. M.A. Andrews University 1958; M.Div. Andrews University 1962; Ph.D. Princeton Theological Seminary 1979
Professor of Religion
<i>Biblical Interpretation and Theology</i></p> <p>MARK F. CARR, 1997. M.A. Andrews University 1990; Ph.D. University of Virginia 1998
Assistant Professor of Religion
<i>Christian Ethics</i></p> <p>DUANE M. COVRIG, 1996. M.A. Loma Linda University 1992
Assistant Professor of Religion
<i>Christian Ethics</i></p> <p>CARLA G. GOBER, 1997. M.P.H., M.S. Loma Linda University PH 1985, GS 1994
Assistant Professor of Religion
<i>Clinical Ministry</i></p> | <p>DAVID R. LARSON, 1974. D. Min. Claremont School of Theology 1973; Ph.D. Claremont Graduate University 1982
Professor of Religion
<i>Christian Ethics</i></p> <p>JOHNNY RAMÍREZ, 1994. M.A. Andrews University 1979; M.Ed. Harvard University 1988; Ed.D. Harvard University 1993
Professor of Religion
<i>Theology, Psychology, and Culture</i></p> <p>RICHARD RICE, 1998. M.Div. Andrews University 1969; M.A. University of Chicago Divinity School 1972; Ph.D. University of Chicago Divinity School 1974
Professor of Religion
<i>Theology and Philosophy of Religion</i></p> <p>DAVID L. TAYLOR, 1995. M.A. Andrews University 1961; D.Min. Vanderbilt University 1977
Professor of Religion
<i>American Religious History and Theology</i></p> <p>LOUIS VENDEN, 1996. M.A. Potomac University 1958; M.Div. Andrews University 1966; Ph.D. Princeton Theological Seminary 1979
Professor of Religion
<i>Theology and Ministry</i></p> |
|--|---|

JAMES W. WALTERS, 1980. M.Div. Andrews University 1970; Ph.D. Claremont Graduate University 1979
Professor of Religion
Christian Ethics

PART-TIME FACULTY

WIL ALEXANDER, 1973. Professor of Religion
Theology and Clinical Ministry
M.A. Andrews University 1957
Ph.D. Michigan State 1962
M.Th. Edinburgh University 1966

ADJUNCT FACULTY

D. LEIGH AVELING. M.A. Loma Linda University GS 1988; M.A. United States International University 1991; D.Min. Claremont School of Theology 1996
Adjunct Assistant Professor
Clinical Ministry

MERLIN D. BURT. M.Div. Andrews University 1989
Adjunct Assistant Professor
American Religious History

LARRY D. CHRISTOFFEL. M.Div. Andrews University 1967
Adjunct Assistant Professor
Christian Theology

M. JERRY DAVIS. M.A. Andrews University 1962; Rel.D. Claremont School of Theology 1967
Adjunct Professor
Clinical Ministry

JAMES GREEK. Adjunct Assistant Professor
M.Div. Andrews University 1975; D.Min. Fuller Theological Seminary 1985
Clinical Ministry

FRED C. KASISCHKE. M.Div. Andrews University 1970; D.Min. Fuller Theological Seminary 1988
Adjunct Assistant Professor
Clinical Ministry and Theology

HENRY H. LAMBERTON. M.Div. Andrews University 1974; Psy.D. Fuller Theological Seminary 1992
Adjunct Associate Professor
Clinical Ministry

WILLIAM A. LOVELESS. M.A. Andrews University 1953; Ed.D. University of Maryland 1964
Adjunct Professor
Christian Ministry

LESLIE N. POLLARD. M.Div. Andrews University 1983; D. Min. Claremont School of Theology 1992
Adjunct Associate Professor
Biblical Studies

RANDALL SKORETZ. M.Div. Andrews University 1983; D. Min. Claremont School of Theology 1996
Adjunct Assistant Professor
Christian Theology and Ethics

SIROJ SORAJJAKOOL. M.A. Andrews University 1987
Adjunct Assistant Professor
Christian Theology and Clinical Ministry

BERNARD A. TAYLOR. M.A. Andrews University 1979; M.Phil. Hebrew Union College 1987; Ph.D. Hebrew Union College 1989
Adjunct Assistant Professor
Theology and Biblical Studies

CHARLES W. TEEL. M.A. Andrews University 1965; M.Th. Harvard University 1970; Ph.D. Boston University 1972
Adjunct Professor;
Christian Ethics

HYVETH B. WILLIAMS. M.Div. Andrews University 198; D.Min. Boston University 1998
Adjunct Assistant Professor
Christian Ministry

EMERITUS FACULTY

DALTON D. BALDWIN, 1963. M.Th. Princeton Theological Seminary 1963; Ph.D. Claremont Graduate University 1975
Emeritus Professor of Theology and Philosophy of Religion

PAUL C. HEUBACH, 1942-52, 1963. LL.D. (Hon.) Walla Walla College 1968
Emeritus Professor of Applied Theology

A. GRAHAM MAXWELL, 1961. Ph.D. University of Chicago Divinity School 1959
Emeritus Professor of New Testament

V. NORSKOV OLSEN, 1974-1984. Ph.D. University of London 1966; Th.D. University of Basel 1968
Emeritus Professor of Church History

JACK W. PROVONSHA, 1958. M.D. Loma Linda University 1953; Ph.D. Claremont Graduate University 1967
Emeritus Professor of Philosophy of Religion and Christian Ethics

WALTER F. SPECHT, 1945-66, 1976. Ph.D. University of Chicago 1955
Emeritus Professor of New Testament

COURSES

FOUNDATIONAL STUDIES

BIBLICAL STUDIES

RELF 559 New Testament Theology (3-4)
Major theological themes found in the teachings of Jesus, Paul, and John.

Additional project required for fourth unit.

RELF 588 Old Testament Theology (3-4)
Major theological concepts of the Old Testament and how these relate to Christian faith and understanding.

Additional project required for fourth unit.

RELF 699 Directed Study (1-6)
Prerequisite: Consent of instructor.

THEOLOGICAL STUDIES

RELF 538 The Doctrine of Humanity (3-4)
The Christian understanding of the nature and destiny of human beings.

Additional project required for fourth unit.

RELF 539 The Doctrine of God (3-4)
Study of the nature and attributes of God, the trinitarian concept of God, and God's relation to the temporal world.

Additional project required for fourth unit.

RELF 557 A Theology of Human Suffering (3-4)
Suffering and evil in relation to the creative and redemptive purposes of God for this world. Formation of the student's theology of human suffering will be of uppermost concern.

Additional project required for fourth unit.

RELF 604 Seminar in Religion and Science (3-4)
Research seminar in the relation between religion and science.

RELF 615 Seminar in Philosophy of Religion (3-4)

Examination of the concept of God, arguments for the existence of God, the relationship of faith and reason, and the nature of religious language.

Additional project required for fourth unit.

MISSION STUDIES

RELR 534 Anthropology of Mission (3-4)
Study of 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.

ETHICAL STUDIES

RELE 522 Bioethical Issues in Social Work (3-4)
Theoretical and practical dilemmas in contemporary biomedical ethics. Emphasis on the distinctive contributions social workers can make to the identification, clarification, and resolution of these dilemmas.

Additional project required for fourth unit.

RELE 524 Christian Bioethics (3-4)
Advanced analysis of ethical issues and options in medicine and related fields. Contributions of Christian thought and life. Topics selected in part by student priorities.

Additional project required for fourth unit.

RELE 525 Ethics for Scientists (3-4)
Ethical presuppositions and obligations of scientific research, particularly in the physical and biological sciences. Identification, clarification and resolution of ethical issues in scientific research, with emphasis on Christian contributions.

Additional project required for fourth unit.

RELE 534 Ethical Issues in Public Health (3-4)
Theoretical and practical appraisals of the ethical issues and alternatives encountered by public health administrators, educators, and investigators.

Additional project required for fourth unit.

RELE 548 Christian Social Ethics (3-4)
Implications of Christian belief for selected problems in social ethical theory and practice.

Additional project required for fourth unit.

RELE 554 Clinical Intensive in Biomedical Ethics I (4-8)

Theories and applications of clinical biomedical ethics.

RELE 555 Clinical Intensive in Biomedical Ethics II (4-8)

Theories and applications of clinical biomedical ethics.
Prerequisite: RELE 554.

RELE 577 Theological Ethics (3-4)
Primary theological legacies of Western culture. Relationships between doctrinal formulations and interpretations of health and healing; possible contribution of each legacy to contemporary therapeutic endeavors.

Additional project required for fourth unit.

RELE 588 Philosophical Ethics (3-4)
Critical analysis of the basic theories propounded in Western philosophical ethics. Study of writings of major ethical theorists, including Plato, Aristotle, Kant, and Mill. Philosophical ethics compared with Christian faith.

Additional project required for fourth unit.

RELE 624 Seminar in Scripture and Ethics (3-4)
Investigation of the ethical contributions of Christian Scripture. In-depth study of various biblical passages that focus on important moral themes.

Additional project required for fourth unit.

RELE 699 Directed Study (1-6)
Prerequisite: Consent of the instructor.
in social ethical theory and practice.

RELATIONAL STUDIES

APPLIED THEOLOGY

RELR 556 Seventh-day Adventist Polity (3-4)
Structure, governance, policies, and procedures of the local church in relation to the worldwide church organization.

Additional project required for fourth unit.

RELR 558 The Theology and Ministry of Worship (3-4)

Exploration of worship theology, leadership, and practice with an overview of current worship trends.

Additional project required for fourth unit.

RELR 559 Church Leadership and Administration (3-4)

Examination of pastoral roles, responsibilities, and duties in the parish setting, including leadership theories, teamwork, networking, planning the church year, and leading the church board.

Additional project required for fourth unit.

RELR 567 Introduction to Pastoral Counseling (3-4)

Overview of theology, history, theory, and practice of pastoral counseling.

Additional project required for fourth unit.

RELR 574 Preaching Practicum in Clinical Ministry (3-4)

Introduction to homiletics. Basic sermon preparation skills, sermon delivery, worship sermons, funeral sermons, and wedding sermons.

Additional project required for fourth unit.

CLINICAL MINISTRY

RELR 524 Clinical Pastoral Education (6-12)
Twelve-week course including supervised experience with patients, lectures by hospital staff, hospital rounds with physicians, seminars and conferences. Five eight-hour days per week. Limited enrollment. Credit earned in this course is recognized by the Association for Clinical Pastoral Education, Incorporated.

RELR 525 Health Care and the Dynamics of Christian Leadership (3-4)

Focus on the components of leadership principles in the practice of health care. Exploration of the imperative of moral leadership in the community, administrative, and clinical setting.

Additional project required for fourth unit.

RELR 527 Crisis Counseling (3-4)

Crisis phenomena, current crisis theory, a Christian model of crisis care, and the dynamics and practices of crisis care.

Additional project required for fourth unit.

RELR 565 Introduction to Ministry in Institutional Settings (3-4)

Study of the biblical and theological foundations for the practice of ministry in institutional settings.

Additional project required for fourth unit.

RELR 568 Care of the Dying and Bereaved (3-4)

Study of the biblical, theological, cultural, relational and psychological aspects of dying and death.

Additional project required for fourth unit.

RELR 575 The Art of Integrative Care (3-4)

Examination of the attitudes and actions of the health care professional relative to personal spirituality and patient witnessing. Facilitates integration of a balanced approach to providing spiritual nurture and witness to patients.

Additional project required for fourth unit.

RELR 577 Practicum in Integrative Patient Care (2-4)

Clinical practicum in which students learn to provide integrative, whole-person care, with special attention to the spiritual needs and resources of patients. An interprofessional approach is followed. (Clinical rotations only.)

RELR 694 Seminar in Clinical Ministry (3-4)

Principles and practice of effective interaction with patients, parishioners, inmates and other populations.

Additional project required for fourth unit.

PSYCHOLOGY OF RELIGION

RELR 564 Religion, Marriage, and the Family (3-4)

The family in theological, historical, and ethical perspectives with a Christian assessment of contemporary theories regarding the family.

Additional project required for fourth unit.

RELR 584 Culture, Psychology, and Religion (3-4)

Introduction to the major contours of Western culture as they relate to various schools of psychological thought and the influence of religious beliefs in their inception. Theological critique of various world views that have guided psychological schools of thought. Topics to be examined include liberalism and modernism; pietism and evangelicalism; Enlightenment and Romantic movements.

Additional project required for fourth unit.

RELR 585 Psychological Study of Religion (3-4)

Psychological research of religion from an eclectic approach. Faith development, ethnographic varieties of religious experiences, narrative analysis, and cross-cultural religious experiences. Students produce research proposals and conduct pilot studies for such research.

Additional project required for fourth unit.

RELR 586 Psychology of Moral and Faith Development (3-4)

Study of logical, moral, and faith reasoning from a cognitive-developmental perspective. How people think about actual choices and conflicts in their lives. How cultural and religious norms affect moral thinking, and how people develop moral and religious thinking as informed by life crises and human experiences.

Additional project required for fourth unit.

RELR 604 Seminar in Psychology of Religion (3-4)

Examination of many areas of the psychological study of religion, with a focus on research and practice.

Prerequisite: A previous course in psychology of religion, or consent of the instructor.

GENERAL RELIGIOUS STUDIES**RELG 504 Research Methods (3-4)**

Examination of the presuppositions and procedures for graduate research in religious studies. Use of libraries and research centers. Ways and means of preparing and presenting term papers, theses, and scholarly articles.

Additional project required for fourth unit.

RELG 696 Project (1-4)**RELG 674 Reading Tutorial (3-4)**

Reading course for graduate students in religious studies. Topics vary depending on student and instructor interests.

Prerequisite: Consent of the instructor.

RELG 697 Independent Research (1-8)**RELG 698 Thesis (1-4)**

V

UNDERGRADUATE PROGRAM

Geology–Bachelor of Science

GEOLOGY—B. S. Degree Program

ROBERT A. CUSHMAN, Jr., Ph.D. Colorado School of Mines 1994
Undergraduate Coordinator; Assistant Professor of Geology
Biostratigraphy, paleopalynology, and invertebrate paleontology

The Department of Natural 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 in interpreting data. Sedimentary geology, paleontology, and environmental geology are areas of emphasis within the department.

FACULTY

LEONARD R. BRAND, Ph.D. Cornell University 1970
Professor of Biology and Paleontology
Vertebrate paleontology, taphonomy

H. PAUL BUCHHEIM, Ph.D. University of Wyoming 1978
Professor of Geology
Sedimentology, stratigraphy, geolimnology

ASSOCIATE FACULTY

CLYDE L. WEBSTER, Ph.D. Colorado State University 1972
Adjunct Professor of Geology
Geochemistry, mass spectroscopy, trace-element modeling

H. THOMAS GOODWIN, Ph.D. University of Kansas 1990
Adjunct Associate Professor of Paleobiology, Andrews University
Vertebrate paleontology, biogeography

BEN CLAUSEN, Ph.D. University of Colorado 1987
Assistant Professor of Geophysics
Nuclear physics, geophysics

DOUGLAS R. BRITTON, Ph.D. University of Wyoming 1997
Adjunct Assistant Professor of Geology, Earth Tech, Inc.
Hydrogeology, environmental geology, organic geochemistry

KEVIN E. NICK, Ph.D. University of Oklahoma 1990
Adjunct Assistant Professor of Geology, Consultant
Sedimentology and paleomagnetism

LEROY LEGGITT, MS, DDS Loma Linda University 1996
Instructor in Geology
Paleontology, geology field methods

Intercollege program

A student in the Bachelor of Science degree in geology program will take the first two years of general education and science course work at any accredited community college, college, or university, and the last two years of geology curriculum at Loma Linda University. Admission requirements for the B.S. degree in geology program are a 2.5 G.P.A. during the first two years of course work and letters of recommendation from two faculty at the institutions previously attended. The degree requirements following include a list of the courses that should be taken during the first two years, as preparation for the geology curriculum at Loma Linda University.

Objectives

The geology program focuses on field-oriented geology, particularly sedimentology, stratigra-

phy, and paleontology. The program's integrated core course sequence provides students with a general background in geology as preparation for the advanced courses in subdisciplines of sedimentary or environmental geology.

Paleontology is also a major emphasis in the program. Field work is emphasized because it 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 in the application of the scientific method to the resolution of geologic problems. Consideration of multiple working hypotheses is encouraged.

Employment

A baccalaureate degree in geology prepares a student to enter graduate programs in geology or paleontology, or for employment in environmental and energy-related industries, or (with the necessary education courses) for teaching in secondary schools. Most employment opportunities in industry, research, or college teaching require a graduate degree.

Preparation for teaching

A student preparing to teach at the elementary or secondary level will need to complete the requirements for a teaching credential, in addition to the geology major. Consult the geology undergraduate coordinator for further information. General elective units can be used for education courses.

Graduate programs

The Department of Natural Sciences offers a Master of Science degree in geology. Emphases available in this program are sedimentary geology, paleontology, and environmental geology. A Master of Science degree in biology and a Doctor of Philosophy degree in biology with emphasis in paleontology are also available.

GENERAL STUDIES REQUIREMENTS
(68 quarter units)

DOMAIN 1: SPIRITUAL AND CULTURAL HERITAGE

Spiritual Heritage (20 quarter units)

A minimum of 4 units for each year the student is enrolled in a Christian college.

Cultural Heritage (12-16 quarter units)

Required:

Must include one course dealing with human diversity among peers (e.g. cultural anthropology). Other courses to be selected from civilization/history, fine arts, literature, modern language, performing/visual arts (2 quarter units maximum), or philosophy.

DOMAIN 2: SCIENTIFIC INQUIRY AND ANALYSIS (24-32 quarter units)

Natural Sciences (16 quarter units)

Met by the geology degree requirements.

Social Sciences (12-16 quarter units)

Two or more of the following required:

anthropology, economics, geography, political science, psychology, and sociology.

DOMAIN 3: COMMUNICATION
(9-13 quarter units)

Required:

Must include a full sequence in freshman English which meets the baccalaureate degree requirements at an accredited college or university. Also

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

DOMAIN 4: HEALTH AND WELLNESS
(2-6 quarter units)

Required:

Must include two physical activities totaling at least 1 unit, and one course in personal health or nutrition.

DOMAIN 5: ELECTIVES

Electives from the foregoing subjects may be chosen to complete the 68 units.

GEOLOGY—Bachelor of Science

First- and second-year pre-geology requirements, to be taken at any college (96 quarter units):

Required geology cognate courses	
General chemistry	12
Physics	12
Math, including calculus	8-12
Optional courses for geology major	
Physical geology*	4
Geology elective*	4
General studies	
Freshman English	9-12
Religion	8
History or language	8
Personal health or nutrition	2
Physical education activities	1
Other general studies	5-16

* Can be taken at LLU.

** Optional, but highly recommended

Third- and fourth-year courses taken at Loma Linda University (96 quarter units):

Geology major (58 units)	
GEOL 304 Physical geology (if not already taken)	(4)
GEOL 316 Mineralogy	4
GEOL 317 Optical mineralogy and petrology	4
GEOL 424 Structural geology	4
GEOL 425 Geologic mapping	4
GEOL 427 Sedimentology	4
GEOL 429 Stratigraphy	4
GEOL 430 Historical geology	4
GEOL 431 Geochemistry	4
GEOL 454 Sedimentary petrology	4
GEOL 485 Philosophy of science	4
GEOL 493 Research Methods I	1
GEOL 491 Seminar (.5 units per quarter)	3

Geology electives (8-12)
 Must include one paleontology course

Cognates (12)

STAT 251 Introduction to Statistics	4
BIOL 310 Genetics and Speciation	4
BIOL 315 Ecology	4

General electives (14-18 units)

General studies (12-20 units)

Religion	8
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Other general studies (4-8)

GEOLOGY—B.S.: TOTAL (192 quarter units)

COURSES

LOWER DIVISION

GEOL 125 Rocky Mountain Field Geology (2-3)
 Introduction to basic principles of geology, with specific studies of field sites in the Rocky Mountains. Two units for the field course, with a third, optional unit of credit for additional academic work to be assigned. Upper-division college students or teachers should register for GEOL 325. Summer only.

UPPER DIVISION

GEOL 304 Physical Geology (4)
 Introductory geology course providing 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.

BIOL 310 Genetics and Speciation (4)
 Introduction to genetic mechanisms of biological change. Processes of inheritance through time evaluated in their ecological context.

BIOL 315 Ecology (4)
 Principles of terrestrial, aquatic, and marine ecology, with a focus on individual, population, community, and ecosystem levels of organization. Laboratory work includes field studies designed to examine ecological principles. Three class hours and one three-hour laboratory per week
 Prerequisite: BIOL 310.

GEOL 316 Mineralogy (4)
 Composition, physical properties, structure, crystallography, identification, and origin of minerals. Three class hours, one three-hour laboratory or field trip per week.

GEOL 317 Optical Mineralogy and Petrology (4)
 Elements of optical crystallography and optical identification of minerals. Application of optical microscopy to the identification of igneous, metamorphic, and sedimentary rocks. Three class hours, one three-hour laboratory per week
 Prerequisite: GEOL 316.

GEOL 325 Rocky Mountain Field Geology (2-3)
 Principles of geology, with specific studies of field sites in the Rocky Mountains. Two units for the field course, with a third, optional unit of credit for additional academic work to be assigned. Summer only (not applicable toward a graduate degree).
 Prerequisite: GEOL 304 or assigned reading.

GEOL 326 Geology of Southern California (3-4)
 Study of the geology of southern California, with emphasis on local areas of geologic interest, including the Loma Linda area, Mojave Desert, Anza Borrego Desert, and the coast. Introductory geological principles, earthquakes and faults, and geology and paleontology of regional areas. Student can register for lectures only (three units) or for lectures and field trips (four units).

GEOL 327 Geology of Death Valley (3-4)
 General geology of Death Valley, including study of origin and structure, history of geological processes and life (fossils), ancient lakes, salt deposits, modern and ancient erosional processes, tectonics, and paleoclimate.

GEOL 328 Geology of Anza Borrego (3-4)
 Overview of the geology of Anza Borrego Desert area, including historical geology, paleontology, sedimentology, and tectonics. Frequent field trips to the area.

GEOL 341 The Natural History of Fossils (3-4)
 Introduction to fossils, their preservation, ecology, and occurrence in the geologic record. Includes invertebrate, vertebrate, and plant fossils from a variety of localities worldwide.

GEOL 384 Paleobotany (4)
 Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analysis of floral trends in the fossil record. Three class hours, one three-hour laboratory or field trip per week.
 Prerequisite: GEOL 304; BIOL 310, 315.

GEOL 386 Invertebrate Paleontology (4)
 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.
 Prerequisite: GEOL 304, BIOL 310, 315.

GEOL 387 Vertebrate paleontology (4)
 Fossil vertebrates, with an emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Three class hours and one three-hour laboratory per week.
 Prerequisite: GEOL 304; BIOL 310, 315.

GEOL 424 Structural Geology (3)

Rock deformation (folds, faults, etc.) in a framework of plate tectonics. Includes problems and applications. Three class hours per week, with required full-day and half-day field trips. Three class hours, one three-hour laboratory or field trip per week.

Prerequisite: GEOL 304.

GEOL 425 Field Methods of Geologic Mapping (4)

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.

Prerequisite: GEOL 424, 429.

GEOL 427 Sedimentology (4)

Sediments, sedimentary rocks, and their stratigraphic context. Emphasis on sedimentary processes, primary sedimentary structures, and environments of deposition. Includes description, classification, origin, and interpretation of sediments and sedimentary rocks, with lithofacies analysis and other stratigraphic techniques. Three class hours, one three-hour laboratory or field trip per week. Includes several week-end field trips.

Prerequisite: GEOL 304, 316.

GEOL 429 Stratigraphy (4)

Principles of litho-, bio-, and chronostratigraphy. Methods of correlation of sedimentary rocks and introduction to facies analysis methods. Three class hours, one laboratory or field trip per week.

Prerequisite: GEOL 427.

GEOL 430 Historical Geology (4)

Introduction to earth history, with an in-depth examination of the stratigraphic record of rocks and fossils. Three class hours, and one three-hour laboratory per week.

Prerequisite: GEOL 304, 427, 429, BIOL 310, 315.

GEOL 431 Geochemistry (4)

Chemical concepts and their geochemical applications in areas of interest in elementary geology.

Prerequisite: College chemistry; GEOL 304 or consent of instructor.

GEOL 437 Geophysics (4)

Application of classical physics to the study of the earth. The earth's gravitational, geomagnetic, geothermal, and seismic characteristics studied; as well as the dynamics of the earth's crust, plate tectonics, and radioactive dating.

Prerequisite: GEOL 304, physics, and college mathematics.

GEOL 448 Field Seminar in Historical Geology (4)

Field analysis of the stratigraphic and fossil record, with emphasis on interpretation and discussion of models of deposition. Includes one week of lecture and a two-week field trip to specific sites in the western United States. Summer only.

Prerequisite: GEOL 304, 427, 429, 430; or consent of instructor.

GEOL 454 Sedimentary Petrology (4)

Origin, diagenesis, and classification of sedimentary rocks. Includes use of the petrographic microscope in the study of sedimentary rock-forming minerals, cements, textures, and fabrics. Three class hours, one three-hour laboratory or field trip per week.

Prerequisite: GEOL 316, 427.

GEOL 464 Environmental Geology (3)

Geological and hydrogeological principles that apply to subsurface waste and contaminant characterization. Review of remediation techniques and hazardous-waste disposal alternatives. Three class hours per week.

Prerequisite: GEOL 304 required; GEOL 427, 429 recommended.

GEOL 465 Hydrogeology (4)

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, one three-hour laboratory per week.

Prerequisite: GEOL 427, 429, or consent of instructor.

GEOL 485 Philosophy of Science and Origins (4)

Concepts in the history and philosophy of science, and the application of these principles in analyzing current scientific trends.

Prerequisite: GEOL 430 or consent of instructor.

GEOL 487 Field Geology Studies (1-6)

Special field study trips lasting one or more weeks. Student involvement required, including field presentations and field work 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)

Review of 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.

Prerequisite: Consent of instructor.

GEOL 489 Readings in Paleontology (1-4)

Review of the literature in a specific area of paleontology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

GEOL 490 Readings in Geology (1-4)

Review of the literature in a specific area of geology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

GEOL 491 Seminar (.5)

Selected topics dealing with recent developments. Student attends seminar; no presentation required.

GEOL 493 Research Methods I (1)
 Concepts and methods used in research, including computer applications, scientific literature, research design, and proposal writing.

GEOL 495 Special Projects in Geology (1-4)
 A special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.
 Prerequisite: Consent of instructor

GEOL 496 Workshops in the Earth Sciences (1-4)
 Concentrated participation-oriented study sessions for professional geologists, teachers, and students. Topics emphasize current subjects relevant to professional geology or teaching earth science.

GEOL 497 Undergraduate Research (1-4)
 Original investigation and/or literature study pursued under the direction of a faculty member. May be repeated for additional credit.
 Prerequisite: Consent of instructor.

GEOL 498 Senior Thesis (2-4)
 A thesis based on original research.
 Prerequisite: Consent of faculty member who will guide the research.

GEOL 499 Directed Study (1-4)
 Experimental, field, or library study of a problem of restricted scope, under the direction of a staff member. May be repeated for additional credit.
 Prerequisite: Consent of instructor.

Courses in other programs or departments, applicable to the Bachelor of Science degree in geology

Course descriptions for the following courses can be found in the appropriate section of this BULLETIN or the School of Health BULLETIN.

UNDERGRADUATE COURSE

STAT 251 Introduction to Biostatistics (4)

GRADUATE COURSES

With consent of the student's adviser and the course instructor, some graduate courses may be applicable to the undergraduate geology program. Course descriptions for the following courses can be found in the appropriate section of this BULLETIN.

- GEOL 525 Paleopalynology (4)
- GEOL 545 Taphonomy (3)
- GEOL 546 Ichnology (2)
- GEOL 554 Geolimnology (4)
- GEOL 556 Paleoenvironments (4)
- GEOL 595 Lacustrine Readings (1)
- BIOL 504 Biology of Marine Invertebrates (4)
- BIOL 509 Mammalogy (4)
- BIOL 515 Biogeography (3)
- ENVH 509 Principles of Environmental Health (3)
- ENVH 557 Geographical Techniques for Health and Environmental Analysis (3)
- ENVH 567 Hazardous Materials and Solid-Waste Management (3)
- ENVH 568 Water Quality Assurance (5)
- ENVH 586 Environmental Health Administration (3)
- ENVH 589 Environmental Risk Assessment (3)

Rosario Beach summer courses

In cooperation with the Walla Walla College Marine Station in Anacortes, Washington, facilities are available for marine courses and research by graduate students of this department. Some of the available courses are listed below.

- BIOL 459 Marine Invertebrates (5)
- BIOL 460 Marine Ecology (5)
- BIOL 462 Ichthyology (5)
- BIOL 463 Marine Botany (5)

VI

DIVISION OF GENERAL STUDIES

LLU Philosophy of General Education
Criteria for General Education Courses
General Education Requirements
Courses

Division of General Studies

The Division of General Studies, directed by the dean of the Graduate School, coordinates the offering of courses that apply to the Associate in Arts and Bachelor of Science degree programs in the Schools of Nursing, Dentistry, Allied Health Professions, and Public Health as well as in the Graduate School. These courses contribute to the fulfillment of general education requirements as revised by Loma Linda University in 1998.

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 multicultural world.

General education at Loma Linda University is therefore unique. 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 which is grounded in Christian principles. Thus, general education is considered to be the cornerstone upon which students begin cultivating their abilities to:

1. Understand 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 are selected who embrace the spirit as well as the specifics of general education and who purpose to extend its 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. It is this spirit in tandem with the specifics of a liberal arts education that inspires students to achieve academic excellence, value diversity, pursue lifelong learning, and live to bless others.

CRITERIA FOR GENERAL EDUCATION COURSES

1. The course assists the health-sciences student in cultivating abilities in one or more of the ten aspects described in the Loma Linda University Philosophy of General Education for B. S. degrees.
2. The primary focus of the course deals with the knowledge and understanding of a subject area within one of the domains described in the Loma Linda University General Education requirements for B.S. degrees.
3. The course contributes to relevant knowledge and understanding within one of the domains described in the Loma Linda University General Education requirements, expected of a health sciences B.S. graduate entering today's society.
4. The course reflects an area of content within the domains described in the Loma Linda University General Education requirements that is global to the health-sciences professions and is open to all appropriately prepared B.S. degree students of Loma Linda University for General Education credit.
5. The course is based on appropriate prerequisites, particularly when offered at the upper-division level.
6. Courses transferred to Loma Linda University for General Education credit from another accredited institution must fall within one of the domains described in this University's General Education requirements for the B.S. degree and/or must ordinarily be approved for such credit at the other institution.

GENERAL EDUCATION REQUIREMENTS (68 quarter credits)

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 credits of general education, which are integrated with the entire undergraduate program. Requirement are organized into five domains, as outlined below.

DOMAIN 1: SPIRITUAL AND CULTURAL HERITAGE (28-32 quarter credits)

Study of spiritual heritage must include a minimum of four (4) credits in religious studies per year of full-time course work (or the equivalent) while attending a Seventh-day Adventist college or university and must include a religion course dealing with the spiritual heritage of the philosophy and mission of Loma Linda University. Four of the units in religious studies may include a course dealing specifically with the religious, moral, and ethical questions of health care. Other courses may be selected from such content areas as Christian ethics; clinical ministry; comparative religions; and doctrinal, historical, and systematic theology. Required credits in spiritual heritage must be earned from the Seventh-day Adventist institution.

The study of cultural heritage must include a minimum of 12 credits and must include one course, or components integrated in several courses, dealing specifically with issues of human diversity among peers. The remainder of credits in cultural heritage may be selected from the following content areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed 2 quarter credits) or philosophy.

DOMAIN 2: SCIENTIFIC INQUIRY AND ANALYSIS (24-32 quarter credits)

Scientific inquiry and analysis encompasses both the natural and social sciences. Content areas from which students must choose 12-16 credits within the natural sciences include biology, chemistry, geology, mathematics, physics, and statistics. No more than 6 credits in any one area may count toward the natural sciences requirements.

Study of social sciences must include 12-16 credits in two or more of the following content areas: anthropology, economics, geography, political science, psychology, and sociology.

DOMAIN 3: COMMUNICATION (9-13 quarter credits)

Course work in communication must include a complete sequence in freshman English which 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 credits)

To encourage the pursuit of lifelong leisure activities and wellness, the study of health and wellness must include at least two physical activities totaling a minimum of 1 quarter credit, and one course in personal health or nutrition. Additional credits may include other areas of health, nutrition, and physical fitness.

DOMAIN 5: ELECTIVES

Electives from the above-listed domains may be selected to complete the general education minimum requirements of 68 quarter credits.

COURSES**ANTH 304 Biocultural Anthropology (4)**
(meets diversity requirement)

Explores the interaction of biology and culture in producing the variations in physical traits presently found worldwide. Examines processes of change resulting from heredity, ecological adaptation, dietary differences, mate selection, disease, and other factors. Also examines the problems of paleopathology (disease in ancient populations), humankind in the fossil record, and the place of biological and ecological factors in the fall of ancient civilizations. The scientific and social bases for popular conceptions of "race" considered in detail.

ANTH 306 Language and Culture (4)

Survey of anthropological linguistics and sociolinguistics. The place of language and communication in social interaction. Introduction to descriptive and structural linguistics and discourse analysis. Examination of linguistic pluralism in the United States. Study of the language of health care gives as contrasted with the language styles of people they serve. Language productions such as folklore; humor and other forms of "word play"; curses and blessings; and glossalalia.

ANTH 315 Cultural Anthropology (4)
(meets diversity requirement)

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.

ANTH 316 Archaeology (4)

Studies principles of archaeological research and the discoveries of centers of civilization in the Middle East, the Mediterranean, the New World, the Far East, Africa, and other parts of the world—particularly recent discoveries. Also covers the main features of Biblical archaeology. Some attention given to research into prehistoric cultures.

ANTH 436 Cultural Contexts of Religion (4)

An anthropological approach to the study of religious beliefs and practices, focusing on the diversity of religious expressions which can give us insight into what makes us human and how we can battle the frailness of humanity. Promotes empathy with people from other cultural and religious traditions than our own, as well as tolerance and even respect for their differences.

ANTH 448 Medical Anthropology (4)

(meets diversity requirement)

Study of sickness and health as universal factors in the human condition. Examines world view as an explanatory system for human behavior, giving ethnographic examples of curing systems and coping mechanisms. Deals with crosscultural communication of health principles and practices.

ARTA 205 The Language of Art (2-4)

Basic concepts, materials, and history of the visual arts, which will enable the nonart major to develop an art vocabulary and gain insight into the creative process.

BIOL 107 Human Biology (4)

Man as an integrated organism; systems of the body; the basis of healthful living. Four class hours per week.

BIOL 125 Biology of Birds (3)

Introduction to the natural history of birds, their field identification, their ecology. Local species emphasized in lecture and in the field. Special focus on identification of species and on learning techniques of study. Three Sunday field trips.

BIOL 310 Genetics and Speciation (4)

Introduction to genetic mechanisms of biological change. Processes of inheritance through time evaluated in their ecological context.

BIOL 315 Ecology (4)

Principles of terrestrial, aquatic, and marine ecology with a focus on individual, population, community, and ecosystem levels of organization. Laboratory work includes field studies designed to examine ecological principles. Three class hours and one three-hour laboratory per week.

Prerequisite: BIOL 310.

BIOL 336 Faith, Family, and Nature (3)

The study of natural history, with emphasis on behavior and ecology of southern California flora and fauna. Special feature: developing skills of field observation in the setting of family and intergenerational communication. Lectures emphasize themes of design in nature. Three Sunday field trips.

BIOL 338 The Biology of Reptiles (3).

Introduction to the natural history of reptiles; their identification, morphology, physiology, behavior, and ecology. All recognized orders described and local species emphasized in lecture and in the field. Special focus on identification of species and on learning techniques of study in both the field and laboratory. Three Sunday field trips.

BIOL 339 Introduction to Marine Life (3)

For the nonscientist, introduction to the marine life and intertidal ecology of the Pacific coast. Includes discussion of oceanography, waves and tides, the deep sea, intertidal ecology, and the types of plants and animals found in the local intertidal and near-shore environment. Three Sunday field trips.

COMM 178 Oral Communication I (2)

Assists students in mastering word-attack skills and in improving oral communication of the English language. A major emphasis on the Action Phonics Method (a structural linguistics approach) to decoding words. Addresses techniques for enhancing oral communication using body language. Laboratory required.

COMM 278 Oral Communication II (2)

Develops and reinforces students' skills in oral communications. Focuses on sequential, logical thinking as an integral part of developing specific techniques for delivering dynamic, effective, and engaging oral presentations.

CPTG 115 Introduction to PC Operating Systems and Environments (1)

Introduction to the internal/external commands of the latest version of DOS. The essential processes for using microcomputers, protecting data, and storing/retrieving data. Windows 3.1x and the file manager, program manager, print manager, and task-list features covered in depth. Students expected to be able to customize Windows to suit particular environments.

CPTG 125 Word Processing Essentials (2)

Essential word processing tasks and principles presented. Students expected to demonstrate competence in preparing a variety of documents using the latest version of one of the following software packages: WordPerfect for DOS, WordPerfect for Windows, Word for Windows, Ami Pro for Windows.

Prerequisite: CPTG 115 or consent of instructor.

CPTG 215 Spreadsheet Essentials (2)

Essential spreadsheet tasks and principles covered in detail. Students expected to demonstrate competence with the latest version of one of the following software packages: Lotus for DOS, Lotus for Windows, Excel for Windows, Quattro Pro for Windows.

Prerequisite: CPTG 115 or consent of instructor.

CPTG 216 Database Essentials (2)

Essential database tasks and principles covered in detail. Students expected to demonstrate competence with the latest version of one of the following software packages: dBase for DOS, dBase for Windows, Paradox for Windows, Access for Windows, FoxPro for Windows.

Prerequisite: CPTG 115 or consent of instructor.

CPTG 217 Presentation Graphics Essentials (1)

Essential presentation graphics tasks and principles covered in detail. Students expected to demonstrate competence with the latest version of one of the following software packages: Harvard Graphics for DOS, Harvard Graphics for Windows, PowerPoint for Windows, WordPerfect Presentations for Windows.

Prerequisite: CPTG 115 or consent of instructor.

ENGL 206 Introduction to Literature (4)

Introduction to reading and analyzing major literary genres: poetry, drama, short story, and essay.

ENGL 246 Literary Forms and Ideas (4)

Varied content from quarter to quarter, with specific areas listed in the class schedule (such as drama, the short story, contemporary literature, women in literature, C. S. Lewis). Offered primarily for general students but applies toward a major in English. May be repeated with new content for additional credit.

ENGL 445 Bible Literature: Discourse Analysis (4)

Specific books of the Bible studied in depth using "discourse analysis," a textual analytical tool developed by linguists.

ENGL 478 Theory and Applications of Linguistics (3)

Introduction to general linguistics. Covers the core linguistic areas of syntax, phonetics, phonology, morphology, and semantics; also peripheral linguistic areas such as sociolinguistics, pragmatics, and psycholinguistics.

ENSL 077 English as a Second Language (2-12)

Designed to teach American English to speakers of other languages so that they may use this language for whatever purposes they choose. Designed to meet the needs of English for academic purposes, but is open and adaptable to students with a variety of language needs. Students progress at individual rates; individual language needs in areas such as pronunciation, reading, writing, grammar, and conversation may be met. Students expected to have fifteen contact hours for each unit of registration.

ENSL 177 English as a Second Language (2-12)

Designed to aid University students in improving their proficiency in speaking and in understanding spoken, academic American English. Special emphasis placed on appropriate listening and conversation skills, as well as attention to problems arising from the student's native language.

GEOL 326 Geology of Southern California (3-4)**GEOL 328 Geology of Anza Borrego (3-4)****GSCJ 515 Researching and Writing Graduate-Level Papers (2-4)**

Theory and practice of secondary research and writing, with emphasis on conceptual organization and original development. Introduction to library research—including gathering, organizing, narrowing, filtering, quoting, referencing, and writing up the research data.

GSCJ 615 Writing for Thesis/Dissertation (2-4)

Theory and practice in writing each part of a thesis or dissertation—the introduction, the review of literature, the methodology, prose writing of the research data, the conclusion, and referencing and the reference section. Also methods of tying all parts together into a clear, cohesive, and continuing whole.

MUHL 205 Introduction to Music (4)

Basic music literature, with some attention to other arts.

PEAC 110 Independent Activities**PSYC 224 Developmental Psychology: Childhood / Adolescence (3-4)**

The physical, mental, emotional, social, and religious/moral development occurring within the family context from conception through adolescence. Observations and/or laboratory experience.

PSYC 225 Developmental Psychology: Adulthood and Aging (3-4)

The physical, mental, emotional, social, and religious/moral development of adults occurring within the family and social context. Changes which occur from young adulthood through middle age, old age, and death. Observations and/or laboratory experience.

PSYC 226 Life-Span Development (4)

A life-span course emphasizing the physical, mental, emotional, social, and religious/moral development from conception through adulthood, aging, and death.

PSYC 305 Psychological Foundations of Education (4)

Study of psychological development as it relates to the learning process and evaluation techniques for learners in the elementary and secondary schools. Prerequisite: General psychology.

PSYC 404 Psychological Tests and Measurements (3)

Development of 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 together with hands-on applications. Practicum required.

PSYC 405 Psychology of Human Relations (3)
Designed in human relations for career and personal success. Topics include the effective use of human resources, communication, leadership skills, decision making, stress management, assertiveness training, managing conflicts, career development, and achieving balance.

PSYC 414 Interviewing and Counseling (4)
Procedures, methods, and problems in the collection of personal data in a professional interview situation. Theories and techniques of academic, vocational, and therapeutic counseling in various settings designed to improve intra- and interpersonal behavioral patterns for more effective living. Consideration given to clinical, educational, and crisis-intervention counseling application.

PSYC 421 Introductory Spanish for Professional and Behavioral Sciences

PSYC 422 Intermediate Spanish I

PSYC/SPAN 423 Practicum in Spanish for the Professions—Mexico/Spain (3/4)
Practicum in conversational Spanish within the patient-practitioner contexts. Supervised experiences of communicating with Spanish-speaking patients in the various settings of the behavioral sciences professions. A seven-to-twenty-one-day field trip to Mexico/Spain, including patient-practitioner encounters in the context of the professions.

PSYC 460 The Exceptional Individual (3)
Study of 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. Emphasis on education and career planning. Open to upper-division graduate and postgraduate students only.

PSYC 479 Human Neuropsychology (4)
Introduction to 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.

RDNG 077 Basic Reading Skills (2)
Designed to develop study skills and habits of skillful reading. Includes vocabulary development; improving decoding skills, with special emphasis on oral expression; techniques to enhance thinking and comprehension skills; and methods to increase reading speed.

RDNG 177 Reading Techniques (2)
Fosters efficient reading comprehension and concentration by developing skills such as rapid reading, previewing, skimming, scanning, and vocabulary development. Study-skills strategies.

RDNG 277 Advanced Reading and Comprehension Skills (2)

Designed to develop cognitive organizational strategies while increasing the student's rate of reading. Previewing, skimming, and scanning techniques developed to increase reading speed. Includes efficient-memory techniques and test-taking skills.

SOCI 104 Introduction to Sociology (4)
Introduction to the scientific study of human society and behavior in social settings. Course topics include: sociological theory and research, culture and social structure, socialization, groups and organizations, social problems, social institutions, and social change. Assists the student to have a greater understanding of self and society, and to prepare for successful personal and professional life.

SPAN 231 Conversational Spanish I (3)
Introduces students to basic conversational Spanish. Includes oral comprehension drills, pronunciation exercises, and vocabulary designed to develop skills in listening to and speaking the Spanish language.

SPAN 318 Spanish Literature I (2)

SPAN 319 Spain—Culture and Civilization (2)
Introduction to and review of the culture and language of Spain. Also a summary and analysis of Spain's achievements in the new world.

SPAN 322 Traditions and Paradox in Latin American Women (2)

Analyzes the role of Latinas in their complex interplay of gender, ethnicity, and social status; also how they strike a balance between their old and new worlds.

SPAN 421 Introductory Spanish I (3)
Designed for students and professionals who wish to learn to communicate orally in the Spanish language. Covers beginning-level grammar necessary for basic understanding of the language. Focuses on conversation skills rather than the conventional study of grammar.

SPAN 422 Intermediate Spanish I (medical and general) (3)

Designed for students and professionals who wish to learn to interview the Latin-American patient in a crosscultural perspective and to communicate orally in the Spanish language. Covers the advanced-beginning and low-intermediate level grammar necessary for the understanding of the language. Focuses on conversation skills rather than on the conventional study of grammar.

SPAN 424 Advanced Spanish (medical and general) (3)

Designed for students and professionals who wish to learn to communicate orally in the Spanish language, including medical students and health care professionals who interact with Spanish-speaking patients in hospitals, clinics, and offices. Covers beginning-to advanced-level grammar—as needed for the basic understanding of the language. Focuses on conversation skills rather than on the conventional study of grammar.

SPAN 425 Advanced Spanish for the Professional III (3)

Advanced level III concentration on the more advanced conversational and writing skills applicable to communication in Spanish in a daily life context. Lectures and classroom activities; laboratory exercises.

SPAN 426 Spanish for the Hospital Setting (3)

Introduces students to the Spanish vocabulary of the hospital setting through personalized learning experiences. Includes some grammar and vocabulary. Emphasizes conversational skills appropriate for interaction with patients whose native language is Spanish.

SPAN 428 Practicum in Spanish for Professionals (4)

Identical to SPAN 423. May be repeated only by students going to Spain.

WRIT 117 Writing I (2)

Writing skills developed with a focus on: (a) developing an understanding of concepts about writing; (b) developing skills in the overall writing process; and (c) building specific grammar skills on a conceptual framework of language structure.

WRIT 317 Writing II (2)

A highly conceptual upper-level academic writing class. Combines creative learning procedures to access the traditional approaches to logical and cognitive learning. Teaches visualization skills and high-level critical thinking skills using music and the visual arts in a proactive, lateral-thinking process. Develops cognitive skills necessary for successful academic writing, such as expositions, compositions, class assignments and projects, clinical reports, observational reports, and case studies.

WRIT 417 Writing III (2)

Provides skills for research/technical/scientific writing such as case studies, research assignments, major projects, clinical reports, observational reports, etc. Specific skills gained for producing quality technical writing include prewriting techniques, organizing, prioritizing, and structuring of ideas; revising and editing; correct annotation style (e.g., APA, MLA, etc.); applying metalingual awareness (i.e., grammar, plus the basic concepts of language)..

ADDITIONAL COURSES

Additional courses may be taken at La Sierra University through the affiliation agreement. Descriptions for these courses appear in the catalog of La Sierra University and will appear on the transcript as Loma Linda University courses taken in affiliation with La Sierra University.



VII

THE DIRECTORY

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 TOM ZAPARA

THE GRADUATE SCHOOL

W. Barton Rippon, Ph.D., Dean

The dean, the chief administrative officer of the Graduate School, presides over the Graduate School faculty and the Graduate Council.

The Graduate Council give continuing study to the effectiveness of graduate program; ways to strengthen the offerings and curricula; maintaining standards; evaluating and initiating, when advisable, appropriate actions on such items or proposals as occur to them or as may be referred to them; and bringing to the dean items that involve organization and expansion or addition to the faculty, with recommendations for action. Proposals that affect budgets or overall University policy are subject to review by the Administrative Committee.

GRADUATE SCHOOL COUNCIL

- Leif Bakland
- Paul Buchheim
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- Ronald Huston
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- Leandra Peters
- Marvin Peters
- Janelle Pyke
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- Joan Sabaté
- Charles Slattery
- Lois Van Cleve
- Bruce Wilcox
- Gerald Winslow
- Ignatius Yacoub
- Anthony Zuccarelli

**THE FACULTY,
ASSOCIATE FACULTY, AND
CLINICAL FACULTY**

Faculty, associate faculty, and clinical faculty are listed below. Code letters are shown after each name, indicating programs(s) of appointment.

- ANAT Anatomy
- BCHM Biochemistry
- BIOL Biology
- BMCE Biomedical and Clinical Ethics
- CMIN Clinical Ministry
- DACC Drug and Alcohol Counseling
- DENT Dentistry
- FMCO Family Counseling
- FMST Family Studies
- GEOL Geology
- MFAM Marital and Family Therapy
- MICR Microbiology and Molecular Genetics
- MSTP Medial Scientist Training Program
- NRSNG Nursing
- NUTR Nutrition
- PHRM Pharmacology
- PHSL Physiology
- PSYC Psychology
- SOWK Social Work
- SPPA Speech Language Pathology

- Adey, W. Ross PHSL
- Alexander, Wil CMIN
- Aloia, Roland C. BCHM, BIOL
- Anderson, David DENT
- Archambeau, John O. ANAT
- Atkins, Gordon J. BIOL
- Austin, Kenneth M. MFAM, DACC
- Aveling, D. Leigh CMIN
- Backstrom, Melissa K. SPPA
- Bakland, Leif K. DENT
- Bass, Robert L. DENT
- Baugh, Wilson B. DENT
- Bawin, Suzanne M. PHSL
- Baylink, David J. BCHM
- Beltz, Richard E. BCHM
- Benjamin, John Anthony PSYC
- Betancourt, Hector PSYC
- Blaseio, Gunther DENT
- Blazen, Ivan BMCE, CMIN
- Blum, Nancy A. PSYC
- Bogle, Gary C. DENT
- Bonyanpoor, Shahnaz DENT
- Boskovic, Milos DENT
- Bossert, Elizabeth A. NRSNG
- Boyne, Philip J. DENT
- Brand, Leonard R. BIOL, GEOL
- Brandstater, Murray E. PHSL
- Branson, Roy BMCE

Brinckhaus, Loida		NRSG	Fleming, Elaine	NUTR
Britton, Douglas R.		GEOL	Fletcher, Hansel M.	BIOL, MICR
Buchheim, H. Paul	BIOL, GEOL		Fletcher, William H.	ANAT, PHSL
Buchholz, John		PHRM	Flora-Tostado, John	PSYC
Buckles, Beverly J.		SOWK	Fodor, Istvan	MICR
Bullas, Leonard R.	BIOL, MICR		Fox, Michael E.	DENT
Burke, Kenneth I.		NUTR	Frank, Alfred L.	DENT
Burley, Todd		PSYC	Frank, Robert J.	DENT
Burns, Margaret A.		NRSG	Franklin, Donna L.	SOWK
Campagni, Wayne V.		DENT	Fraser, Ian M.	PHRM
Cantin, Edouard M.		MICR	Freier, Mary-Catherin (Kiti)	PSYC
Carr, Mark		BMCE	Fry, Barbara	DACC
Carter, Norman S.		DENT	Fuentes, Paul J.	DENT
Carter, Ronald L.	BIOL, GEOL		Fujita-Yamaguchi, Yoko	MICR
Caruso, Joseph M.		DENT	Gackle, Elaine	NRSG
Casiano, Carlos A.		MICR	Galbraith, Michael C.	NRSG
Castanotto, Daniela		MICR	Gantes, Bernard G.	DENT
Chand, Ian P.	FMST, MFAM, DACC, FMCO		Gaunt, Lloyd E.	DENT
Chartier, Gary		BMCE	Gilbert, Raymond D.	PHSL
Chavez, David V.		PSYC	Gober, Carla	CMIN
Clausen, Ben		GEOL	Goldstein, Michael	PSYC
Clem, Donald S., III		DENT	Gonzalez, Ramon R., Jr.	BMSC, PHRM, PHSL
Conboy, Robert		PSYC	Goodacre, Charles J.	DENT
Connell, Bertrum C.		NUTR	Goodwin, H. Thomas	BIOL, GEOL
Connors, Dianna Lynne	MFAM, FMCO		Greek, James	CMIN
Cordero-MacIntyre, Zaida		NUTR	Green, Lora M.	MICR, PHSL
Corselli, Johannah		ANAT	Gridley, Daila S.	BCHM, MICR
Cowan, Gloria		PSYC	Haddad, Ella	NUTR
Cowles, David L.		BIOL	Haerich, Paul	PSYC
Cress, C. Raymond		PHRM	Haggren, Wendy	MICR
Crigger, Max		DENT	Hall, Raymond G.	PHSL
Cushman, Robert A.	BIOL, GEOL		Halpern, Diane F.	PSYC
Cutler, Ralph E.		PHRM	Hardin, Steven B.	BMCE
Daher, Tony		DENT	Haskett, G. E. Josh	PSYC
Dasgupta, Chiranjib		BCHM	Haviland, Mark	PSYC
Davis, M. Jerry	MFAM, CMIN		Hayes, William K.	BIOL
Davis, Ronda D.		PHRM	Henken, Herbert W.	ANAT
Davis, W. Howard		DENT	Herrmann, E. Clifford	BCHM
De León, Daisy		PHSL	Hessinger, David A.	BCHM, BIOL, PHRM, PHSL
De León, Marino	ANAT, PHSL		Hill, Marcia C.	SPPA
deLeón, Dennis		BMCE	Hilliker, Sandra	MICR
Deleon, Milenne Aldana		BMCE	Hodgkin, Georgia	NUTR
DeVincenzo, John P.		DENT	Hoffman, Charles D.	PSYC
Duckles, Sue Piper		PHRM	Hoffman, Keith D.	DENT
Ducsay, Charles A.		PHSL	Hooker, William M.	ANAT
Dye, Linda M.		SPPA	Hoyle, Jerry	PSYC
Dyer, James F., Jr.		SOWK	Hubbard, Doris	MFAM, FMCO
Earll, Art		CMIN	Hubbard, Richard W.	BCHM
Ehrler, Clelan G.		DENT	Hurst, Elaine	PSYC
Engen, Paul C.		ANAT	Huston, Ronald G.	FMST, MFAM, DACC, FMCO
Escher, Alan P.		MICR	Jackson, Craig R.	SOWK
Ewing, Janice A.	FMST, MFAM, FMCO		Jackson, G. Victoria	SOWK
Fantazia, Douglas J.		NRSG	Janette, Adam J.	DENT
Farley, John R.		BCHM	Javor, George T.	BCHM, MICR
Ferguson, Daniel	MFAM, FMCO		Jenkins, Louis	PSYC

Johnson, Mark S.	MICR	Mitchell, Robert D.	DENT
Johnston, Patricia K.	NUTR	Mohan, Subburaman	BCHM, PHSL
Jones, Patricia S.	NRSRG	Molinaro, Giuseppe A.	MICR
Jouline, Igor B.	MICR	Moline, Mary E.	MFAM, FMCO
		Morrow, Steve G.	DENT
Kaminishi, Ronald M.	DENT	Morton, Kelly R.	PSYC
Kasischke, Fred	CMIN	Muir, Craig A.	PSYC
Kettering, James D.	MICR		
Khoo, Keiko I.	SPPA	Nava, Pedro B.	ANAT
Kiger, Robert	BMCE	Nehlsen-Cannarella, Sandra L.	BIOL, MICR, PHSL
Kim, Edward I.	DENT	Nordland, W. Peter	DENT
King, Helen	NRSRG		
Kirby, Michael A.	ANAT, BIOL	Olson, Lisa R. Sterling	SPPA
Kirsch, Wolff M.	BCHM	Orr, Robert D.	BMCE
Klebel, Wolfgang A.	PSYC		
Klonoff, Elizabeth A.	PSYC	Paggenkamper, Joni	NUTR
Kootsey, Mailen	PHRM	Pearce, William J.	BCHM, PHRM, PHSL
Kosch, Cindy	NUTR	Perkin, Ronald M.	BMCE, NRSRG
Kunihira, Daniel	DENT	Peters, Marvin A.	BIOL, PHRM
		Peterson, John E.	DENT
Lambdin, Craig	MFAM, FMCO	Pioli, Elizabeth A.	SPPA
Langridge, William H. R.	BCHM, MICR	Power, Gordon G.	PHSL
Larson, David R.	BMCE, CMIN	Provonsha, Jack W.	BMCE
Lau, Benjamin H. S.	BIOL, MICR		
Lau, Kin-Hing William	BCHM	Rajaram, Sujatha	NUTR
Lee, Jerry W.	PSYC	Ramirez, Johnny	CMIN, PSYC
Lee, Michael B.	DENT	Rathbun, W. Eugene	DENT
Leggitt, Leroy	GEOL	Reh, Kurt L.	PSYC
Leonora, John	PHSL	Reiss, Gunter	DACC
Lessard, George M.	BCHM	Rice, Richard	BMCE, CMIN
Lewin, Michael R.	PSYC	Rick, Gordon M.	DENT
Lewis, John E.	MICR	Ricketts, Robert M.	DENT
Lier, Anthony B.	DENT	Riggs, Matt	PSYC
Linkhart, Thomas A.	BCHM	Rippon, W. Barton	BCHM, MSTP
Li, Yiming	MICR	Roberts, Randall L.	CMIN, FMCO, MFAM
Lin, Ren-Jang	MICR	Roberts, Walter H. B.	ANAT
Liwnicz, Boleslaw H.	ANAT	Robertson, Thomas L.	DENT
Longo, Lawrence D.	PHSL	Roos, Philip J.	PHSL
Loring, Susie	SOWK	Rosenberg, Jeffrey I.	DENT
Loveless, William	CMIN	Rossi, John J.	BCHM, MICR, PHSL
Lowry, Jean B.	SPPA	Roth, Ariel A.	BIOL
Lozada, Jaime L.	DENT	Roy, Ira	MICR
Lucas, Gary A.	SPPA	Rynearson, R. David	DENT
		Ryu, Jun-ichi	BIOL, MICR
Maeda, George	PHSL		
Maki, Jean E.	SPPA	Sabaté, Joan	NUTR
Marint, Jack Robert	PSYC	Salomone, Marc P.	DENT
Marshak, Helen Hopp	PSYC	Samarza, Alane	PSYC
Maskin, Michael	PSYC	Sandberg, Lawrence B.	BCHM
McClure, Faith	PSYC	Sands, John H.	BCHM
McCluskey, Elwood S.	PHSL	Schlenker, Willis L.	DENT
McGann, David G.	SPPA	Schultz, Robert L.	ANAT
McKendry, Douglas J.	DENT	Selvig, Knut A.	DENT
McMillan, Paul J.	ANAT	Shaughnessy, Paige S.	SPPA
Mihram, William L.	DENT	Sigurdsson, Thorarinn J.	DENT
Miller, Eva G.	NRSRG	Simon, Dianna	SOWK
Miller, Frances P.	NRSRG	Simon, James H.	DENT
Mitchell, Daniel A., Jr.	ANAT	Simpson, Cheryl J.	FMST

Slattery, Charles W.	BCHM	Van Cleve, Lois	BMCE, NRSG
Smith, Robert Stephen	PSYC	Venden, Louis	CMIN
Smith-Herrick, Donna	CMIN		
Sonne, Janet	PSYC	Wagner, William	ANAT
Sood, Satish M.	BCHM	Walters, James W.	BMCE, CMIN
Sorajjakool, Siroj	CMIN	Weber, Ruth S.	NRSG
Sowers, Lawrence C.	BCHM	Webster, Clyde L.	GEOL
Spiller, Juli A.	SPPA	Wergedal, Jon E.	BCHM
Steffani, Susan A.	SPPA	Whittaker, John	DENT
Straatmeyer, Alvin J.	PSYC	Whitten, Crystal	NUTR
Strong, Donna D.	BCHM, MICR	Wilcox, R. Bruce	BCHM, BIOL
Strother, Allen	PHRM	Williams, Hyveth	CMIN
Sugiyama, Raymond M.	DENT	Wilson, James R.	BIOL
Szalay, Aladar A.	BCHM, MICR	Winslow, Betty	NRSG
		Winslow, Gerald R.	BCME
Tanaka, Wayne K.	DENT	Wise, James R.	DENT
Tatakis, Dimitris N.	DENT	Wohrle, Peter S.	DENT
Taylor, Barry L.	BCHM, MICR	Wong, Antoinette	FMCO, MFAM
Taylor, Bernard	CMIN	Wyatt, Melva S.	DENT
Taylor, David L.	CMIN		
Taylor, Guy D.	DENT	Yacoub, Ignatius I.	SOWK
Teel, Charles W.	BMCE	Yellon, Steven M.	ANAT, PHSL
Teel, Robert W.	BIOL, PHRM, PHSL		
Teyber, Edward	PSYC	Zalsman, Harvey	DENT
Tieche, Jean-Marc	PHSL	Zhang, Lubo	PHRM
Tilton, Bernard	PHRM	Zolber, Kathleen K.	NUTR
Tomlinson, John L.	DENT	Zuccarelli, Anthony	BCHM, BIOL, MICR, MSTP
Torabinejad, Mahmoud	DENT		
Turek, Jacqueline Kurch	PSYC		

ALUMNI FEDERATION

The Alumni Federation was organized in 1958. This organization provides an avenue by which the several alumni associations, distinctive of emphases represented by curricula of the University, join their common concern for the continued welfare of the institution. In turn, through the federation the University demonstrates its interest in the continued general and professional development of the alumni, whom it regards as the ultimate and true expression of its accomplishments.

By united and reciprocal interaction, the federation and the University seek to ensure a growing community of scholars, practitioners, and citizens dedicated to excellence. Vitaly concerned with excellence in education, the federation lends itself to enlarging the sphere of influence for good envisioned by the founders of the University.

The federation seeks to foster unity and loyalty and to promote the growth of the total institution and at the same time the best interests of each part. The federation endeavors to:

1. Foster the natural bond among alumni of each individual school, maintaining the right of alumni to direct their own group activities.
2. Assist the University and its schools in their duty to provide for the continuing general welfare of all students, faculty, and alumni.
3. Encourage alumni through constituent associations to assist in providing adequate and dependable financial support both for the University and for alumni activities.

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 Western Association of Schools and Colleges (prior to January 1962, Western College Association) February 24, 1960. Became Loma Linda University July 1, 1961. Professional curricula started and approved as indicated.

THE GRADUATE SCHOOL: Started in 1954. Accredited through University accreditation.

THE PROFESSIONS

CYTOTECHNOLOGY: Started in 1982. Initial approval by the Commission on Accreditation of Allied Health Education Programs in collaboration with the Cytotechnology Programs Review Committee January 20, 1983.

DENTAL HYGIENE: Started in 1959. Approved by the Council on Dental Education of the American Dental Association since September 7, 1961.

DENTISTRY: Started in 1953. Approved by the Council on Dental Education of the American Dental Association since May 23, 1957.

DIETETIC TECHNOLOGY: Started in 1988. Approved by The American Dietetic Association Commission on Accreditation and Dietetic Education April 25, 1988.

EMERGENCY MEDICAL CARE: Started in 1993 as a baccalaureate degree program for paramedics, respiratory therapists, and other allied health professionals desiring education, science, or management credentials in emergency medical services.

HEALTH INFORMATION MANAGEMENT: Started as medical record administration in 1963. Approved by the Council on Medical Education of the American Medical Association since December 1, 1963. Currently approved by the Commission on Accreditation of Allied Health Education Programs in collaboration with the American Health Information Management Association.

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 state of California Department of Health Services.

MEDICAL SONOGRAPHY: Started in 1976 as diagnostic medical sonography. Approved by the Joint Review Committee on Education in Diagnostic Medical Sonography October 24, 1985.

MEDICAL TECHNOLOGY: Started in 1937. Approved by the Council on Medical Education of the American Medical Association since August 28, 1937. Currently approved by the Commission on Accreditation of Allied Health Education Programs in collaboration with the National Accrediting Agency for Clinical Laboratory Sciences.

MEDICINE: Started in 1909. Approved by the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association since November 16, 1922.

NUCLEAR MEDICINE: 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.

NURSING: Hospital school started at Loma Linda in 1905. Hospital school added at Los Angeles in 1924. Degree school organized in 1948. Accredited by the National Nursing Accrediting Service December 10, 1951, with approval continuing under the National League for Nursing. Initial 1917 approval of the California State Board of Health extended until college program approved July 1, 1952, by the California Board of Registered Nursing. California Board of Registered Nursing approval since 1952. Public health nursing preparation recognized, 1959.

NUTRITION AND DIETETICS: Started in 1922 as a certificate program; baccalaureate degree conferred 1932-54; 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. Coordinated undergraduate program accredited by The American Dietetic Association Commission on Accreditation/Dietetics Education, 1974.

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.

OCCUPATIONAL THERAPY ASSISTANT: Started in 1988. Approved by the Commission on Accreditation of Allied Health Education Programs in collaboration with The American Occupational Therapy Association (AOTA) April 13, 1989. Currently accredited by the Accreditation Council for Occupational Therapy Education of the AOTA.

PHYSICAL THERAPIST ASSISTANT: Started in 1989. Approved by the American Physical Therapy Association April 4, 1990.

PHYSICAL THERAPY: Started in 1941. Initial approval by the Council on Medical Education of the American Medical Association June 6, 1942. Currently approved by the American Physical Therapy Association.

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.

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 THERAPY: Started in 1971. Initial approval 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 in collaboration with the Joint Review Committee for Respiratory Therapy Education.

SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY: Approved by the American Speech-Language-Hearing Association June 1, 1991.

SURGICAL TECHNOLOGY: Started in 1995. Approval by the Council on Medical Education of the American Medical Association December 1972. Currently approved by the Commission on Accreditation of Allied Health Education Programs in collaboration with the Accreditation Review Committee on Education in Surgical Technology.

ACCREDITING AGENCIES

THE UNIVERSITY

Loma Linda University is accredited by WASC:

Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges
P.O. Box 9990
Mills College
Oakland, California 94613-9990
Phone: 510 / 632-5000
FAX: 510 / 632-8361

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

In addition to WASC, the following agencies accredit specific University schools or programs*:

GRADUATE SCHOOL

Drug and Alcohol Counseling
California Alcoholism and Drug Counselors Education Program (CADCEP)
3400 Bradshaw Road, Suite A5
Sacramento, California 95827
Phone: 916 / 368-9412
FAX: 916 / 368-9424

Marriage and Family Therapy
Commission on Accreditation for Marriage and Family Therapy Education of the American Association for Marriage and Family Therapy
1133 15th Street, NW, Suite 300
Washington, DC 20005-2710
Phone: 202 / 467-5111 or 452-0109

Social Work
Council on Social Work Education
Division of Standards and Accreditation
1600 Duke Street
Alexandria, Virginia 22314-3421
Phone: 703 / 683-8080
FAX: 703 / 683-8099

Speech-Language Pathology
Educational Standards Board
American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, Maryland 20852
Phone: 301 / 897-5700

SCHOOL OF ALLIED HEALTH PROFESSIONS

Cardiopulmonary Sciences
Respiratory Therapy
The Commission on Accreditation of Allied Health Education Programs (CAAHEP)
515 North State Street, Suite 7530
Chicago, Illinois 60610-4377
Phone: 312 / 464-4623
FAX: 312 / 464-5830

Joint Review Committee for Respiratory Therapy Education

1701 West Eules Boulevard, Suite 300
Eules, Texas 76040
Phone: 817 / 283-2835 or toll free 800 / 874-5615
FAX: 817 / 354-8519

Surgical Technology

The Commission on Accreditation of Allied Health Education Programs (CAAHEP)

The Accreditation Review Committee on Education in Surgical Technology (ARC-ST)

Council on Accreditation and Unit Recognition (CAUR)

515 North State Street, Suite 7530
Chicago, Illinois 60610-4377
Phone: 312 / 464-4623
FAX: 312 / 464-5830

Clinical Laboratory Science**Phlebotomy**

National Accrediting Agency for Clinical Laboratory Sciences

8410 West Bryn Mawr Avenue, Suite 670
Chicago, Illinois 60631
Phone: 773 / 714-8880
FAX: 773 / 714-8886

Medical Technology

National Accrediting Agency for Clinical Laboratory Sciences

8410 West Bryn Mawr Avenue, Suite 670
Chicago, Illinois 60631
Phone: 773 / 714-8880
FAX: 773 / 714-8886

Cytotechnology

The Commission on Accreditation of Allied Health Education Programs (CAAHEP)

515 North State Street, Suite 7530
Chicago, Illinois 60610-4377
Phone: 312 / 464-4623
FAX: 312 / 464-5830

Health Information Administration

The Commission on Accreditation of Allied Health Education Programs (CAAHEP)

515 North State Street, Suite 7530
Chicago, Illinois 60610-4377
Phone: 312 / 464-4623
FAX: 312 / 464-5830

Nutrition and Dietetics

The Commission on Accreditation/Approval of Dietetic Education

216 West Jackson Boulevard
Chicago, Illinois 60606-6995
Phone: 312 / 899-0040

Occupational Therapy

The Accreditation Council for Occupational Therapy Education (ACOTE)

4720 Montgomery Lane
Bethesda, Maryland 20814-3425; or
P. O. Box 31220
Bethesda, Maryland 20824-1220

Phone: 301 / 652-2682 or toll free 800 / 377-8555
FAX: 301 / 652-7711

Physical Therapy

Commission on Accreditation of Physical Therapy Education

1111 North Fairfax Street
Alexandria, Virginia 22314
Phone: 703 / 706-3245

Radiation Technology**Radiography—A.S.**

Radiation Therapy Technology—certificate

Joint Review Committee on Education in Radiologic Technology

20 North Wacker Drive, Suite 900
Chicago, Illinois 60606-2901
Phone: 312 / 704-5300
FAX: 312 / 704-5304

Radiation Technology—B.S.

The Commission on Accreditation of Allied Health Education Programs (CAAHEP)

35 East Wacker Drive, Suite 1970
Chicago, Illinois 60601-2208
Phone: 312 / 464-4623
FAX: 312 / 464-5830

Nuclear Medicine Technology—certificate

Joint Review Committee on Educational Programs in

Nuclear Medicine Technology

350 South 400 E., Suite 200
Salt Lake City, Utah 84111-2938

Medical Sonography—certificate

Joint Review Committee on Education in Diagnostic

Medical Sonography

7108-C South Alton Way
Englewood, Colorado 80112
Phone: 303 / 741-3533

Speech-Language Pathology and Audiology

American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, Maryland 20852
Phone: 301 / 897-5700

SCHOOL OF DENTISTRY

Council on Dental Education of the American Dental Association

211 East Chicago Avenue
Chicago, Illinois 60611
Phone: 800 / 621-8099

SCHOOL OF MEDICINE

Liaison Committee on Medical Education
Association of American Medical Colleges

2450 N Street, N.W.
Washington, DC 20037
Phone: 202 / 828-0596
FAX: 202 / 828-1125

SCHOOL OF NURSING

National League for Nursing
350 Hudson Street

New York, New York 10014
 Phone: 212 / 989-9393 or toll free (800) 669-1656
 Board of Registered Nursing
 400 R Street, Suite 4030
 Sacramento, California 95814
 916 / 322-3350

SCHOOL OF PUBLIC HEALTH

Council on Education for Public Health
 1015 15th St., N.W., Suite 402
 Washington, DC
 Phone: 202 / 789-1050
 FAX: 202 / 789-1895

Certified Health Education Specialist (CHES)
 National Commission for Health Education
 Credentialing, Inc.
 944 Marcon Boulevard, Suite 310
 Allentown, Pennsylvania 18103
 Phone: 610 / 264-8200
 FAX: 800 / 813-0727

Drug and Alcohol Counseling
 California Alcoholism and Drug Counselors Education
 Program (CADCEP)
 3400 Bradshaw Road, Suite A5
 Sacramento, California 95827
 Phone: 916 / 368-9412
 FAX: 916 / 368-9424

Environmental Health Specialist
 State of California
 Environmental Health Specialist Registration
 Committee
 601 North 7th Street, MS 396
 P.O. Box 942732
 Sacramento, California 94234-7320

Public Health Nutrition and Dietetics
 The Commission on Accreditation/Approval of Dietetic
 Education
 216 West Jackson Boulevard
 Chicago, Illinois 60606-6995
 Phone: 312 / 899-0040

*All entry-level degrees are accredited by their respective professional accrediting associations.

INSTRUCTIONAL RESOURCES

LIBRARIES

The Del E. Webb Memorial Library is the central library of Loma Linda University. Its historical roots go back to 1907, when a small library collection was started in a room of the old Loma Linda sanitarium. In 1953 the growing collection was moved to its own building and a new structure added in 1981. At the present time, the total library space is 87,670 square feet. As of April

1998, the Library housed 390,078 volumes, including 188,177 books and 121,609 bound journals. The collection also contains 78,859 media items and 1,433 current periodical subscriptions.

The purpose of the Library is to stimulate and support the informational needs of the University's instructional, research, and service programs. To this end the Library provides a full range of information support services including, but not limited to, reference, circulation, reserve, access through online searches to hundreds of computerized databases, access to databases available locally in CD-ROM disk format, selective dissemination of information services (SDI), database end-user training programs, library orientations, interlibrary loans, photocopy services, a microcomputer lab, a learning resource center, library research classes, and support for off-campus academic programs.

The Library provides access to other collections nationwide through computerized telecommunications. It also participates in a number of national and regional networks. One of these is the National Network of the Libraries of Medicine, founded by the National Library of Medicine. This structure is divided into eight regional sections, one of these being the Pacific Southwest Regional Medical Library Service. The Del E. Webb Memorial Library belongs to this region and is the designated medical resource library for San Bernardino and Riverside counties. Local library cooperatives include the IEALC (Inland Empire Academic Library Cooperative) and SIRCULS (San Bernardino, Inyo, Riverside Counties United Library Services). Membership in these cooperatives gives our students, faculty, and staff access to other library collections.

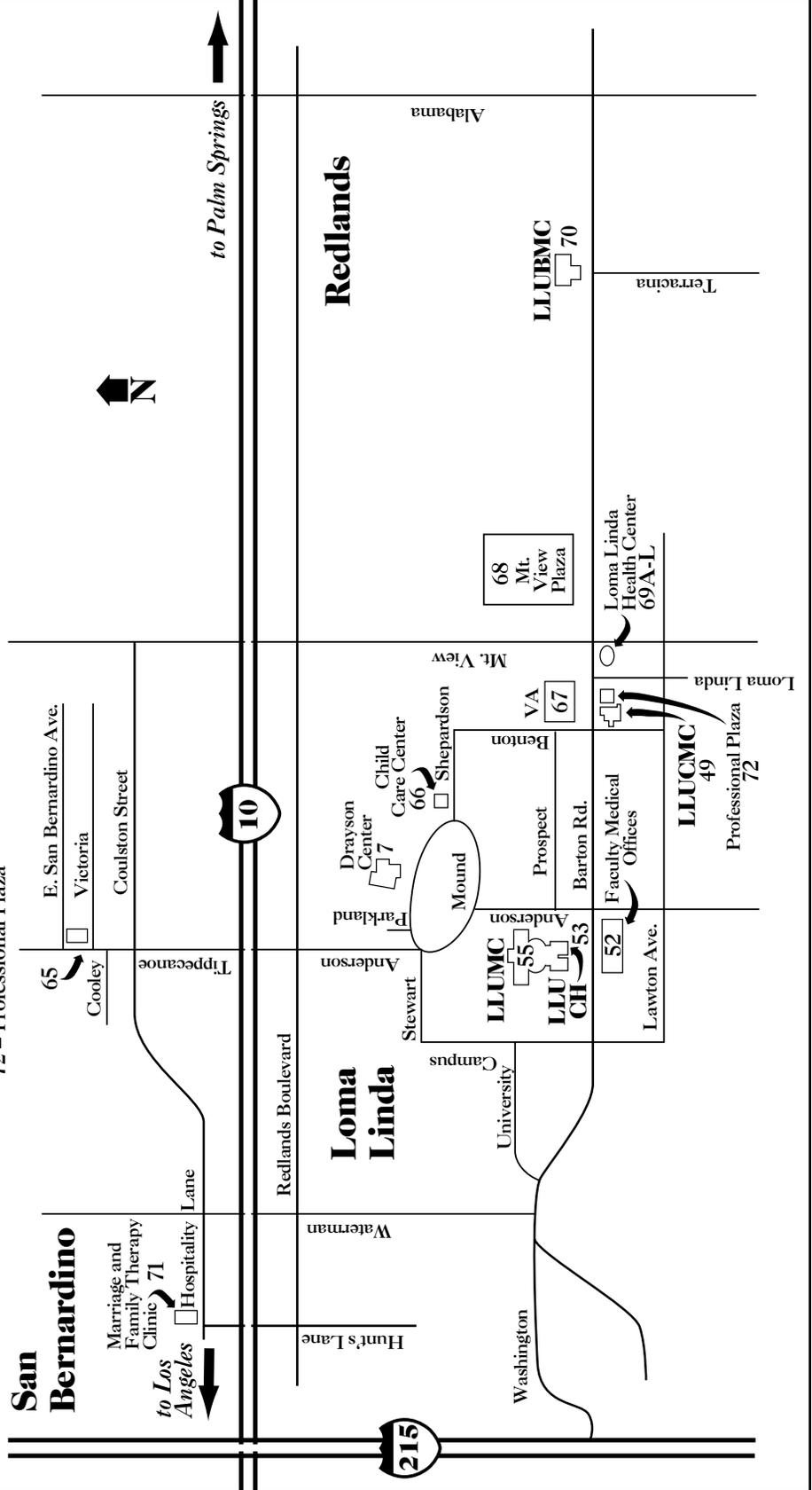
The Department of Archives and Special Collections holds information on the history of Loma Linda University, the health sciences, and a major collection on Adventism. In addition to print materials which include rare books, theses, and dissertations, there are microforms, sound recordings, and several thousand photographs; plus 14,000 linear feet of archival materials, which include papers of various denominational and University officials, as well as the congressional papers of the Honorable Jerry and Shirley Pettis.

ELLEN G. WHITE ESTATE

Also located in the department is a branch office of the Ellen G. White Estate. It contains 60,000 typewritten pages of Ellen White's letters and manuscripts; 4,600 of her published articles; and several different files of materials pertaining to various aspects of the life and ministry of Ellen White. A computerized concordance to her published writings is available to researchers.

**Area Map
and numerical legend**

- 1-64 (see Campus Map)
- 65 – Material Supply and Distribution Support Services Center
- 66 – Loma Linda Children's Center
- 67 – Jerry L. Pettis Memorial Veterans Medical Center
- 68 – Mountain View Plaza
- 69 – Loma Linda Health Center
- 70 – Behavioral Medicine Center
- 71 – Marriage and Family Therapy Clinic
- 72 – Professional Plaza



**LLUSMC
CAMPUS
MAP**



Security
25 Dept.

UNIVERSITY AVE.

LOT G*
LLUMC Employee
Parking Garage

PROSPECT ST.

Nelson
House
63

LOT F
North*

64
West Hall
(SN)

LOT F
South*



= MC amphitheaters
H = Heliports

LOMA LINDA UNIVERSITY
(not to scale)



LOT X**
1
Gentry
Gymnasium

LOT X**
2
Media
Services

STEWART STREET

14
Evans Hall
(Ctr. for Health Promo.)
Tribiology/
Orthopedics
Bioreengineering
Research Lab

15
Shryock
Hall

16
Alumni Hall
for Basic
Sciences

17
Risley Hall

18
Burden
Hall

19
W^o
Visitors
Center

20
Herbage
Room

21
Library

22
Magin
Hall

23
Hall
(FR, GS)

24
Mortensen
Hall

25
Campus Chapel
Fellowship Hall

26
University
Church

27
Glad
Samartun
sculpture

28
Prince
Hall
(SD)

29
Cagen,
Plant

30
Psych.
SD/UC

31
Psych.
SD/UC

32
Psych.
SD/UC

33
Psych.
SD/UC

34
Univ. Arts

35
AH
Lab

36
AH
Lab

37
AH
Lab

38
AH
Lab

39
AH
Lab

40
AH
Lab

41
AH
Lab

42
AH
Lab

LOT U**

3
Parkland
Building

4
Maintenance/
Receiving

5
University
Purchasing

6
Warehouse/
Conserv./
Architect.

7
Drayson Center

8
Speech & Hearing Clinic (AH)

9
Nehol Hall
(PH)

10
Daniels
Residence
Complex

11
Linda
Hall

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Campus Hill
Church

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LOT DC*

43
Credit
Union

44
Student
Business
Ctrs.

45
Risk Mgmt.
Center

46
Campus Store

47
Loma Linda
Market

48
Safety Education
Center

49
Patio
Pantry

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Loma Linda
Market

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Safety Education
Center

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Safety Education
Center

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Patio
Pantry

77
Loma Linda
Market

LOT DC*

40
Maintenance/
Receiving

41
University
Purchasing

42
Warehouse/
Conserv./
Architect.

43
Drayson Center

44
Speech & Hearing Clinic (AH)

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Nehol Hall
(PH)

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Daniels
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Campus Hill
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LOT DC*

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Warehouse/
Conserv./
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LOT DC*

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Conserv./
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LOT DC*

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Maintenance/
Receiving

41
University
Purchasing

42
Warehouse/
Conserv./
Architect.

43
Drayson Center

44
Speech & Hearing Clinic (AH)

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Key to abbreviations and symbols
(See also key on campus map)

- X = Nearest cross street
- > = See Area Map
- LLU = Loma Linda University:
- BMC Behavioral Medicine Center
- GH Children's Hospital
- CMC Community Medical Center
- MC Medical Center

Campus Map (numerical)

1. Geny Gymnasium
2. Media Services (University, MC)
3. Geoscience Research Institute; Housekeeping (University); Radiation / Hazardous Materials Safety
4. Campus Engineering (maintenance shops); Lock and Key; Campus Receiving (University); 4G=Garage buildings
5. Purchasing (University); Campus Engineering (Machine Shop)
6. Warehouse; Construction; Architectural Services
7. Drayson Center; Activities Center; Superfield; Student Union; Student Association
8. Speech and Hearing Clinic (AH)
9. Nichol Hall; School of Public Health; School of Allied Health Professions; 9C = Cottages; #60 ("Blue")—Marketing and Retention (AH); #70 ("Brown")—OT Field Work Office; #80 ("Green")—SIMS, Center for Health and Development (PH)
10. Daniels Residence Complex (men; graduate women)
11. Lindsay Hall (women's residence)
12. Campus Hill SDA Church
13. Linda Hall (Campus Hill SDA Church)
14. Evans Hall; Center for Health Promotion; Cudler Amphitheater; Student Health Services; Teaching Learning Center
15. Shryock Hall; Anatomy; Embryology; Museum
16. Alumni Hall for Basic Sciences; Microbiology; Pathology; Courville Museum (pathology)
17. Risley Hall; Physiology; Pharmacology; Kellogg Amphitheater
18. Burden Hall; Academic Publications; University Relations; AH lab
19. Block Building; Orthopaedic Bioengineering Research Labs; Tribology Lab
20. Randall Visitors Center; Amphitheater; Jorgensen Learning Center
21. University Library; Del E. Webb Memorial; Main library; E. G. White Estate Branch Office; Heritage

54. Proton Treatment Center
55. LOMA LINDA UNIVERSITY MEDICAL CENTER; School of Medicine; Helpport, H North; Lost and Found, B-404; Cafeteria; Amphitheaters: A-512, Lobby-1506; Transplantation Institute
56. Schuman Pavilion; International Heart Institute
57. Chan Shun Pavilion; Cancer Research Institute
58. Coleman Pavilion; School of Medicine; Center for Christian Bioethics
59. Wong Keelee International Conference Center
60. Emergency Department
61. Express Care (urgent care, workers' compensation, employee health care)
62. Mail Service (University, MC)
63. Nelson House; Decision Support Services (MC)
64. West Hall; School of Nursing; Graduate School

Area Map (numerical)

65. Material Supply and Distribution Support Services Center (Receiving, Mercantile, etc.) (MC), 1269 E. San Bernar-dino Ave., SB (X Tipppecanoe)
66. Loma Linda Children's Center, 25228 Shepardson Dr.
67. Veterans Medical Center, Jerry L. Pectis Memorial, 11201 Benton St. (X Barton Rd.)
68. Mountain View Plaza (X Barton Rd.); Education and Training Department (computer training, JTPA training) (University, MC); Diabetes Treatment Center (MC); Osteoporosis Research Center (LLU administrative office); Radiology; Medical Group; administrative office; Hospice (MC); LL Medical Supply (MC); Home Care Services (respiatory, family) (MC); Judkins Library (MC); LL UMC Managed Care Finance; Health Care Patient Business Office (FMO billing); Adventist Health Managed Care
69. Loma Linda Health Center ("Cape Cod" buildings), Mountain View Ave. (X Barton Rd.); A-11306 Providence; LL Community Medical Group
- B-11314 Cambridge; Psychiatry and Behavioral Medicine (SM)
- C-11320 Gloucester; Psychiatry conference rooms; Medical staff administration (BMC, CH, CMC, MC)
- D-11326 Worcester; Special Projects (MC); Physician Referral and Circle of Care
- E-11332 Westerys; Medical (private practice)
- F-11354 Walden; Medical
- G-11360 Hartford; LLU Cancer Institute; Administration; Cancer Data Center; Clinical oncology research

- H-11346 Concord; Marketing (MC); Medical (private practice)
 - I-11368 Springfield; LLU Cancer Institute; Region 5 Cancer Surveillance Program; Pharmaceutical research
 - J-11374 Dwyer; see Counseling, below, 69J>
 - K-11382 Danbury; Loma Linda Health Pharmacy; Dental (private practice)
 - L-11340 Bridgeport; LLU Cancer Institute; Cancer Information
- Counseling and chemical dependency treatment centers (students, employees):*
69. B-11314 Cambridge; Student counseling; Psychiatry (SM)
 - G-11360 Hartford, Suite A; Employee Assistance Program
 - J-11374 Dwyer; Student Psychological counseling services (MC); Medical faculty (private practice)
70. LOMA LINDA UNIVERSITY BEHAVIORAL MEDICINE CENTER, 1710 Barton Road (X Terracina Blvd.); Crisis hotline; Partial hospitalization (days only); Inpatient
 71. Marriage and Family Therapy Clinic, 164 W. Hospitality Lane, Suite 15, SB (X Hunt's Lane) Professional Plaza, 25455 Barton Frontage Road (X Loma Linda Drive; X Benton St.); Family and Child Therapy (FACT), Suite 108-A, LLUGH; Loma Linda Pharmacy; MC / SM teaching, administrative, and private practice offices

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TO COMMUNICATE WITH LLU . . .

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WORLDWIDE WEB: http://www.llu.edu		
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...dialing from Canada—	1 / 800 / 548-7114	
AREA CODE:	909 /	
SWITCHBOARD:	558-4000	
To dial an extension through the switchboard or from inside the University, dial the last 5 digits only (e.g., Student Affairs, 4-4510).		
From an outside line, dial the number below:		
President	558-4540	558-4577
Diversity	558-4787	558-4577
Student Affairs	558-4510	558-4879
Student welfare, housing, visas, etc.		
Student Finance	558-4520	558-4879
Student Financial Aid	558-4509	558-4879
University Records	558-4508	558-4879
Student Health Service	558-4838	
Student Counseling	558-6090	
(if dialed on campus)	6-6028	
Teaching Learning Center	558-8625	558-0179
(if dialed on campus)	8-8625	
Student Assistance Program (SAP)	558-6050	558-6051
(if dialed on campus)	6-6050	
Spiritual Counseling	558-4570	
Crisis Hotline	793-9333	
(Behavioral Medicine Center)		
Faculty of Religion	558-4536	558-4856
<i>The Schools:</i>		
Allied Health Professions		
Admissions	558-4599	558-4291
Dean	558-4545	558-4291
Cardiopulmonary Sciences	558-4932	
Clinical Laboratory Science	558-4966	
Health Information Administration	558-4976	
Nutrition and Dietetics	558-4593	
Occupational Therapy	558-4628	
Occupational Therapy Assistant	558-4948	
Physical Therapy	558-4632	
Physical Therapy Assistant	558-4634	
Radiation Technology	558-4931	
Speech-Language Pathology/Audiology	558-4998	
Dentistry	558-4222	
Admissions	558-4621	558-4211
Advanced Programs	558-4681	
Dean	558-4683	558-4211
Dentistry Academic Program	558-4600	
Dental Hygiene Academic Program	558-4631	
International Dentist Program	558-4669	
Student Affairs	558-4790	558-4211

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Dean	558-4528	558-4859
Medicine	558-4462	558-4146
Admissions	558-4467	558-4146
Dean	558-4481	
Nursing	558-4360	558-4134
Admissions	558-4923	558-4134
Graduate	558-8061	
Undergraduate	558-8060	
Pharmacy		
Dean	558-4528	558-4859
Public Health	558-4546	
Admissions and Academic Records	558-4694	558-4087
Dean	558-4578	
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Epidemiology and Biostatistics	558-4590	
Health Administration	558-4573	
Health Promotion and Education	558-4575	
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Maternal and Child Health	558-4575	
Nutrition	558-4598	
Preventive Medicine Residency Program	558-4918	

	WEB SITE:	EMAIL:
Faculty of Religion	http://www.llu.edu/LLU/FR/	
Dean; director of M.A. in Bio-medical and Clinical Ethics	http://www.llu.edu/LLU/FR/bioclineth.html	gwinslow@cemail.llu.edu
Director of M.A. in Clinical Ministry	http://www.llu.edu/LLU/FR/clinmin.htm	rroberts@cemail.llu.edu
Center for Christian Bioethics	http://www.llu.edu/LLU/Bioethics/	

The Schools

Allied Health Professions	http://www.llu.edu/LLU/SAHP/	
Admissions		ahadmissions@sahp.llu.edu
Cardiopulmonary Sciences		ahcps@sahp.llu.edu
Clinical Laboratory Science		ahclin@sahp.llu.edu
Health Information Administration		ahhlin@sahp.llu.edu
Nutrition and Dietetics		ahnutr@sahp.llu.edu
Occupational Therapy		ahocth@sahp.llu.edu
Physical Therapy		ahphth@sahp.llu.edu
Radiation Technology		ahrtech@sahp.llu.edu
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Audiology		ahsppa@sahp.llu.edu
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Nursing	http://www.llu.edu/LLU/Nursing/	dsalinas@cemail.llu.edu
Public Health	http://www.llu.edu/LLU/SPH	frichards@sph.llu.edu