A Note from the Dean

Welcome to the Spring 2012 issue of the SSU School of Science & Technology (SST) newsletter. Our inaugural December 2011 issue received a warm reception from our students, alums and community. We are so pleased to be in touch again to share (and brag a bit!) about the wonderful things going on in our school.

Spring classes began on January 17, nearly two weeks earlier than in years past. This reflects a shift in SSU's spring calendar with Commencement planned for Saturday, May 12. All of our courses—from large general education classes to upper-division major courses—are full to capacity. Many of our students are busy with their capstone and senior research projects. Several students have received awards to support their work including chemistry major, Christopher Campbell. Chris was awarded funds from the CSU Program for Education and Research in Biotechnology (CSUPERB) to present his work at the American Chemical Society National Meeting in March. Biology undergrad Colin Donlevy received a Marine Science Research award from the CSU Council on Ocean Affairs, Science and Technology (COAST). Other student and faculty activities are highlighted in this issue.

Over 13,000 California high school seniors have applied for admission to Sonoma State this fall. This is ~1,000 more applications than last year and many of these young people are interested in SST majors. Unfortunately, this growing demand coincides with further cuts in CSU support from the state. The CSU system took a $750 million permanent cut this year—a staggering figure equal to about 30% of the system-wide budget. This is a tough equation to balance. Governor Brown’s 2012-13 budget proposal is for CSU funding to remain flat but only if the November tax measure passes. So everyone here is hoping that the taxes will pass and CSU will be spared from an additional $200 million mid-year trigger cut.

On a brighter note, this year marks the 50th Anniversary of Sonoma State University. We’ve come a long way since 1961 and we have a lot to be proud of! We also have lots to plan for and opportunities to pursue in the future. Check out the SSU 50th webpage at www.sonoma.edu/50th/.

I hope you enjoy this issue. If you want further information please contact me at lynn.stauffer@sonoma.edu.

Lynn Stauffer
Interim Dean, School of Science & Technology

Biology Students Present Research at CSU Long Beach

Biology students from Professor Karina Nielsen and Mike Cohen’s research groups presented on their respective projects at the second annual faculty-student research poster reception January 24th, at the Chancellor’s Office in Long Beach. The reception highlighted results from research groups within the CSU Council on Ocean Affairs, Science and Technology (COAST) and Water Resources and Policy Initiatives (WRPI). Jill Stokes (pictured on the right), an M.S. student from Dr. Nielsen’s group, presented “Don’t bully the bullate: A new wrinkle on how the two forms of an intertidal kelp enable it to cope with environmental stress.” SDSU M.B.A. students Ni Huang and Jia Su, who collaborated with Dr. Cohen’s group to conduct an economic feasibility analysis of their Fuel from Aquatic Biomass project, presented “Wastewater polishing by a constructed wetland and anaerobic digestion of harvested phytomass for production of bioenergy”. More information on the event can be found at http://blogs.calstate.edu/science/?p=1528#more-1528.

Test Your Knowledge

Consider this sequence of special numbers:

3, 7, 31, 127, ____ What comes next?

Find the answer in our next newsletter.

Nathan Rank Receives Goldstein Award

Dr. Nathan Rank, Chair of the Biology Department, was one of two recipients of the Goldstein Award for the 2011/2012 academic year. This program recognizes Sonoma State faculty members who are active scholars and engage students in research and scholarship to facilitate their learning. The program is in its third year and it provides faculty members with support to help them make further progress in their research. Dr. Rank has involved undergraduate students in his research in the Sierra Nevada mountains since 1987. His work focuses on how populations of insects at high-elevations adapt to environmental challenges and investigates their potential to survive expected future changes in climate. This work involves researchers and students from universities in California, Canada and Europe. Dr. Rank will use his funds from the Goldstein Award to complete several projects with collaborators in Belgium and Finland in May 2012.
News from the Physics and Astronomy Department

Professor Lynn Cominsky has received $550K in new funding from NASA to develop a secondary school curriculum through which students will learn how to build small experimental payloads to be launched on high-powered rockets or lofted on balloons. The work will be done by Professor Cominsky’s Education and Public Outreach (E/PO) group. Last fall E/PO group member Kevin John and Professor Cominsky both achieved their Level 2 Rocket certifications from the Tripoli Rocketry Association, in preparation for beginning work.

Professor Scott Severson gave an invited talk at the PhysTEC conference in Ontario, California on February 2, 2012. The talk, entitled “Innovations in Teaching of University Physics” will describe how SSU’s P&A department works to increase the number of physics majors who are considering a career in high-school physics teaching.

Professor Hongtao Shi’s work “Mg-induced Enhancement of ZnO Optical Properties via Electrochemical Processing” has been accepted by the Materials Research Society for presentation on April 10, 2012 at their meeting in San Francisco, California. In this paper, he describes how an electrochemical method is used to boost the optical properties of ZnO, which has big potential applications in UV sensors. SSU physics graduates Kalie Barrera, Timothy Hessong, and current student Cristhyan Alfaro are co-authors on this paper.

Three SSU Students Attend Women in Physics Conference

Physics majors Rebecca Salvemini, Kalie Miller and Crystal Ewen were among the 800 women who gathered at six schools across the country to participate in the Seventh Annual Undergraduate Women in Physics Conference. The three SSU physics majors, along with Physics & Astronomy Professor and Department Chair Lynn Cominsky, traveled to the Stanford Linear Accelerator Center (SLAC) on January 13th to participate in a weekend full of lectures, discussion panels and workshops. Quantum mechanics, health physics, particle physics, the formation of the universe, and the quest for the Higgs boson at the Large Hadron Collider in Switzerland were among the topics of discussion during the conference. Rebecca Salvemini had only positive things to say about her experience at the conference: “At most schools in America, women in physics classes are the minority. The reason this conference was so amazing was the fact that we were all surrounded by others who share many of the same experiences and the same excitement about their physics classes that we do. The undergraduate women in Physics Conference gave us the opportunity to meet these women, to learn about what many physics do after they graduate, and to gain experience and knowledge about networking and making the best decisions about our future careers when we graduate.”

Insecta-Palooza and the Entomology Outreach Program

Insecta-Palooza briefly disrupted the fall semester with a flurry of activity that engaged students, faculty, and staff in celebrating all things entomological. Last October’s Insecta-Palooza built on the success of the first two years, and celebrated the university’s 50th anniversary with a theme of metamorphosis. Over 80 SSU student “Worker Bees” volunteered, sharing their enthusiasm for science with fellow students and the community. Students participated from departments in SST and across campus; they included 12 graduate students, 9 alumni and 17 former entomology course students.

The Department of Math once again hosted the popular Origami Insects activity, the Engineering students shared their wall-climbing electronic bugs, and Nursing students contributed to the Medical Entomology exhibit. Exhibits such as “Insectivores” and “Biodiversity Pie: The Other 28%” broadened the theme, and the alligator skeleton, which is part of the Biology Department Museum, was a hit. The local Hubbub Club Marching Band provided an element of midday musical whimsy as they paraded through the hallways and around the quad, followed by costumed revelers with bobbing antennae. Insecta-Palooza offered something for everyone, hosting speakers from several universities and other institutions, and the interactive labs drew accolades from people of all ages.

The charged atmosphere of Insecta-Palooza gives a glimpse of the excitement that the Preserves’ Entomology Outreach Program brings to classrooms and public events in Sonoma County. Presentations and exhibits focus on beneficial insects, aquatic invertebrates, and anthropod evolution; hands-on school garden safaris and creek exploration are also popular. In collaboration with the Department of Biology, the Program has participated in events such as the annual Pepperwood Wildflower Festival, Sonoma County Ag Days, and the inaugural Bay Area Science Fair which reaches over 17,000 people annually. At SSU, in addition to Mesa Day and Seawolf Day, the Program works closely with the ENSP Garden Classroom Program to develop an insect-friendly garden and exhibits for events in the garden such as Habitat Day (April 20), and Autumn Fest. Both Programs are poised to participate in Copeland Creek restoration efforts, pending the award of a grant; work is anticipated to begin in August 2012.

Insecta-Palooza serves to create awareness of the Entomology Outreach Program, and to help raise funds for its support. In addition to a grant from Sonoma County Fish and Wildlife, the program benefits from an ongoing IRA grant provided by the Associated Students. Local businesses and private donors have also contributed to the Program’s success. Fundraising efforts, and grants have made possible the purchase of three Zeiss dissecting microscopes for travel to schools, the development of special collections and curriculum materials, student and coordinator salaries, and funds for Insecta-Palooza. Subsidies have allowed the Program to provide classroom visits for reduced fees, and to underserved schools at no charge. Students working in the Program are supported by IRA grants,
The Program has regularly contributed to the Department of Biology, providing support for several classes, and contributing worktops and other materials for the improvement of the museum. Of particular note is a donation of 10 cabinets and over 200 wooden drawers that have allowed the entomology collections to expand and improve. Program interns have created special insect collections for outreach, and worked to improve museum collections.

An overarching theme of watershed stewardship unites the Entomology Outreach and ENSP Garden Classroom programs. Copeland Creek flows from its headwaters at Fairfield Osborn Preserve, through campus and to the Laguna de Santa Rosa. Creating links between our campus, garden, insects and watershed health helps to create a sense of place for students, and provides a template for lessons. The watershed focus on campus will continue in the coming year, as Copeland Creek restoration plans move forward. In 2012, the Insecta-Palooza theme will be World of Water; we hope you can join us as a participant or attendee!

For more information on the Entomology Outreach Program and Insecta-Palooza, visit the Preserves website: www.sonoma.edu/preserves

Update on S3: STEPPing up STEM at SSU
Professor Jeremy Qualls has been leading the effort to develop the core curriculum for a new freshman year experience course: Science 120 “Sustainability in My World.” This year-long course for first-time freshmen immerses students in real-world issues of environmental sustainability through hands-on work and outdoor field experiences at the SSU Field Stations and Nature Preserves. By design, it is an integrated course for students exploring their interest in the environment and considering a science major other than biology. Through real-world problem solving done in collaboration with faculty, peer mentors, and community partners, students will learn biological principles, mathematical reasoning, and critical thinking skills to help understand and address global issues in the context of our local environment and Sonoma County’s watershed.

During the first semester, each week will consist of lecture, discussion, skill building sessions, and a laboratory experience. During the second semester, students will progress through projects of their own design to solve real problems and answer questions that address community needs. In this course, students will learn skills to transition socially and academically to university study and receive a broad introduction to SSU’s science departments, campus research efforts, and student organizations. The course will satisfy GE requirements in Life Science, Mathematics, Critical Thinking and the science lab requirement.

Other members of the core team include: Lynn Cominsky (Physics & Astronomy), Nathan Rank (Biology), Brigitte Lahme and Ben Ford (Mathematics and Statistics), John Sullins (Philosophy), Claudia Luke (Director of SSU’s Field Stations and Nature Preserves) and Julie Greathouse (Student Services). Additional SST personnel who will be participating in the development of the curriculum include: Suzanne Rivoire (Computer Science), Farid Farahmand (Engineering Science), Carmen Works (Chemistry) and Michael Smith (Geology). This work has been funded by grant DUE-1068445 from the National Science Foundation. The Principal Investigator for the grant is Dean Lynn Stauffer.

while others are enrolled in academic internships, or are fulfilling service-learning requirements.

Agilent Donation Provides Scholarships for Engineering Students
Agilent has contributed to the Santa Rosa Chamber of Commerce’s BEST program, designating $10,000 annually over five years for engineering student scholarships at Sonoma State University and Santa Rosa Junior College. Agilent’s commitment will help strengthen engineering education in Sonoma County through targeted funding in BEST’s initiative to build a world-class workforce based on education attainment.

Agilent has also funded faculty, student and coordinator stipends for a Summer Research Academy which will take place in late May 2012. This academy is in partnership with the SRJC MESA program.

National Science Foundation Awards
Dr. Matty Mookerjee received a National Science Foundation award for his grant proposal “Acquisition of Electron Backscatter Diffraction (EBSD) detector and sample preparation equipment” ($122,163.00). This new detector will be installed onto the Hitachi Scanning Electron Microscope in the Keck Laboratory in Salazar Hall. This equipment will allow Dr. Mookerjee, and his students, to examine the crystallographic fabrics of deformed geological specimens in order to further understand the kinematics and mechanisms of faulting and shear zones.

Professor Thomas Buckley has received an NSF Grant for $141,078 for his proposal “Mechanisms for the decline of leaf hydraulic conductance with dehydration, and plant and environment level impacts.” Professor Buckley’s contribution will involve cell pressure probing and modeling. The grant includes funds to hire a Master’s student, undergraduate research assistants, and pressure probe-related equipment.

RSCAP Mini Grants
Farid Farahmand, “Intelligent Mobile Environmental Geosensor (iMEG) Network” The objective of this project is to design and implement a functional intelligent mobile environmental geo-sensor (iMEG) network capable of collecting microclimate information via spatially dispersed mobile users. The collected information will be forwarded to a central server that is accessible to remote users. The network consists of many autonomous location-aware mobile nodes. Each iMEG node comprises a miniature microcontroller, memory, wireless communication, GPS, and attached sensors. The on-board sensors are used to collect information about the physical world (temperature and humidity). The iMEG nodes can be carried by individuals or installed on vehicles. The data collected by each mobile node can be further exchanged with other nodes coming in contact for fast data transfer to the network server. A key research feature of this project will be developing an innovative approach to utilize open-source tools in managing environmental data.

Michelle Kelly, “Investigating New Measures to Prevent Hospital Re-Admissions in Sonoma County” Dr. Kelly has been on the forefront of investigating new care delivery models to address gaps in health care thorough out her nursing career and has investigated the phenomena of preventable hospital readmissions. Dr. Kelly is currently a consultant for staff at Memorial Hospital and is implementing a demonstration project with nursing students seeing patients after their hospital discharge.

Matty Mookerjee, “Sample Collection and Preparation for Electron Backscatter Diffraction (EBSD) Analysis” This project dovetails with the acquisition of an Oxford Instruments EBSD detector and the Buehler EcoMet/Automet 250 and VibroMet 2 sample preparation equipment. Dr. Mookerjee and his students will use EBSD analysis to evaluate the hypothesis that shear zones in certain tectonic settings develop in such a way that they become thinner as they develop, localizing the deformation into thin zones and discrete faults. They will collect specimens from three tectonically distinct shear zones: the Rosy Finch Shear Zone near Mammoth Lakes, CA, the Bitterroots Detachment Fault near Hamilton, MT, and the sheared boundary of the Beer Creek Pluton in Deep Springs Valley, CA.
Six SST students participated in the CSUPERB Biotech symposium in January at San Jose: Biology students Blake Foster and Timothy Lujan; Chemistry students Brittany Anderson, Pete Arnold and Casee Barnes; and, Scott Parmley from the Engineering Science Department. More information about the conference can be found at http://www.csuperb/symposium/2012/.

**SHIP Program - *CALL FOR STUDENT APPLICATIONS***

This summer, ten SST faculty will be welcoming Sonoma County’s top high school juniors into their research labs as part of the fifth annual Summer High School STEM Internship Program (SHIP). Through this selective program, the high school students work side-by-side with SST faculty and students on challenging research projects. These SHIP students then act as ambassadors to relay the highlights of their scientific work and SHS experience to their classmates and teachers during their senior years.

Past SHIP projects have resulted in scientific publications and presentations. Student intern Alex Taylor was a coauthor, with Dr. Steve Farmer of the Chemistry Department, on a paper that appeared in the journal *Molecules*.

For more information about SHIP, visit http://www.sonoma.edu/scitech/shs or contact Dr. Suzanne Rivoire in the Computer Science Department (suzanne.rivoire@sonoma.edu).

**Mark Perri, “Impact of Alternative Transportation (SMART train) on our Local Air Quality”**

The objective of Dr. Perri’s collaborative research with undergraduates is to predict the benefits and impacts of the Sonoma Marin Area Rail Transit (SMART) program on SSU’s local air quality. Students will use software from the Environmental Protection Agency (EPA) and the National Center for Atmospheric Research (NCAR) to calculate the impact of replacing approximately 5,000 car trips per day with the corresponding amount of train trips. The results from this study will be used as a basis to apply for a larger federal grant from the National Science Foundation to expand this work to predicting the effects of other rail systems across the country.

**Bülent Sökmem, “Effects of Acute Caffeine Intake on Cycling Efficiency and Cycling Performance”**

More information can be found in the article on page 9.

**Carmen Works, “Purification and Kinetic Analysis of a Chromate Reductase from a Novel Pseudomonas”**

Most transition metals are important for proper biological function, but many are also toxic. The biochemistry of chromium is interesting in that one form is important for proper glucose metabolism (Cr^{3+}), while another is a known carcinogen (Cr^{6+}). The latter is a dangerous environmental pollutant due to its extreme water solubility and its production by several industrial processes. Previous research in Dr. Works’ lab has focused on finding and characterizing a bacteria that had enzymatic capability for the conversion of chromium(VI) to chromium(III) (enzymatic reduction). The goal of this project is to understand the enzymatic reduction, and to use this understanding for the bioremediation of chromium and other toxic transition metals that are public health threats. The plan to accomplish this goal is to purify the enzyme and characterize it using kinetics (rates of reduction), which will give important information regarding the mechanism. The significance of understanding the details of enzymatic reduction will help in the development of safe and greener methods to clean our environment of harmful transitions metals. Students currently working on this project are Sara Lynn Thompson and Sarah Perrin.

**Project LEAD Grant**

SSU professors Ben Ford (Math), Brigitte Lahme (Math), and Kathy Morris (Literacy, Elementary, and Early Education) have obtained a California Mathematics and Science Partnership grant that will provide approximately $93,000 to SSU which will finance professional development for instructors teaching third grade math thru Algebra I.

**CSUPERB**

Six SST students participated in the CSUPERB Biotech symposium in January at San Jose: Biology students Blake Foster and Timothy Lujan; Chemistry students Brittany Anderson, Pete Arnold and Casee Barnes; and, Scott Parmley from the Engineering Science Department. More information about the conference can be found at http://www.csuperb/symposium/2012/.

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**SST Student Awarded Noyce Instructional Student Assistantship**

Robin Decker is among five SST students selected as Noyce Student Assistants for the Spring 2012 semester. Robin will assist Dr. Sharon Cabaniss in the Department of Mathematics and Statistics with two sections of modern geometry by tutoring and grading student work. The Noyce Foundation seeks to improve the teaching of math and science in public schools, to encourage curiosity about math and science, and to create leaders in these fields.

**Safe Sleep Practices for Infants Promoted by Nursing Students**

A group of 23 nursing students have spent the past year working on a “floor talker” campaign, in partnership with the Sonoma County Public Health Department, in an effort to promote safer infant sleep environments in Sonoma County. The floor talker campaign consists of large plastic decals, written in English and Spanish, to educate parents and caregivers on how to reduce the risk of suffocation and SIDS (Sudden Infant Death Syndrome). These decals are in 48 retail stores and agencies in southwest Santa Rosa. For more information visit http://www.sonoma.edu/newscenter/2011/11/post-70.html.

**100% First-Time Pass on NCLEX**

The Nursing Department and pre-licensure BSN graduates and DEMSN (Direct Entry Master of Science and Nursing) students have a lot to be proud of: students achieved a 100% first-time pass rate on the NCLEX exam, which is the state licensing exam for nurses. DEMSN students, who are in an accelerated five semester program, have received high pass rates over the last seven years.

**Kinesiology Department’s Collaboration With Tech High**

The spring has brought a new course and teaching lab to the Kinesiology Department. KIN 422: High School Physical Education is a methods course for students interested in teaching and coaching. The department has partnered with Technology High School and is delivering quality standards-based physical education lessons to the high school students. Kinesiology majors are developing unit and lesson plans and assessments to put into practice during the lab. These future teachers and coaches are learning to systematically observe teaching behaviors and analyze movement to provide feedback to both high school students and their teaching peers. The lab allows students to put theory into practice in a real world setting.

The Technology High students are being offered an array of lessons that include skill development, offensive and defensive strategies, and fitness and health concepts. Currently you can see them practicing their badminton forehand and backhand clears, learning about heart rate and keeping a log of their own physical activity. Future learning segments include volleyball, lacrosse, disc golf, and fitness concepts. The Kinesiology Department would like to thank Technology High for working with us; it is truly a wonderful experience for our majors.
**Department of Kinesiology Human Performance Lab**

Dr. Büllent Sökmen of the Kinesiology Department has received a RSCAP grant to study the effects of acute caffeine intake on cycling efficiency and cycling performance.

Caffeine has been found to have global effects on the central nervous system (CNS) and on hormonal, metabolic, muscular, and cardiovascular functions during rest and exercise. It is clear that caffeine ingestion improves a single bout of endurance performance, however, it is not clear what mechanism improves endurance performance.

Dr. Sökmen’s goal is to test this phenomenon by looking at the effects of acute caffeine intake on exercise economy in trained males and females. Equipment purchased last year through a generous SST allocation will be used to examine muscle fiber recruitment through Electromyography (EMG), substrate utilization through blood lactate and glucose measures, and performance variables through isokinetic strength testing and cycling time trials. Oxygen consumption and pain perception will also be studied.

The Kinesiology Department is close to finalizing a Fee-For-Service Agreement that will enable the Human Performance Laboratory to perform health and fitness testing for SSU students, faculty, and staff, and the surrounding community. Dr. Büllent Sökmen, who is heading up the program, hopes to begin the service this spring. In addition to providing individuals with personalized feedback that will help them predict their athletic performance and implement a training program, the program will provide Kinesiology students with hands-on experience and critical skills that they can apply as graduates seeking a competitive career in the health and fitness industry.

**HPL Health and Fitness Testing & Anticipated Prices**

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<thead>
<tr>
<th>Exercise and Sports Performance Test and Consultation</th>
<th>SSU Students, Faculty, and Staff</th>
<th>Community Members</th>
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<tr>
<td>Cardiorespiratory Fitness</td>
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<td>$75</td>
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<tr>
<td>Lactate Threshold</td>
<td>$25</td>
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<td>Resting Energy Expenditure</td>
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<td>$40</td>
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<td>Body Composition</td>
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**Ribbit, Ribbit, Ribbit, Ribbit!**

Were you taken by surprise with the overwhelming chorus of frogs after our first big rains in mid January? According to Biology Professor Nick Geist, the frogs making all that racket are known by the common name of Pacific tree frogs or Pacific chorus frogs. The scientific name for these small green amphibians (adults range from 3/4—2 inches long) is Pseudacris (or Hyla) regilla. They are very common in virtually any western habitat that has some water, and right now the males are busy calling for females to mate with them. The males and females will grab onto each other (technically “amplexus”) and the male will fertilize the mass of eggs she lays. Next come the tadpoles by the thousands!

**MARK YOUR CALENDARS**

- March 12-16th: Geek Week
- March 14th: Pi Day
- April 11th: Math Festival & Alumni Dinner at Sally Tomatoes
- April 14th: Expanding Your Horizons Conference
- May 12th: Commencement

**News From Engineering Science**

Due to the efforts of Drs. Don Estreich, Farid Farahmand, and Jack Ou, Agilent EEs of EDA, the leading supplier of Electronic Design Automation (EDA) software for communications product design, donated two of their key software products to the Engineering Science Department. Advanced Design System (ADS) and Genesyss are the leading electronic design automation software for RF, microwave, and high speed digital applications. Integrating these powerful tools into our ES courses will allow our Electrical Engineering majors to be engaged in real-world design projects and problem solving. Furthermore, being familiar with such tools can provide greater job opportunities for our graduates.

Through close ties with the Buck Institute and Agilent, Dr. Farahmand was able to secure internships for two of the Computer and Engineering Science graduate students. Leo Yu was selected to work with the researchers at the Bioinformatics Core Group, at the Buck Institute. His primary responsibility will be working with other researchers to develop sophisticated methods of computer analysis to categorize possible causes of different illnesses. The Buck Institute is the nation’s first independent research facility focused solely on understanding the connection between aging and chronic disease. Cesar Medrano will be working with Agilent’s R&D Lab responsible for developing Sampling Scopes. Cesar will also be involved in developing data-analysis software for Agilent’s high-speed scopes. Agilent Technologies Inc., which is located in Santa Rosa, CA, is the world’s premier measurement company and a technology leader in communications, electronics, life sciences and chemical analysis.

On January 28, 2012, the Press Democrat featured an article entitled, “Creative play for special children.” The article highlighted the challenges that children with special needs face and how community-based interdisciplinary projects at Sonoma State have been trying to make a difference. The article featured the interdisciplinary collaborative efforts between the Kinesiology Department and Engineering Science Department in offering their expertise to children with special needs. For more information visit: http://www.sonoma.edu/newscenter/2012/01/post-86.html.

**MESA Leadership Conference**

Four SSU MESA (Mathematics, Engineering, Science Achievement) students were selected to attend the 8th Annual MESA Student Leadership Conference. Mason Rothfeld and Joshua Disbrow (Engineering), Heidi Van de Wouw (Chemistry), and Kalie Miller (Physics) attended the conference, which took place in Oakland in October of 2011.

152 handpicked MESA students, comprised mostly of engineering and computer science majors from 25 universities and community colleges across the state, attended the event. Students honed their leadership skills and developed career strategies through skill building workshops, a career fair, interaction with technical professionals, and personalized mock interviews. MESA is one of the largest programs in the state to support educationally disadvantaged students so they can graduate from college with science, technology, engineering, and math (STEM) degrees.

![Pictured left to right: Joel Dickson of PG&E, Mason Rothfeld (EE), Izabela Kanaana (Math), Heidi Van de Wouw (Chem), Kalie Miller (Physics), and Joshua Disbrow (EE).](Image 905x111 to 1184x344)
In FY 2010-11, the SSU Preserves (http://www.sonoma.edu/preserves/) launched its recurring Program-Wide Annual Report. Once each year, we carefully sift through visitor logs to determine who visited the Preserves, how often, what they did when they got there, and where they came from. The figure below provides a snapshot of “what they did when they got there.” Other notable results from and Annual Report included engaging 105 students and faculty in service-learning projects, 116 students in internship programs, and students, faculty and staff from 6 Schools on campus. (Note that in the figure an attempt has been made to record individuals only once. For example, if one person comes on two class field trips, they are tallied as “1 individual engaged in University Education.”)

FAIRFIELD OSBORN PRESERVE: The Osborn Preserve, with its location next to campus and easily accessible facilities, is the busiest of the two Preserves with 2,228 visitors and 4,112 visitor-days. The majority of visitors are elementary students, teachers and members of the public, who participate in SSU student-led educational tours made possible by the Preserve’s Naturalist Training Program.

GALBREATH WILDERANDS PRESERVE: With its longer distance from campus and rugged terrain, the Galbreath Preserve is emerging as a place for intensive field experiences (326 visitors, 1,467 visitor-days). The majority of visitors last year were students and faculty engaged in class field trips (135). Interestingly, while only 34% of visitors were engaged in research, their recurring activities accounted for 69% of Galbreath use (1,015 visitor-days).

OFF-SITE: Off-site activities (education in K-12 classrooms, events, and fairs) are the hallmark of the Preserve’s Entomology Program which brings information about SSU and the natural world into the community. While these activities tend to be short in duration, they reach a large number of elementary school students (11,953) and community members (5,611).

Activities of Visitors Engaged in SSU Preserve Programs

<table>
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<tr>
<th>Preserves</th>
<th>Activities</th>
<th>University Education</th>
<th>Student Employment</th>
<th>Research</th>
<th>Other Education</th>
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<tbody>
<tr>
<td>Osborn (Total = 2,228 Visitors)</td>
<td>57%</td>
<td>34%</td>
<td>9%</td>
<td>3%</td>
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<tr>
<td>Galbreath (Total = 326 Visitors)</td>
<td>11%</td>
<td>34%</td>
<td>52%</td>
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<tr>
<td>Off-Site (Total = 17,822 Participants)</td>
<td>99%</td>
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University Education – educational activities in which university credit is involved
Student Employment – students employed by the Preserves
Research – investigations in which data or information are collected
Other Education – educational activities without affiliated university credit

CS Professor Active in Malware Field