

### A Message from the Dean

I continue to be amazed at the achievements of the outstanding students and faculty in the School of Science and Technology. Discoveries, awards, advancements, service and leadership highlight our news this spring including:

- Dr. Lynn Cominsky, Chair of the Physics and Astronomy Department and Director of the SSU Education and Public Outreach group, was awarded the CSU Wang Family Excellence Award. This honor recognizes distinguished commitment and accomplishment in the CSU. This is the first time a SSU faculty member has received this award.
- Assistant Professor of Mathematics and Statistics, Dr. Martha Shott, received the 2016 Mathematical Association of America Section Alder Award. The award honors beginning university faculty for distinguished teaching and contributions reaching beyond their classroom.
- In the Geology Department, Associate Professor Matty Mookerjee is the lead organizer for the 4<sup>th</sup> Biennial Structural Geology and Tectonics Forum to be held at SSU in early August 2016. Technical sessions, workshops and field trips are part of the forum's discussion of the educational and research frontiers in structural geology and tectonics.
- And Dr. Cominsky is also part of the team that made BIG news in February with their observation of gravitational waves – ripples in the fabric of space-time. This confirms a major prediction in Albert Einstein's 1915 general theory of relativity.

We welcome Dr. Judy Sakaki, SSU's incoming President. She is an alumna of CSU East Bay and earned her PhD in Education at UC Berkeley. With a new President come new opportunities, expectations, and challenges. Our School's commitment to student success is defined most broadly as attracting, retaining, and graduating well-prepared students. This commitment translates into our top priorities:

- Teaching excellence and curricular innovation provides a high-quality learning experience for our students and prepares them for successful lives after graduation.
- Research and scholarship is an essential part of a vibrant and engaged educational institution. Our teacher-scholar faculty provide research opportunities for SSU students.
- Collaborations with many on-campus and off-campus partners provide a support network for student scholarship.

As our School aspires to further advance our mission, we continue to be incredibly proud of our students, faculty, staff and alumni. This issue is filled with stories of their contributions and success. Enjoy!!

*Lynn Stauffer*

Lynn Stauffer, Dean  
School of Science & Technology

Join us for the  
2016 Science Symposium  
SSU Symposium on Research  
and Creativity  
May 4, 2016, 4:00-6:30pm  
Student Center Ballroom

# A Banner Year



It has been quite a year for our very own Dr. Lynn Cominsky (left)! Dr. Cominsky serves as both the Chair of the Physics and Astronomy Department and the Director of SSU's Education and Public Outreach (E/PO).

In addition, she is a sought-after public speaker and grant writer. In recognition of her tireless and truly exceptional efforts and accomplishments in the realm of education and science (among many, many others), she has received three prestigious and decidedly well-deserved awards.

In December, Dr. Cominsky was selected as the 2015 recipient of the [American Astronomical Society's Sally Ride Excellence in Education Award](#). This award recognizes outstanding educators from K-12 to college/graduate level in either the delivery of space education or the use of space in STEM education. Dr. Cominsky is the second person to receive the Sally Ride Award.

Early this year, the American Astronomical Society named Dr. Cominsky as the recipient of their [Education Prize for 2016](#). The Society cited Dr. Cominsky's long-standing leadership of SSU's E/PO, which has had a broad and significant impact both within its local community and nationally. This includes her development of numerous educator guides and K-12 resources, her work in helping to train thousands of teachers through the Astrophysics Educator Ambassador program, and her outstanding leadership of the education and public outreach efforts for many NASA missions, including XMM-Newton, Swift, Fermi, and NuSTAR.

Finally, also earlier this year, Dr. Cominsky won [The Wang Family Excellence Award](#) in the Natural Sciences, Mathematical and Computer Science and Engineering category. The Award recognizes four outstanding faculty members and one outstanding staff member of the CSU each year who have distinguished themselves by exemplary contributions and achievements. Dr. Cominsky and her husband, Dr. Garrett Jernigan, plan to dedicate the \$20,000 award as an endowment for the Physics & Astronomy Department. —Cory Oates

## Professor Shott Wins Regional Teaching Award

Dr. Martha Shott from the Department of Mathematics and Statistics is the recipient of the [2016 Mathematical Association of America \(MAA\) Golden Section Alder Award](#) for Distinguished Teaching by a beginning college or university mathematics faculty member. The award was presented on February 27 at the MAA Section Meeting at UC Davis, which, incidentally, is her alma mater. A group of 12 faculty and students from SSU attended the conference and cheered as Ed Keppelmann from the University of Nevada, Reno, read the award citation. Dr. Shott is receiving this award because her "teaching has been extraordinarily successful" and her "effectiveness in teaching undergraduate mathematics is shown to have influence beyond her own classrooms."

Since joining SSU's Mathematics and Statistics Department in 2012, Dr. Shott has built an impressive reputation as an excellent teacher. She has taught a wide variety of courses from calculus to statistics to mathematical modeling and numerical analysis. For three years, she has taught the innovative STEM Freshmen Year Experience course, Science 120, combining pre-calculus, biology, and critical thinking content as part of an interdisciplinary teaching team. For each level of student, Dr. Shott employs different strategies, but in *all* her classes she expects and enables her students to actively participate in their own learning. She succeeds in making mathematics accessible to her general education students and instilling "a sense of enthusiasm and appreciation for the inherent beauty" of mathematics to her lower division math majors. Her upper division students rave about the experiences they have in Dr. Shott's classes that emphasize application and context.

Dr. Shott is raising the quality of education beyond her own classroom by sharing her experiences and love of learning with her colleagues and supporting her students to participate in modeling competitions and research experiences. As part of Science 120, Dr. Shott collaborates with colleagues from Biology and Physics to design and team-teach interdisciplinary project-based science units, and she regularly invites her colleagues into her classroom to share her expertise with project-based teaching in mathematics.

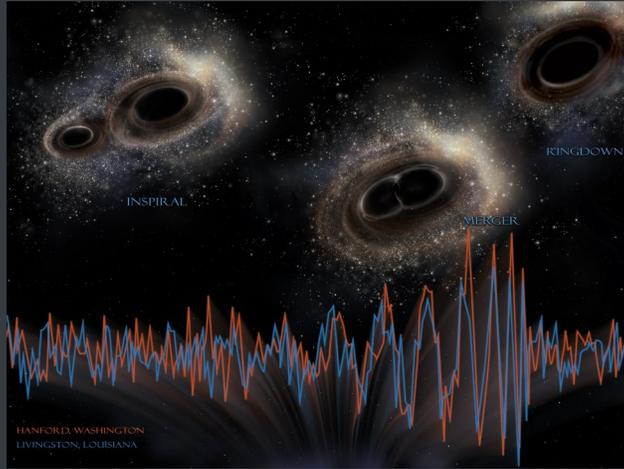
Congratulations, Dr. Martha Shott!

—Dr. Brigitte Lahme, Department of Mathematics & Statistics



One hundred years after Einstein predicted the existence of gravitational waves, the twin facilities that comprise the [Laser Interferometer Gravitational-wave Observatory](#) (LIGO) confirmed that gravitational waves had been detected. What makes the observance of these waves so important (and why physicists the world over are absolutely giddy) is that they were the last untested prediction of Einstein's General Theory of Relativity. And what makes the discovery especially exciting for the SSU community is that our very own [Professor Lynn Cominsky](#) has been part of the LIGO experiment since 2007.

Gravitational waves are ripples in the fabric of space. Physicist Brian Greene [likens](#) them to the ripples a pebble makes in a pond. In 1915, in his General Theory of Relativity, Einstein states that gravity comes from the warps and curves of the fabric of space. So, for example, the Sun warps space which in turn keeps Earth in orbit by rolling it in a sort of valley. A year later in 1916, Einstein says that if this is true, than the fabric of space must be full of ripples—these are gravitational waves. Additionally, when gravitational waves travel through space time, they stretch and compress the fabric of space and the objects in it, albeit only by one ten thousandth of the size of a proton. Einstein also predicted that if there are two rapidly orbiting black holes, they will generate a steady succession of gravitational waves. General Relativity says that these rapidly orbiting black holes lose energy through the emission of gravitational waves, which makes them gradually approach each other over billions of years, and then much more quickly in the final minutes before colliding in a fraction of a second at nearly one-half the speed of light. When these two black holes finally collide, they form a single more massive black hole and convert part of the combined black holes' mass to energy. This energy is emitted as a final strong burst of gravitational waves. These are the waves that were observed directly for the first time ever by LIGO on September 14, 2015 at 5:51 am ET.



LIGO is comprised of two observatories located in Livingston, Louisiana, and Hanford, Washington. Funded by NSF, LIGO was conceived, built, and is operated by Caltech and MIT. LIGO, as the full name implies, was proposed in the 1980s to detect gravitational waves. However, the measurement of a gravitational wave is so infinitesimal that it wasn't until [Advanced LIGO](#), a major upgrade implemented to increase the instruments' sensitivity, that they could actually be detected. And they did—almost immediately upon setting up the new equipment. To see how gravitational waves were measured, watch [LIGO's press conference](#) announcing the discovery. They were also able to make a computer rendering of what two black holes colliding [sounds](#) like based on the gravitational waves they measured.

The [LIGO Scientific Collaboration](#) (LSC) carries out the science of the two LIGO observatories, and is comprised of over 1,000 scientists from around the United States and in 14 other countries. Dr. Cominsky first became involved with the LSC when she served on its Program Advisory Committee (PAC) to advise on their education and public outreach programs. After her three-year PAC term ended, she continued to work with the LSC and currently serves as the Chair of its Formal Education Working group. Under her direction, members of SSU's E/PO have created an [Educator's Guide](#)

to be used in the classroom to explain the discovery. Aurore Simonnet, also of SSU's E/PO, created the included picture and it was the [Astronomy Picture of the Day](#) for February 11, 2016.

"I am thrilled to be a small part of the LIGO outreach effort. Studying black holes has been most of my life's work, and the discovery of gravitational waves using LIGO detectors will open an entirely new branch of astronomy," [said](#) Dr. Cominsky.

Dr. Cominsky will be speaking about gravitational waves and LIGO on Monday, March 21, 2016 as part of the [What Physicists Do](#) lecture series hosted by the Physics & Astronomy Department. —[Cory Oates](#)



## Black Salamander Discovery

Eric Hardy, a citizen science participant and SSU undergraduate involved in the Herpetofauna Project led by Julie Wittman (graduate student in Dr. Girman's Lab in Biology), just [documented](#) the first Black Salamander found within [Pepperwood Preserve](#) in Santa Rosa, CA. This observation pushes the southern edge of its species' range so it's an interesting finding. All of the students and participants in the Herpetofauna Project are excited to learn how their systematic approach at studying a region, with the help of citizen scientists, can expand our knowledge about the species with whom we share our environment.

# Lemur Smart Feeders

Dr. Karin Enstam Jaffe, Department of Anthropology

Penny Wilson, MS Biology Candidate

If you have ever watched wild animals, you know that they are usually “on the move” searching for food. This is because, in the wild, food is unpredictable so animals must move constantly in search of it. Things are different in zoos, however, where food is plentiful and often provided by keepers at pre-determined times. While well-intentioned, this can result in animals displaying high rates of inactivity because they don’t have to search for food. This was the scenario for lemurs at the Oakland Zoo (Fig. A).



Figure A: One of the Oakland Zoo’s ring-tailed lemurs. *Photo courtesy of Oakland Zoo.*

In an effort to increase activity levels in their lemurs, Oakland Zoo staff, Sonoma State students and faculty from multiple departments (Anthropology, Biology, and Computer Science), and a community member with expertise in animal care and zoo exhibit design (Fig. B) collaborated to study how environmental enrichment could be used to encourage more realistic foraging behavior. Installing environmental enrichment in the exhibit seemed like an obvious way to solve this problem. But as Penny Wilson studied the theory behind enrichment for her master’s thesis, she discovered that installing enrichment was not the key—if we want to increase activity levels in captive animals, we have to make their food more unpredictable—but how unpredictable? And how do you make feeding unpredictable if it’s tied to keepers handing it out?

Our lemur “smart feeders” (Fig. C) address these issues. Our feeders, designed and built by David Jaffe, needed to be in-



Figure B: The Lemur Enrichment Team. Left to right, standing: Dr. Suzanne Rivoire (Computer Science, SSU), Penny Wilson (MS candidate in Biology, SSU), David Jaffe (smart feeder designer & builder), Jaeger (ring-tailed lemur), Elizabeth Abram (lemur keeper, Oakland Zoo); left to right, kneeling: Dr. Karin E. Jaffe (Anthropology, SSU), Darren Minier (Zoological Manager, Oakland Zoo). *Photo courtesy of Suzanne Rivoire.*

stalled inside the exhibit and able to distribute food to the lemurs throughout the day without keeper intervention. The final design consisted of lightweight cubes approximately 18”x12”x12” and covered in ¼ inch Plexiglas. Inside, a PVC pipe fitted with a screw-on top for keeper access and drilled with holes is set on four ball-bearings and spun at pre-determined times by servo motor. An Arduino board was programmed by Dr. Suzanne Rivoire (Computer Science) so that Wilson could easily alter the timing of enrichment throughout treatment phases to change the degree of predictability of reward. A small battery pack ensures that the Arduino board is powered throughout the day. As the PVC pipe spins, food inside the pipe drops into the bottom of the feeder where the lemurs can access it.



Figure C: A lemur smart feeder with PVC feeder pipe, battery pack and Arduino board (in protective case) visible. Note open trough at the bottom of the feeder where lemurs access the food. *Photo courtesy of Karin E. Jaffe.*

We tested a smart feeder prototype in the lemur exhibit on August 30, 2015 with great success (Figure D). On September 21, the Lemur Enrichment Team (Fig. B) installed eight smart feeders in the lemur exhibit. For the remainder of the Fall 2015 semester Penny Wilson, and (*continued on next page*)

Biology undergraduates Nichole Berry and Kaysie Lewis collected data to better understand how different levels of predictability of reward (e.g., 100%, 75%, 25% and 0% predictable) affect lemur activity and behavior. Wilson is currently analyzing the data and will present her results at her thesis defense by the end of Spring 2016 and at the *Animal Behavior Management Alliance's* annual meeting in Tampa Bay, Florida, in mid-April. We anticipate that our results will indicate that intermediate levels of predictability of reward will maximize the lemurs' activity levels. Our hope that the smart feeders will become part of the enrichment protocols at the Oakland Zoo and other zoos is already becoming a reality: the Oakland Zoo is testing the smart feeders for use with squirrel monkeys, green monkeys, and coatis.



Figure D: Testing the smart feeder prototype with Oakland Zoo lemurs on August 30, 2015. Photo courtesy of Karin E. Jaffe.

Physics major Michael Dobbs has been selected by Dr. Yongsheng Gao of CSU Fresno to participate in a summer internship at the world's largest particle physics experiment, [the Large Hadron Collider](#), located at [CERN](#) near Geneva, Switzerland. Dobbs took Dr. Gao's online course, "Introduction to Particle Physics and ATLAS Experiment of LHC at CERN," offered through the CSU Nuclear and Particle Physics Consortium (NUPAC) in the fall 2015 semester. Each year, Dr. Gao chooses 10 students (5 from CSU Fresno and 5 from other CSU campuses) to work on projects at CERN related to the [ATLAS experiment](#), on which he is a collaboration member. Dobbs will receive a \$4000 stipend in addition to approximately \$6000 in travel/lodging expenses for an 8-week internship, courtesy of Dr. Gao's NSF International Research Experiences for Students (IRES) grant.

Dobbs is currently the President of SSU's Society of Physics Students club, and was the 2015 Newkirk Research Assistant, a competitive award funded by Nadenia Newkirk in memory of her father, that supports student research. When asked about the award, Dobbs replied, "I am very excited to have the opportunity to travel to Switzerland and work on the ATLAS experiment at CERN! It will be an amazing experience working alongside ATLAS physicists from top research institutions and I am very grateful to have been awarded such an internship."

## Team Beetle Update

In January 2016, SSU Biology major Jared Deyarmin presented the results of his study of relationships between the genetics of mitochondria and the ability of leaf beetles to thrive and persist under physically challenging conditions in the Sierra Nevada Mountains of California. The research was presented at the annual meeting of the Society for Integrative and Comparative Biology in Portland, Oregon. Deyarmin is part of "Team Beetle," which is led by Biology professor Nathan Rank at SSU and by former SSU faculty member Elizabeth Dahlhoff, Professor and Chair of Biology at Santa Clara University. During the summer, undergraduate and graduate students from both universities conduct field research at the White Mountain Research Center in eastern California. Their research is supported by a NSF award which was granted to Rank and Dahlhoff in 2015. Deyarmin's work provides crucial insights into the mechanisms by which mitochondrial genes might interact with products of other genes to enable beetles to survive under variable thermal conditions in their native habitat. For more information on recent progress on this project, please see the [White Mountain Research Center's 2015 newsletter](#). —Dr. Nathan Rank



Jared Deyarmin, right.

# Science 220: Dream, Make, and Innovate

During the last decade there has been an increasing emergence of the “Maker” or Do-It-Yourself (DIY) culture across the United States. The Maker movement itself is much more than just making or building things: it includes a fresh mindset of sharing, creativity, problem solving, and entrepreneurship; it embraces the idea of a community doing cool things together and making high quality creations; and it involves a lot of tinkering and learning to think outside of the box. The spread of digital resources coupled with affordable fabrication technology has redefined what is accessible to amateurs and given rise to alternate crowd sourcing such as Kickstarter.

SSU is situated at the forefront of the DIY movement with access to many local Maker Space events and Maker Faires, including the regional Bay Area Maker Faire (which in 2015 boasted over 130,000 attendees) and the first 27-hour [North Bay Make-A-Thon](#) at SOMO Village in Rohnert Park. All across the Bay Area there are well equipped Makerspaces, FabLabs, Hackerspaces, and TechShops where people can collaborate and create. There is strong local representation with both the new [180 Studios](#) in Santa Rosa and the [Chimera](#) Community Arts and Makerspace in Sebastopol. Maker Media itself originally began in nearby Sebastopol as a spinoff from O’Reilly Media. They are the world leaders and pioneers in the field. They have even partnered with SSU to provide a [Maker Certificate](#) through the Schools of Education and Extended Education.

The School of Science and Technology (SST) has a history of initiatives directly tied to the making and learning-by-doing philosophy. For example, Dr. Lynn Cominsky and SSU’s Early Academic Outreach Director Susan Wandling [received funding](#) from the U.S. Department of Education’s Investing in Innovation fund (i3) to implement [Learning by Making: STEM Success for Mendocino County](#). Additionally, SSU’s Society of Physics Students club received awards for originating peer-sharing skills labs that teach a variety of DIY skills, including soldering, tool usage, microcontroller programming, circuit design, electronic measurements, and more.

Currently across the SSU campus, in addition to individual faculty efforts, we have a number of studio workplaces. The Department of Art and Art History maintains a large machining, wood working, and de-

sign facility, and The Department of Theatre Arts & Dance has both a costume and a scene shop. The School of Science and Technology also maintains a small machine shop in the Darwin basement. However, none of these shared spaces directly tap into the Maker movement.

In the Fall 2015 semester, Dr. Jeremy Qualls, Department of Physics and Astronomy, partnered with Caitlin Plovnick, Schulz Library, and Dr. Kirsten Ely, School of Business and Economics, to create a Maker experience for SSU students across campus. The idea was to create and pilot a sophomore year experience course and a new Makerspace. The result was Science 220: Dream, Make, and Innovate and the Library Innovation Lab. The course and Innovation Lab are currently being experimentally piloted during the Spring 2016 semester with 16 students.

Science 220 introduces students to methods and technologies needed to create and implement designs as well as invites them down a path of self-reflection and entrepreneurship. Students begin with a four week boot camp into informational resources, 3-D printing, Arduinos, basic electronics, materials, and rapid prototyping. During this time students begin to develop real world skills, examine their own assumptions, and identify and investigate problems in the world relevant to them. After the boot camp is over and students have identified a problem, they begin to work with community partners and experts to develop a solution and understand the processes needed to get an idea to production, and the impact their solution would have on society. As the course progresses, students will develop “test of concept” demonstrations and prototypes to ultimately present their results to a board of regional experts. The three unit course is progressing very well with students quickly picking up and using their new skills. Efforts are being made to develop additional community partnerships as well as working with Alvin Nguyen, SSU’s Coordinator of Freshman and Sophomore Programs, to enhance transitional and integrated person elements to have the course aligned with and to count for area E General Education credit.

For more information, or if you would like to be part of the SCI220 experience or Innovation Lab, please contact Dr. Jeremy Qualls at [quallsj@sonoma.edu](mailto:quallsj@sonoma.edu).

—Dr. Jeremy Qualls

The Department of Geology's Dr. Matthew James was confirmed as President-elect for the 2015-2016 fiscal year and will serve as President in 2017 of the [American Association for the Advancement of Science, Pacific Division](#). The annual meeting of AAAS-PD will be held in June 2017 on the Big Island of Hawaii at Hawaii Preparatory Academy, a private high school in the town of Kamuela. At the 2017 meeting, Professor James is organizing a three-day international symposium on evolution, ecology, and history of the Galapagos Islands, Ecuador.

In January, Drs. Mary Ellen Wilkosz and Wendy Smith, both of the Department of Nursing, traveled to Anaheim, CA to defend the competitive Song Brown Grant that Dr. Wilkosz wrote to support the rural distance Family Nurse Practitioner (FNP) Program. This money is used to support faculty and resources for our students in rural California, reaching nurses from the Oregon border to Fresno in the Central Valley, allowing these students to remain in their communities while earning an advanced practice degree. Sonoma State University's FNP Program was ranked first in the state by the [California Office of Statewide Health Planning and Development](#) and was awarded \$185,000.

FNP students Lisa Stafford and Peggy Walsh Goebel received scholarships from the [Healthcare Foundation Northern Sonoma County](#). This is the third year that the Foundation has awarded scholarships in an effort to offset tuition and expenses associated with further education for healthcare workers. The scholarships are designed to help outstanding healthcare providers stay and work in Sonoma County in order to keep quality healthcare close to home. Stafford received \$5,000 and Goebel received \$10,000. Both "exhibit the kind of long-term commitment to local healthcare that is critical to rural and agricultural communities," said Herb Liberman, HFNSC's Chairman of the Board.



Fig. 1: Dr. Ely and Ms. Plovnick in the SCI220 course introducing students to research methods and project development.



Fig. 2: SST and Library are partnering to develop an Innovation Lab with rapid prototyping capabilities including 3-D Printers, laser cutter, microcontrollers and informational resources.

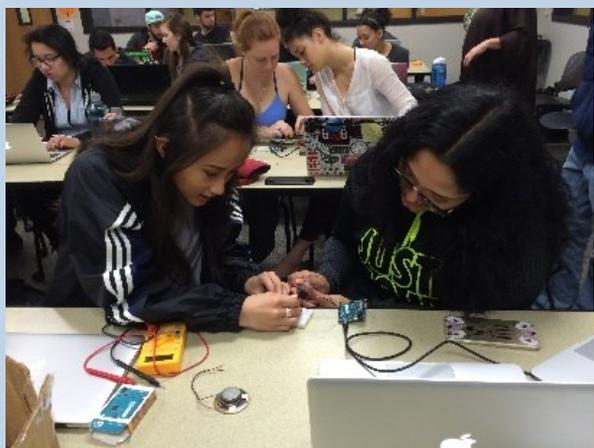


Fig. 3: SCI220 students in the Innovation Lab (Schultz 2020) building Arduino circuits to control LEDs and play sound through speakers.



Fig. 4: Community partner and mentor Chris Stewart, President/COO of Pocket Radar, shares with the class his expertise on bringing products from idea to market.

# In Hemingway's Footsteps in Cuba

Dr. Matthew James, Department of Geology

In December 2015 I took a swell trip. While my students back on campus crammed for final exams in my lecture and laboratory courses, and sweated out documenting their lengthy geology field trip reports, I got schooled, in the good sense. I went to Cuba, an island in the humid tropics where perspiration flows like cheap rum. I joined 22 other scholar-tourists from 15 campuses around the country who converged in Miami, Florida, and then made the short flight to Havana, Cuba for the week-long education and research delegation. Our group of professors represented a spectrum of academic disciplines from member campuses of COPLAC, the Council of Public Liberal Arts Colleges. Sonoma State University is the only member in the 23-campus California State University system and also in all of California. Participants were selected based on their interest in developing new ties and scholarly interests with Cuban faculty, or study abroad programs for U.S. undergraduates in Cuba. We had a historic opportunity to begin a dialogue between U.S. and Cuban faculty members on contemporary issues in Cuban society.

The organizers appropriately christened the trip COPLACuba, which caused more than one wag in the group to wink and comment good-naturedly, "I see what you did there." Mirroring the egalitarian nature of the social hierarchy in a socialist country, our COPLACuba participants all hailed from small colleges and universities, creating a much-appreciated internal sense of equality. No arrogant personalities or overbearing research reputations from R1 universities dominated our trip. We explored Cuba together, both intellectually and geographically, as equals. And the result was as transformative as it was enjoyable. We listened, daily, to four hours of PowerPoint lectures by Cuban scholars, a bit of payback my students might say. We learned about the 1959 revolution, the negative effects of the 57-



The COPLACuba group.

year US-imposed trade embargo, and the daily hardships experienced by the Cuban people during the "Special Period" of economic austerity after the collapse of the Soviet Union. We imbibed the history and experienced modern day Cuba, in a deep and firsthand way that regular visitors rarely do. It was a bit like a graduate seminar, with field trips.



Dr. James and Hemingway's bust.

During the COPLACuba trip I also pursued a life-long goal of tracking down Ernest Hemingway's Cuban haunts. In previous travels I had walked in Hemingway's footsteps in Paris and Key West, and visited his grave in Ketchum, Idaho. During my week in Cuba I visited five places that figure prominently in Hemingway's life and writing. Two bars in Old Havana command legendary status in Hemingway lore, as the milling, mid-day crowds confirmed. La Bodeguita del Medio might be a hole in the wall on a narrow, pedestrian-only street, but Hemingway made their mojitos famous. At La Floridita, a more upscale tavern, Hemingway enjoyed sipping daiquiris, including his double-strength specialty, the *Papa Doble*. Two taxi excursions in US-made 1950s cars steered us to locales with arguably more profound literary gravitas. The first was to Hemingway's home, now a museum, called La Finca Vigia, or the lookout farm. Built in 1886, it is located about 15 miles outside Havana. The next was east of Havana, again via 1950s taxi, to the fishing town of Cojimar and the bar-restaurant La Terraza, or The Terrace. With broad windows that open widely to bring in the sea breeze, La Terraza was a wonderful piece of Hemingway history. The fifth destination was to the 1924 Hotel Ambos Mundos in Old Havana. The hotel maintains room 511 as a sort of shrine to Hemingway. The lobby has two walls of framed photographs honoring the author. Up in room 511 sits a manual typewriter, spectacles, and papers on a small wooden table, the tabletop covered by a Plexiglas enclosure. Whether one is an aficionado of Ernest Hemingway, or not, either of his writing, or of his life, following in his footsteps was an enjoyable literary theme for several of our COPLACuba participants. As Hemingway himself might have written, we went to Cuba and it was good and true.

*Photographs courtesy of Dr. Matthew James.*



The [Department of Nursing](#) is proud of the community partnerships we have established over the past many years. For the past 14 years, the Department has had such a partnership with the [Jewish Community Free Clinic](#). Working to provide healthcare services to the uninsured in the region, the Department has students from all programs involved with the care of the patients and our community. The pre-licensure students provide care to children including urgent care, physicals for school entry and sports activities, and immunizations. The post-licensure students provide resources and referrals for all services available in the region including housing, healthcare, legal, dental, and employment, while the Family Nurse Practitioner Program runs an entire clinic to serve the need for women's health and physicals to help our local residents get back into the workforce. In addition, many pre-nursing students and students in other majors volunteer their time to provide all services. Graduates continue to volunteer and support the mission of the clinic. Sonoma State students are truly giving back to the community.

—Dr. Deborah Roberts

Left to right above: Tri Dam, Johnna Edmunds, Belkis Zhong, Amrit Cheema, and Katie Goldfarb. Photo courtesy of Johnna Edmunds.

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The [Society of Physics Students \(SPS\)](#) National Congress has awarded the SSU SPS chapter the "[Outstanding SPS Chapter for 2014-2015](#)". The award was based on an assessment of the depth and breadth of SPS activities conducted by the chapter, including obtaining two externally funded public outreach grants, offering free club tutoring in physics and astronomy, operating skills labs where students peer-teach useful skills, volunteering as judges and teachers at local schools, and fostering an environment of excellence.

## 28th Annual CSUPERB Symposium

The [CSU Program for Education and Research in Biotechnology \(CSUPERB\)](#) held the 28<sup>th</sup> Annual CSU Biotechnology Symposium January 5-7, 2016 in Garden Grove, CA. Student researchers and faculty from across the CSU attended the event including several SSU Seawolves. Industry professionals, government program directors, and legislators were also there to learn about the work of the faculty-student research teams. CSUPERB poster presentations from the School of Science and Technology:

Bo Zhang\*, Jared Deyarmin^, Kevin Roberts, UC Berkeley, Chris Wheat, Stockholm University, Elizabeth Dahlhoff, Santa Clara University, and Biology Professor Nathan Rank. *Geographic Variation of the Mitochondrial Genome and Endosymbiont Community in a Montane Extotherm*

Alex Staidle^ and Chemistry Professor Carmen Works. *Isolation of a Chromate Reductase from Pseudomonas veronii*

Carissa Ladwig-Cox^ and Chemistry Professor Monica Lares. *Synthesis and Purification of BAFF-R RNA Aptamer*

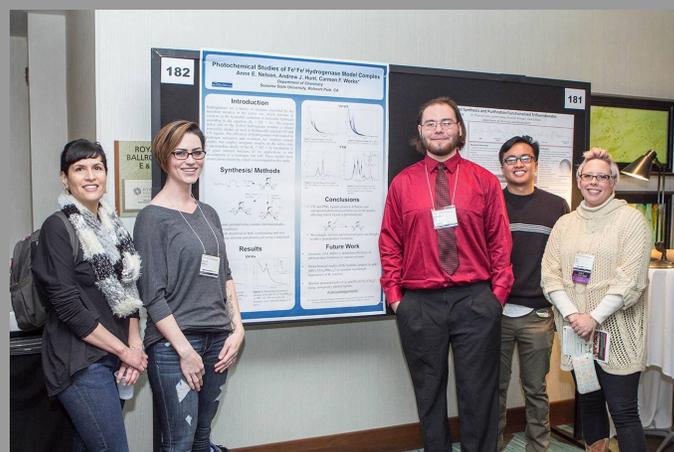
Patricia De La Torre^ and Chemistry Professor Carmen Works. *Synthesis and Characterization of Chromium Complexes and Reaction with the Metal Transport Protein, Transferrin*

Chantelle Leveille^, Katherine Baney+, Dylan Ostermann+, and Chemistry Professor Jennifer Whiles Lillig. *Synthesis, Purification and Characterization of a Mannose Phosphotransferase Peptide of Listeria monocytogenes*

Meghan McCurry^ and Chemistry Professor Carmen Works. *Photochemical and Toxicity Studies of a Novel Photochemical Carbon Monoxide Release Molecule (PhotoCORM)*

Anne Nelson\*, Andrew Hunt^ and Chemistry Professor Carmen Works. *Photo-activation of Hydrogen by Fe-Fe Hydrogenase Models*

\*graduate student, ^undergraduate, +high school student



Dr. Carmen Works, Anne Nelson, Andrew Hunt, unknown, Dr. Jenn Whiles Lillig.

**Don Winkle**, who graduated from SSU in 1988 with a B.S. in Computer Science, has been named a [Rising Star](#) two years in a row by [Super Lawyers](#). Winkle worked in the tech industry for several years before going to law school and ultimately practicing business and real estate transactions law. He met his wife, Carol Swain, who graduated in 1992 with a B.A. in Environmental Studies and Planning, through SSU.

From Don Winkle:

*My wife and I didn't technically meet at SSU, she was coming in just as I was leaving, but we met because of SSU, and it was our "thing in common" which started the whole thing. Having her at SSU more or less kept me in contact with the campus post-graduation. Carol works for Sonoma County in the Environmental Health and Safety Department.*

*My favorite professor at SSU was Dr. Bill Barnier. When Dr. Barnier saw Carol coming down the line at graduation, he changed his position so he could give her the scroll, which was a big part of our day. We got married very soon after she graduated.*

*My interest in law started at SSU, and I consider going to law school upon graduation; however, I was tired of eating Top Ramen and Kraft Mac and Cheese so I went to work in the high tech industry. In the tech industry my interests increasingly grew in the areas of business development, finance, and related topics. I witnessed firsthand what roles business attorneys played in the startup and operational stages of successful businesses, and it seemed like fun. So, I went to law school.*



Don Winkle and Carol Swain.



**Dr. Benedict Albeni**, who received his M.A. in Biology from SSU in 1992, has become a distinguished researcher and academic. In addition to being an associate professor in pharmacology at the University of Manitoba, he serves as the Everett Endowment Fund Chair and was just awarded the [Manitoba Dementia Research Chair](#) for \$500,000. The goal of the Manitoba Dementia Research Chair is to champion dementia and dementia care research and advance best care practices for Manitobans affected by dementia.

Dr. Albeni has a robust background in both basic and clinical research. He has worked in both the industrial and academic sectors in a career that has taken him across the United States and into Canada. His research focuses on the biological basis of memory and understanding what happens to memory when it is impaired.



Dr. Benedict Albeni.

Alumni  
Corner

**Piner High and SST Partnership** As part of the School of Science & Technology’s continued commitment to the STEM pipeline, the school has partnered with Piner High School (PHS) in offering the STEM Certificate Program. The three-year-old partnership continues to grow and develop as evidenced by this academic year’s Fall Kick-Off at the PHS campus and Spring STEM Day Visit to the SSU campus.

At the Fall Kick-Off event in September, Dean Lynn Stauffer was joined by Drs. Jeremy Qualls (Physics and Astronomy), Deborah A. Roberts (Nursing), and Mackenzie Zippay (Biology), and students from Nursing, Kinesiology, Geology, Engineering, and Physics and Astronomy. Dean Stauffer (left) presented letters of recognition to seven Piner students who were planning their independent inquiry project to complete their Level 3 credit. Level 3 students are offered early admission review by SSU into one of SST’s nine STEM-related majors.

Piner students particularly enjoyed the presentations by SSU students and faculty. Dr. Roberts and Nursing students Vaneza Harrington, Amber Fraley, Megan Sommer, and Ana McQuinn demonstrated some of the skill sets required in their program and field by providing some routine onsite tests. Kinesiology students Jasmine Geohegan-Poe and Maya Ayala (left) also provided an interactive experience by leading an impromptu stand-up and move exercise. They shared some of their research and emphasized the dynamism of their program.

Students were motivated by Dr. Zippay’s enthusiastic presentation that highlighted her exciting research experiences in Antarctica. Continuing with the same sense of adventure, Geology students Emily White and Betsy Smith detailed their geologic excursions that have expanded from Bodega Bay to Burgess Shale in Canada.

Engineering students Danny Frank, Hanan Sedaghatpisheh, and Richard Duong highlighted their small class sizes and the accessibility of their professors at SSU, which helps them and their classmates design their own education, encourages their participation, and allows them to have a truly hands-on lab experience. Casey Lewiston, Physics major, also talked about his lab experiences which helped him learn how to appreciate and even enjoy math. In fact, his area of interest is now applied math in building rockets.

In February, Piner students participating in the Piner/SST STEM pipeline visited SSU for an interactive tour of the campus. Coordinated by Dr. Jeremy Qualls, Director of Academic Planning and Resources, Piner students learned more about SST’s majors and got a feel for studying at a university. The high school students toured labs, met with faculty from different departments, and interacted with college students. —Cory Oates



Left to right: Tim Zalunardo, Piner Principal, Dean Lynn Stauffer, Vaneza Harrington, Ana McQuinn, Dr. Deborah Roberts, Megan Sommer, Judy Barcelona, Piner STEM Coordinator, and Amber Fraley.

The Department of Geology’s Dr. Matthew James was the invited speaker at the 2016 Sacramento Darwin Day event on Saturday, February 13 at the La Sierra Community Center in Carmichael, just outside Sacramento. Professor James spoke to a group of over 100 people on the topic of his forthcoming book with Oxford University Press concerning the 1905-06 Galápagos scientific collecting expedition from the California Academy of Sciences. He addressed why the expedition went to the Galápagos, what the “eight young men” who served as sailor-scientists did during the 17-month voyage, and the historical context of their vast collection of biological and geological specimens, still in active use today. Darwin Day is an international event celebrated annually on or near Charles Darwin’s birthday, which is February 12.

## Service Awards

Celebrating...

### 25 Years of Service

- Dr. Steven Winter, Kinesiology
- Dr. Ellen Carlton, Kinesiology
- Dr. Joanne del Corral, Physics & Astronomy

### 30 Years of Service

- Dr. George Ledin, Computer Science
- Dr. Lynn Cominsky, Physics & Astronomy
- Dr. Matthew James, Geology
- Dr. Saeid Rahimi, Engineering Science

### 35 Years of Service

- Steve Wilson, Mathematics & Statistics



President Armiñana and Dr. Steven Winter.



Dr. George Ledin, Dr. Lynn Cominsky, President Armiñana, and Dr. Matthew James.

# Upcoming SST Events

Save  
The Date!



## 2016 Math Festival

April 20, 2016  
Student Center, Ballroom A

### M\*A\*T\*H Colloquium

4:00 PM

Speaker Dan Meyer, Desmos

Advocate for better math instruction as seen on CNN, Good Morning America, Everyday with Rachel Ray, and Ted.com. Named one of Tech & Learning's 30 Top Leaders of the Future.



**Math is Power not Punishment**

Following the Speaker:

Delicious Dinner  
&  
Awards Ceremony

RSVP

## 2016 Science Symposium

Part of SSU Symposium on Research and Creativity

May 4, 2016  
Student Center Ballroom  
[www.sonoma.edu/scitech/symposium](http://www.sonoma.edu/scitech/symposium)

**Program:**

- 4-5:30 pm Freshman SCI 120 Research talks
- 4-6 pm Poster Session and Reception
- 6 pm Awards Presentation

**Presenter Registration:**  
Go to:  
[www.sonoma.edu/scitech/symposium](http://www.sonoma.edu/scitech/symposium)

1. Pre-register by **March 22** (project title only)
2. Register by **April 25** and submit an ABSTRACT to qualify for AWARDS and receive a FREE t-shirt

The Symposium is open to all students, faculty, staff and community members

The symposium features talks by SCI 120 students, and a poster session showcasing the scholarship and achievements of students in the *School of Science and Technology* as well as collaborations across disciplines and with community partners as part of the WATERS Collaborative

## THE NATURE!TECH CONFERENCE

THE TECHNOLOGY DRIVING AN ENVIRONMENTALLY READY GENERATION

May 7, 2016

Sponsored by Green Music Center, Pacific Gas and Electric Company, and SSU's Center for Environmental Inquiry

A behind-the-scenes look at how new technologies - such as drones, virtual reality, and big data - are revolutionizing both the way we look at the environment and how we train the workforce of tomorrow. Meet and connect with outside technology organizations as well as faculty and students working on exciting new projects!  
Contact: Dr. Chris Halle at [halle@sonoma.edu](mailto:halle@sonoma.edu) | [sonoma.edu/cei](http://sonoma.edu/cei)