LLU EXSEED 2012 Conference Highlights

Location and Dates

- Loma Linda University – Centennial Conference Center
- June 18-22, 2012

EXSEED Higher Education Partners: 6

- Andrews University
- Kettering College
- La Sierra University
- Loma Linda University – host and facilitator
- Pacific Union College
- Walla Walla University

Conference Expenses and Requirements

- Free**:**
  - Food and lodging
  - Transportation to and from the airport to LLU
- Requirements**:**
  - Teachers had to apply and indicate a willingness to participate in EXSEED during the school year and not just during the conference.
  - Had to send a $50 check to hold their spot, which would be refunded if they stayed until the end of the conference.

K-12 Teachers: 46

- **34** teachers from the Pacific Union Conference
- **8** teachers from *outside* Pacific Union Conference: Alberta and Ontario, Canada; Alabama; Arkansas/Louisiana Conf.; Tennessee; and Washington
- **2** teachers from local public schools who are involved with STEM; one is a local Adventist academy board member
- **2** teachers were from Sherman Indian High School, Riverside, CA, a community partner with LLU.
- **1** LSU student teacher who will teach STEM in the near future.
- Teachers were about evenly divided between elementary and secondary with secondary having the small majority.
- **10** teachers were elementary teaching principals who teach multiple grades; **3** of the principles teach grades 1-8
- **4** teachers came from the same 4-teacher school in northern CA

EXSEED Presenters: 44 in 57 sessions

Institution/Org.	Presentations	Labs/Hands-on Sessions	Workshops	Tours
Andrews University	2			
Kettering College	2			
La Sierra University	5	3	2	
Loma Linda University	15	1	3	5
Pacific Union College	2	2		
Walla Walla University	2	3		
Adventist academy teachers (active or retired)	3			
Adventist public school teacher	2			
Vendors	3			
STEM consultant	1			

iPad 3

- **Surprise**: After worship on Monday morning each K-12 teacher was given an iPad 3 with the following apps and accessories:
    - **Pages** – word processor compatible with MS Word
    - **Keynote** – presentation program compatible with MS PowerPoint
    - **Numbers** – spreadsheet program compatible with MS Excel
    - **iMovie** – to produce short instructional videos
    - **GarageBand** - to create copyright-free music for instructional videos; to create new music
    - **Camera Conversion Kit** – to download and/or share photos and movies between iPads, iPhones, and cameras
    - **Apple Care+** - a two-year warranty and support that includes up to two accidents per year was included so teachers would feel 'safe' to have their students use the iPads as tools for learning in the classroom.
- **Goal**: To empower teachers with iPads to use them for teaching and learning in their classrooms including having students use them. Many of the teachers had little or no technology in their classrooms.
- In accepting the iPad 3, each teacher agreed to (1) participate in EXSEED, (2) to have their students produce at least one instructional video to share with EXSEED during the school year, and (3) to use the iPad for instructional purposes with their students.
- After giving the teachers their surprise iPad 3s, an Apple engineer gave an "iPad 3 101" session about how to use them. Tech support was provided

throughout the conference all week until 9 pm Monday through Thursday, and until 2 pm on Friday.

- iPads were used throughout the conference in a variety of ways. Many presenters had teachers download specific apps as tools for their sessions' topics. For example, in a session studying sound, "Exploring Sound with an iPad," the teachers downloaded an app that helped them to analyze sounds in a physics session designed for both elementary and secondary teachers.

Group Instructional Video Assignment: Teachers divided themselves into groups of 3-4 to develop a short instructional video to be shared with the full group on the last day of EXSEED. The videos were shot and produced exclusively on their iPads. The goal was to prepare teachers to teach their students how to develop short instructional videos to teach their peers or others. Each teacher's students will produce at least one video to share in the EXSEED portal. We all learn best by teaching someone else! MIT recently started having their students do the same thing[1].

EXSEED Grants

- EXSEED 2011 and 2012 K-12 teachers were able to apply for $500-$1,000 grants to implement collaborative STEM projects in their classrooms.
- Awardees were announced at the North American Division Teachers' Convention, EXSEED breakout session:
    - **9** K-12 teachers received grants for the 2013 school year: 3 elementary, **5** secondary, and **1** junior academy.
    - **1** of the secondary school grants included collaboration with several elementary schools.
    - **4** schools wrote grants for the Lonza DNA Flash Gel Systems and received them. The kits were donated by LSU, LLU, and Lonza[2]. A Lonza representative attended one day of EXSEED and so excited by what was being done there that he donated two kits. Dr. Marvin Payne, LSU, organized the demonstration of this system and the Lonza DNA Flash Gel System Kit grants.

Designed to Challenge Comfort Zones

- The conference was designed to stretch teachers beyond their comfort zones. In spite of this, teachers were engaged and participated. A few, however, asked for more sessions that directly addressed their specific curricula, e.g., primary grades, secondary math.
- The consensus of the group was to keep the mix of more specific sessions along with those that stretch everyone to the max. It was suggested to have a discussion session after each 'stretching' presentation to help teachers to understand what was presented and with the guidance of the presenter

[1] http://web.mit.edu/newsoffice/2012/k-12-education-video-initiative-0425.html
[2] http://www.lonza.com/

brainstorm ways to apply what was presented to their classes. This is being planned for the 2013 EXSEED Conference.

Hands-on Sessions, Labs, and Workshops

- Teachers had the opportunity to take a tour of the LLU Anatomy Lab and/or to participate in a 2-hour guided anatomy lab with hands-on experience on a cadaver.
- Some comments from teachers about hands-on sessions:
    - "I really enjoyed the hands on activities. I love being able to experience something and then take the idea home and try it in my classroom."
    - "The experiments and demo's were very appropriate. All of the necessary materials were available as well as the lab write up. In addition, we were able to keep the materials."
    - "It was the hands on learning such as Nikki's 'cheap science' demonstrations or the 'It's just physics' demonstrations by Dr. Shaun? (The guy from Kettering) that I learned the most. I also appreciated the cadaver lab and the Lego Robotics demonstrations. All of these practical hands on labs are the most meaningful to me. The schedule was full, but it needs to be. Maybe I'm nuts, but I didn't come to this conference to swim and relax in the PE complex. I came as a sponge to soak up all I could, so I think scheduling 'to the hilt' is great and is giving us 'our money's worth'." [In response to a few teachers wanting more free time to go to the Drayson Center]

Teachers' Comments on What EXSEED Meant to Them:

- "Getting these iPads was overwhelmingly amazing! But then learning how to use it—putting it to use—all of that has been most beneficial for me in seeing how I can take this back and use it. It wasn't so much and so fast that I couldn't grab somebody and digest it. Which is very important to have that time to be able to digest what I'm learning and sharing it with wonderful people who think like I think and understand what I understand. I feel like I came here undereducated, but I wasn't uncomfortable, because so many of us are at that place where we are learning whatever we can. And what has been presented has been amazing. I'm just thankful and grateful to have been here!"

- "Make it clear to the teachers that come that the support that is available for them from Loma Linda University, that has been amazing for me to realize, that I understood from the get go and probably in part because they were willing to give us iPads. And not only give them to us but have made sure they have people on the scene who know how to do all things are here to help us, and they are with us to the end. Someone was working with us last night at 8:30 helping us to finish our project. The professors have made it so clear that they are with us. These people who have put this together—it is

amazing that they have kept these long hours with us. It is really important for teachers to understand that we have a resource in Loma Linda University."

- "This course was an impetus to restructure my class to include all aspects of STEM in my specific disciplines of biology and chemistry. I need to make better connections between my science and math, engineering and technology. This will be an on going paradigm shift but the future of our children is well worth it."

- "I am taking away an enthusiasm to do more than just worksheets in teaching science. I would like to incorporate more hands on activities, and experiments in my teaching."

- "Am taking away a wealth of ideas, but by far, the most valuable concept to me was the emphasis on collaboration. So often I feel like an isolated lonely fish in a VERY BIG ocean. This conference greatly helped me to feel a since of team work and support from some of the other fish in the ocean! THANK YOU! Also I am taking away a brand new IPAD3, a physical, tangible object which will constantly remind me and my classroom of our collaboration and willingness to be a team. Again, THANK YOU!"

- "I feel that LLU, sponsors, presenters, IT people, truly cared and wanted to support those of us who are in the trenches. I made connections with other teachers, master teachers, and mentors to help in this mission we call Adventist education. STEM is not limited to science, technology, engineering and mathematics, but is an interdisciplinary approach to curriculum. Step outside your comfort zone and connect with people who can help. "

Teachers' Concluding Take-Away Thoughts on STEM, Religion, and God:

- "Inspiration for teaching new ideas and content. Classroom activities. Knowledge of materials, techniques, and software tools for my classes. Religious concepts to tie to STEM concepts. iPad that I will use daily in the classroom. New friends."

- Some K-12 teachers were surprised that LLU was so spiritual.

- "Thank you again for allowing me to attend EXSEED! It is an experience that I will cherish and never forget...and use to the honor and glory of God!"

EXSEED: http://www.llu.edu/exseed

LOMA LINDA UNIVERSITY

Excellence In Science Experiential Education (EXSEED)

June 18-22, 2012

Monday – June 18

Time	Sessions		
7:45 am	■ **Breakfast** Dining Room		
8:15 am	■ **Worship** *Dr. Ron Carter – Loma Linda University (LLU) & EXSEED* Main Conference Room		
8:30 am	■ **Welcome & Overview** Dr. Ron Carter – Loma Linda University & EXSEED Main Conference Room		
8:45 am	■ **Orientation** *Tim Parker* Main Conference Room		
9:45 am	■ **Medical Simulation Center Lab** *Dr. Kent Denmark - LLU* CC 4th floor		
10:00 am		■ **Atomic Learning & EXSEED Portal** *Dr. DP Harris - LLU* Main Conference Room	■ **Medical Simulation Center Lab** *Lisa Benanti - LLU* CC 4th floor
10:30 am			
10:45			
11:00 am	■ **How We Should Be Formatting Learning Resources To Optimally Meet The Needs Of Today's Students** *Dr. Charles Goodacre - LLU* Main Conference Room		
12:00 pm	■ **Lunch** Dining Room		
1:00 pm	■ **GIS Workshop** *Dr. Samuel Sorret* CC (Max. – 20)	■ **How Do *You* Spell S-T-E-M?** *Tom Lee – Pacific Union College (PUC)* Main Conference Room	
1:30 pm		■ **AU STEM Division** *Dr. David Steen – Andrews University (AU)* Main Conference Room	
2:00 pm		■ **K-12 Engineering Education Overview** *Dr. Doug Logan – Walla Walla University (WWU)* Main Conference Room	
2:30 pm		■ **Turtle Research & Biodiversity** *Dr. Stephen Dunbar - LLU* Main Conference Room	
3:30 pm		■ **Cheap Physics** *Daniel Schoun – Kettering College (KC)* Main Conference Room	
4:00 pm	■ **DNA, Genes & Educational Applications** *Dr. Jonathan Neidigh - LLU* Main Conference Room		
5:30 pm	■ **Dinner** Dining Room		
5:45 pm		■ **Atomic Learning & EXSEED Portal** *Dr. DP Harris - LLU* Main Conference Room	
6:15 pm	■ **Peer-based Media Instruction Workshop** *Stew Harty & Stephen Robertson - LLU* Main Conference Room		
9:00 pm			

See color legend on page 5

Tuesday, June 19 - EXSEED

Time	Sessions		
7:45 am	**Breakfast** Conference Dining Room		
8:15 am	**Worship** *Dr. Calvin Thomsen – LLU* Main Conference Room		
8:30 am	**Overview & Discussion** *Dr. Ron Carter – LLU & EXSEED* Main Conference Room		
9:00 am	**GIS Workshop** *Karla Barrow-Harding* *LLU Graduate Student – Global Epidemiology* CC 3102 (Max. – 20)	**Biomimetics & STEM Integration** *Dr. David Steen – AU* Main Conference Room	
10:00 am		**Hydrothermal Vents in the Classroom** *Tom Lee – PUC* Main Conference Room	
11:00 am		**Lego Robotics Overview** *Dr. Doug Logan – WWU* Main Conference Room	
12:00 pm	**Lunch** Dining Room		
1:00 pm	**Shoestring K-8 STEM Labs** *Nikki Gonzalez – EXSEED* Main Conference Room	**Collaboration** Dining Room	**Lego Robotics Lab** *Dr. Doug Logan – WWU* *Fred Singer – Monterey Bay Academy (MBA)* Southwest Room (Max. – 8)
2:30 pm		**Making an iPhone App** *Dr. Enoch Hwang –LSU* Main Conference Room	**Lego Robotics Lab** *Dr. Doug Logan – WWU* *Fred Singer - MBA* Southwest Room (Max. – 8)
3:00 pm	**Modular Interdisciplinary Science: Genetic Engineering with Green Fluorescent Protein Lab** *Dr. Marvin Payne – La Sierra University (LSU)* Med Micro lab[1] (Max. – 10-32)		
3:30 pm		**Collaboration** Main Conference Room Dining Room	
4:00 pm	**Developmental Genetics** *Dr. Kerby Oberg – LLU* Main Conference Room		
5:00 pm	**Dinner Discussion Groups** Dining Room		
6:00 pm	**Instructional Video Project Lab** *Dr. Marilyn Eggers – LLU & EXSEED,* *LLU Tech Support Team* Main Conference Room	**STEM Case Studies & Pitsco** *Michael Hoy - Pitsco* Southwest Room	
7:30 pm			
9:00 pm			

[1] 2nd floor of Alumni Hall

Wednesday, June 20 - EXSEED

Time	Sessions		
7:45 am	**Breakfast** Dining Room		
8:15 am	**Worship** *Dr. Johnny Ramirez - LLU* Main Conference Room		
8:30 am	**Overview & Discussion** *Dr. Ron Carter – LLU & EXSEED* Main Conference Room		
9:00 am	**GIS Workshop** *Diane Garcia-Gonzalez* CC 3102	**K-8 STEM Labs: Sharing & Discussion** *Nikki Gonzalez – EXSEED* Dining Room	**Exploring Sound with an iPad** *Dr. Ivan Rouse - LSU* Southwest Room (Max. – 24)
10:30 am		**Modular Science Experimentation Kits; Closing the Resource Gap and A Demonstration of the Lonza DNA Gel Electrophoresis Apparatus** *Dr. Marvin Payne – LSU* Main Conference Room	
11:30 am		**Collaboration** All Conference Rooms	
12:00 pm	**Lunch with the LLU President** Dining Room		
1:00 pm	**Geology** *Dr. Kevin Nick – LLU* Main Conference Room	**Nuclear Structure and the Connection to Real Life** *Dr. Jennifer Helbley - LSU* Dining Room	**K-8 STEM Projects** *Denver Drieberg – Rialto School District* Southwest Room
2:00 pm	**Counting Molecules: A Light Task?** *Dr. Richard Clark – PUC* Dining Room (Max. – 12)	**Lego Robotics Lab** *Dr. Doug Logan – WWU* *Fred Singer - MBA* Southwest Room (Max. – 8)	**Collaboration** Main Conference Room
3:00 pm			**Modular Interdisciplinary Science: Genetic Engineering with Green Fluorescent Protein Lab** *Dr. Marvin Payne – LSU* Med Micro lab[2] (Max. – 10-32)
3:30 pm		**Collaboration** Main Conference Room	
4:00 pm	**Want STEM? Try Physiology.** *Dr. Ramon Gonzalez – EXSEED* Main Conference Room		
5:00 pm	**Dinner Discussion Groups** Dining Room		
6:00 pm	**Instructional Video Project Lab** *Dr. Marilyn Eggers – LLU & EXSEED,* *LLU Tech Support Team* Main Conference Room	**EXSEED Grants** *Dr. Ron Carter – EXSEED* Southwest Room	
6:30 pm		**Grant Writing Basics** *Denver Drieberg – Rialto School District* *Leanne Drieberg* Southwest Room	
7:30 pm			
9:00 pm			

[2] 2nd floor of Alumni Hall

Thursday, June 21 - EXSEED

Time	Sessions			
7:45 am	■ **Breakfast** Dining Room			
8:15 am	■ **Worship** *Dr. James Walters – LLU* Main Conference Room			
8:30 am	■ **Overview & Discussion** *Dr. Ron Carter – LLU & EXSEED* Main Conference Room			
9:00 am	■ **GIS Workshop** *Seth Wiafe - LLU* CC 3102 (Max. – 20)	■ **To Catch A Thief: Alternative Technology to Restore Upper Extremity Function** *Dr. Liane Hewitt & team – LLU* Main Conference Room (Max. – 30)	■ **The T.I.E. Project -- 20 years of Technology Education Success . . . plus** *Jay Linthicum - LLA* Southwest Room	
10:00 am			■ **Medical Simulation Center Lab** *Dr. Kent Denmark & Lisa Benanti – LLU* CC 4th floor (Max. – 14)	
11:00 am			■ **Medical Simulation Center Lab** *Dr. Kent Denmark & Lisa Benanti – LLU* CC 4th floor (Max. – 14)	
12:00 pm	■ **Lunch** Dining Room			
1:00 pm	■ **"Building a Service Learning Course" Workshop** *Dr. Adeny Schmidt - LSU* Main Conference Room	■ **Counting Molecules: A Light Task?** *Dr. Richard Clark – PUC* Dining Room (Max. – 12)	■ **Anatomy Lab Tour** *Dr. Pedro Nava – LLU* **LLU Anatomy Lab**	
1:30 pm			■ **Collaboration** Southwest Room	
3:00 pm	■ **More Cheap Physics** *Daniel Schoun – KC* Dining Room	■ **Using Online Textbooks and Homework Systems: In Particular MyMathLab and WebAssign** *Dr. Wil Clarke – LSU* Southwest Room	■ **Modular Interdisciplinary Science: Genetic Engineering with Green Fluorescent Protein Lab** *Dr. Marvin Payne – LSU* Med Micro lab[3] (Max. – 10-32)	
4:00 pm	■ **Employing Brain-based Research in Re-inventing STEM Curriculum and Content** *Marvin Martin – Consultant* Main Conference Room			
5:00 pm	■ **Dinner Discussion Groups** Dining Room			
6:00 pm	■ **Instructional Video Project Lab** *Dr. Marilyn Eggers – LLU & EXSEED,* *LLU Tech Support Team* Southwest Room	■ **Introducing Critical Thinking Skills through Research - Workshop** *Dr. Eugene Joseph – LSU* Main Conference Room	■ **Anatomy Cadaver Lab** *Dr. Pedro Nava – LLU* LLU Anatomy Lab	
6:30 pm				

[3] 2nd floor of Alumni Hall

8:00 pm	■ **Instructional Video Project Lab (cont.)**		
9:00 pm			

Friday, June 22 - EXSEED

Time	Sessions
7:45 am	■ **Breakfast** Dining Room
8:15 am	■ **Worship** *Dr. Ron Osborn – LLU* Main Conference Room
8:30 am	■ **Overview & Discussion** *Dr. Ron Carter – LLU & EXSEED* Main Conference Room
8:45 am	■ **Designer Drugs: Integrated STEM** *Dr. Willie Davis & Dr. Rashid Mosavin – LLU* Main Conference Room
10:15 am	■ **Planning EXSEED 2013: Academic Year and Conference** Main Conference Room
11:15 am	■ **Wrap Up** *Dr. Richard Hart & Dr. Ron Carter – LLU* Main Conference Room
11:45 am	■ **Lunch & Instructional Video Projects Viewing** Main Conference Room
1:00 pm	■ **Prayer & Dismissal**

Color Legend

- ■ - Wholeness activities
- ■ - Expected EXSEED sessions –make selection when there are concurrent sessions
- ■ - Optional EXSEED activities