

College of & Natural Resources & Sciences



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MESSAGE FROM THE DEANS



DR. DALE R. OLIVER

April and May is our favorite time of year. Students are hard at work collecting data in the field, writing reports, finishing senior projects, and studying for final examinations. Faculty are giving a lot of feedback (editing, grading, advising, encouraging) to ensure that students reach the rigorous standards of our CNRS degree programs. Then, on May 18, we celebrate the graduations of over 700 students. It will be a great day.



DR. RICK ZECHMAN

We hope you enjoy reading about some of our activities from the spring semester. There are so many good stories to tell about the students, staff, and faculty of the Natural Resources and Sciences. In August of 2019, we'll give you a preview of the 2019-20 academic year, along with the new faculty and staff who will be joining us to welcome the class of 2023.

Best wishes to all of our graduates on their future careers and studies, and to their families who supported them in this significant achievement.

- Dale and Rick

UPCOMING EVENTS

GEOLOGY COLLOQUIUM

Mondays at 5:00pm
Founders Hall Rm. 025

MATHEMATICS COLLOQUIUM

Thursdays at 4:00pm
Behavioral & Social Sci Rm. 204

SUSTAINABLE FUTURES SERIES

Thursdays at 5:30pm
Siemens Hall Rm. 108

WILDLIFE LECTURE SERIES

Thursdays at 4:00pm
Wildlife & Fisheries Rm. 258

BIOLOGICAL SCIENCES SEMINAR

Fridays at 4:00pm
Sci B Rm. 133

SCIENCE ON TAP!

First Wednesday of the month at 6:00pm
Blondies Food & Drink, Arcata

WILDLIFE TRACKING

First Saturday of the month at 9:00am
Natural History Museum

COREY GRAY ('97, PHYSICS & APPLIED MATHEMATICS): DISTINGUISHED ALUMNI

April 5, 2019 3:00pm - 4:00pm
Founders Hall Rm. 118

LOGGER BALL & AWARDS BANQUET

April 13th
University Center 225 - Kate Buchanan Room (KBR)

MCCRONE AWARDS CEREMONY

April 18th at 4:00pm
College Creek Great Hall

NATURAL HISTORY MUSEUM 30TH ANNIV.

April 27th at 1:00pm
Natural History Museum

NATIVE SASH CEREMONY

May 16th at 6:00pm
University Center 225 - Kate Buchanan Room (KBR)

ADPI GRAD CELEBRATION

May 16th at 6:00pm
University Center 225 - Kate Buchanan Room (KBR)

BLACK HERITAGE GRAD CEREMONY

May 17th at 4:00pm
University Center 225 - Kate Buchanan Room (KBR)

LATINX GRAD

May 17th at 6:00pm
Lumberjack Arena

CNRS COMMENCEMENT

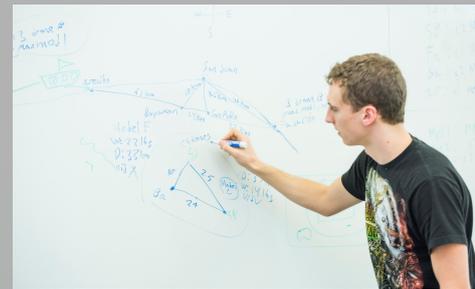
May 18th at noon
Redwood Bowl

MATH MODELING COMPETITION

Six student teams from Mathematics compete against 8,000 others

The Mathematical Contest in Modeling is an international four-day competition that challenges teams to analyze an open problem and propose a solution in the form of a written paper. The prompts are real-world problems that are relevant and timely. For example, students worked on the challenge of how can drones be best used to deliver medical supplies to augment a medical response after a hurricane, such as that experienced in Puerto Rico 2017. The contest is an opportunity to put the mathematical skills and techniques students learn in the classroom to practice, along with teamwork, analyzing data, and scientific writing.

Results will be announced in May 2019.



HSU PLANT ID TEAM PLACES 3RD OVERALL AND 1ST IN THE UNITED STATES

This is the second year in a row that the HSU Plant ID Team has placed 3rd overall and 1st in the United States. Congratulations to Coach Todd Golder and the Plant ID Team members!



SO STINKING COOL!

This March, HSU greenhouse's *Amorphophallus rivieri* bloomed. Commonly called the voodoo lily, this flower only blooms every few years and when it does it gives off an odor of rotting meat to attract flies that pollinate the flower. Despite the smell, visitors from all over campus came to see the flower.



Our college is grateful for these recently established student opportunities

Don C. Banghart Forestry Scholarship

to provide scholarship support to a student majoring in Forestry – established in memory of Forestry Alum Don C. Banghart, Class of '67. Preference giving to students studying fire ecology.

The Aalto Field Geology Endowment

is dedicated to the memory of Kenneth R. Aalto, PhD, who was a geology professor at Humboldt State University from 1974 to 2009. The purpose of the Fund is to support the teaching of Field Geology at Humboldt State University.

Joseph and Myrtle Grundell Endowment

to benefit academic programs in environmental protection services and wildlife habitat.

The Christina and Jack West Fellowship

provides support to HSU graduate students who intend to focus on clean, renewable energy and/or energy efficiency initiatives. Eligible applicants will be students enrolled in either the Environmental Resources Engineering (ERE) or the Energy, Technology, and Policy (ETaP) option of the Environmental Systems graduate program. The Fellowship is associated with the Schatz Energy Research Center, and selected applicants will engage in research activities through the Center.

If you're interested in giving to any of these opportunities or would like to create your own, contact our Philanthropy Advisor Maria Forrest at 707.826.5038

Alumni Update: Shauna Oh



Shauna Oh, an HSU Fisheries graduate who studied under David Hankin, was appointed the new director of California Sea Grant on February 20, 2019.

California Sea Grant is one of 33 state programs funded by the National Sea Grant College Program, part of the National Oceanic and Atmospheric Administration (NOAA). The program funds research and conducts applied research and outreach to benefit the economy, the environment, and the citizens of California.

Oh was previously the executive director of the Coastal and Marine Sciences Institute at the University of California Davis. Before moving to Davis in 2014, Oh worked with California Sea Grant from 1998 to 2014, most recently as associate director of the program. "California Sea Grant plays an important role linking academia, federal, state, and local government agencies, non-governmental organizations, industries, and local communities to define and address challenges and opportunities for coastal communities and ecosystems in California," says Oh. "I am excited to return to the program. I look forward to working with the dedicated staff to increase the research, training, and outreach opportunities for a larger segment of the marine science and management community in California."

ENGINEERING

Department Spotlight

Faculty in all of our departments are doing some amazing things. In this edition, you'll get to hear from our Engineering faculty.

Dr. Peter Alstone continues working on on clean energy research as a Faculty Scientist at the Schatz Energy Research Center. His main projects over the last year have included work with the California Public Utilities Commission (in collaboration with Lawrence Berkeley National Lab) to develop policy pathways for load shifting to integrate renewable energy into the California grid, R&D on small-scale "Solar+" microgrid technology with a pilot deployment at the Blue Lake Rancheria, and a modeling study that is resulting in the first-ever global estimate of the scale and impacts of backup generators used in the global south on weak grids.

Dr. Liza Boyle has been collaborating with Sandia National Laboratories to validate a model that she and undergraduate student Merissa Coello have built to predict the losses for solar energy systems caused by dust accumulation on their surface. The model is being validated on large data sets from around the world, and, pending successful validation, will be implemented into the free PVLlib library for use in predicting solar energy output.

Dr. Eileen Cashman and Dr. Brad Finney are collaborating with the California Department of Resources Recycling and Recovery to evaluate potential reuse streams for Recycled PET carpet. In addition to conducting material property testing on the recycled carpet, Dr. Cashman and Dr. Finney are conducting multiple pilot studies where the recycled material is evaluated for effectiveness as a filter media for wastewater and stormwater applications. Their research includes chasing storms for water quality samples so this wet water year is well timed for the project. The wet weather has also benefited Dr. Finney and Dr. Cashman's other research related to sampling for zinc concentrations in road runoff and sediment sampling in the Salmon Creek Headwaters watershed.

Dr. Beth Eschenbach has been working with Humboldt and Del Norte County K-12 teachers who are now required to teach the engineering design process with their students. She has brought well received elementary, middle school and high school curriculum to the region's educators. In addition, she has directly worked with middle school students interested in exploring the engineering design process. As department chair she has supported the Jeffrey S. Navarro mentors as they develop the ERE Professional Development Seminar series and shepherded the starting of a new student and faculty committee: ERECA - ERE Community Advocates.



ENGINEERING

Department Spotlight

Dr. Arne Jacobson continues to serve as director of the Schatz Energy Research Center. Working closely with emeritus professors Dr. Peter Lehman and Dr. Charles Chamberlin, he leads a team of about 50 people, including affiliated faculty members, professional staff, and student researchers. The Schatz Center's portfolio includes a variety of projects related to clean and renewable energy, covering topics such as renewable energy microgrids, clean transportation, biomass utilization, offshore wind development, and access to energy in off-grid areas of Africa and Asia. Much of Dr. Jacobson's research at the Center focuses on energy access for low income people, with recent project activities in countries ranging from Kenya and Uganda in East Africa, Nigeria and Niger in West Africa, India and Bhutan in South Asia, and Papua New Guinea in the Pacific. He is also leading several projects to assess the feasibility of offshore wind power development along the Humboldt County Coast.

Dr. Margaret Lang and Dr. Jasper Oshun, HSU Geology, are preparing for their second year of a Geoscientists Without Borders (GWB) funded research/service project in Zurite, Peru. The research part of the project is investigating the hydrology of the Andean puna which serves as an important water source for much of Peru and Chile. The service component of the project is working with the community to design, improve and extend their agricultural irrigation system. Approximately ten HSU ERE and Geology students travel to Peru each year to work with the local community and Peruvian university students to complete these projects. Dr. Lang is also working on projects with Caltrans to develop their design guidance documents for ecologically friendly road crossings and tidegates that allow fish passage and improve estuarine habitat.

Dr. Ali Moradi is currently working with collaborators from other institutions investigating thermally-induced mass transfer in subsurface and its potential for anthropogenic moisture control. This research will help in understanding the multiphysics processes of phase transition and vapor flow under non-isothermal conditions.

Dr. Margarita Otero-Diaz is currently working with Native American communities in northern California to assess the effectiveness and feasibility of small-scale UV water treatment systems to remediate cyanotoxins found in local drinking water supplies. Ultimately, the UV system would be implemented within existing water treatment systems, such as a small-scale slow sand filter, used by individuals not connected to the community water distribution system.

Dr. Sintana Vergara is conducting research on C emissions and C sequestration from the processing and use of residual resources (woody biomass, agricultural or municipal waste). She is continuing to collaborate with researchers at UC Berkeley to measure greenhouse gas emissions from composting systems, and C sequestration from the application of soil amendments to working lands. As a Faculty Research Affiliate at the Schatz Energy Research Center (SERC) and Principal Investigator on a project funded by the Agricultural Research Institute, she is working with colleagues and students to measure decomposition and controls on decomposition from the storage of woody biomass, prior to its combustion for electricity production. She and Dr. Jacobson successfully applied for funding to create an internship experience at SERC for first- and second-year ERE students. Three early-career students were competitively selected, and are now working at SERC, on off-grid energy access, offshore wind power, and biomass energy research projects.

CNRS CORE RESEARCH FACILITY

Facility Highlight



If you're an HSU student looking for help on a project or space to conduct research, the CNRS Core Research Facility may be able to assist you. As their website explains, the CNRS Core Facility and its staff are a resource providing training and experimental research experience as well as insight and advice to help one achieve their research project goals.

"In today's world a scientist has to be interdisciplinary", explains Core Facility manager Dave Baston, "and this research lab helps students broaden their scientific knowledge beyond just one discipline." Baston describes himself as a Medicinal Chemist. He began his career as an Urban Forester in the San Francisco Bay Area, and fifteen years later he earned a B.S. in Environmental Toxicology, then an M.S. in Soil Chemistry, and ultimately a Ph.D. in Molecular Biology and Toxicology, from UC Davis.

There are a number of active projects in the core: Jane Kuzmel, an Anthropology student, is measuring cortisol levels in saliva to measure stress prior to exams. Eric Garcia and Ismael Guerrero, part of a Soils Capstone group, are testing a homemade fertilizer solution made by biodegrading comfrey, based on a Korean natural farming technique. They'll measure growth and levels of calcium and magnesium in fertilized plants versus a control group. Additionally, two Kinesiology grad students are studying the effect of wild blueberry intake on fat oxidation rates.



Non-students use the lab, too. The USDA is funding the development of a genetic assay to identify the water molds that are contributing to Sudden Oak Death (SOD) and Biology Professor Erik Jules is looking at growth levels of plants in soils with varying levels of rabbit droppings, to name a few.

Equipment available for use in the Core Facility include thermal-cyclers, genotyping system, compound microscope, dissecting microscope, scanning electron microscope, Real-time PCR (qPCR), Atomic Absorption, plant growth chambers, and gas chromatography will soon be added. More details can be found on the Core Facility website, cnrscore.humboldt.edu.

Dave encourages anyone on campus to utilize the Core Research Facility as a resource. If you have questions about a project, please feel free to contact him through the Core website.

2019 MCCRONE PROMISING FACULTY AWARD

Winning Faculty Honored for Research Excellence

Environmental Science & Management Professor Kerry Byrne, Biology Professor John Steele, Forestry Professor Lucy Kerhoulas won awards that recognize the accomplishments of HSU's excellent newer faculty members.



Environmental Science & Management Professor **Kerry Byrne** is an impressive and active scholar. A terrestrial ecologist, her research centers around the abiotic and biotic factors that affect the management and restoration of species, communities, and ecosystems. Her current research projects include assessing the efficacy of a new restoration technique to eradicate exotic species and encourage the growth of native species at the Lanphere dunes; a conservation study of a rare plant species in southern Oregon; and a rainfall manipulation experiment to assess ecosystem response to global climate change in the western Great Basin.

She has been an author on more than 10 publications—including two peer-reviewed journal articles that have been published since she arrived at HSU in 2017—and her work has been cited numerous times. She has also actively sought and received funding to support her research endeavors. Since 2017, she has won four competitive grants totaling \$112,295 and has been awarded 12 research grants since 2014, including ones that support student research opportunities.

Involving students is a central component of her research, as well. She includes undergraduate and graduate students in many aspects of her research through fieldwork, lab work, analysis, and writing. In teaching the lecture and lab section of Applied Natural History and Ecology (ESM 303), she frequently uses her research to demonstrate ecological concepts or to show a case study of ecological research related to course material.

"I am excited to work with motivated undergraduate and graduate students on independent research projects and I strive to create paid research opportunities for students in all of my research endeavors," she says.



Forestry Professor Lucy Kerhoulas's work on restoration, tree physiology and old-growth canopy ecology is regionally focused and reflects HSU's commitment to environmental sustainability. She is currently involved with multiple ongoing scientific investigations, illustrating an impressive breadth of research interests and a strong capacity to work collaboratively with others. Two of the projects she is leading are especially notable. One study based in Redwood National Park evaluates forest vigor and biodiversity across sites thinned from 1978 to 2017. The second study examines the influences of conifer encroachment and removal on ecosystem vigor and biodiversity in California oak woodlands.

Her research is relevant, timely, and important not only to academics but also to conservationists and the timber industry. Her projects capture people's imaginations and she conveys both the scientific complexity of her work and its real-world importance.

She's just as committed to teaching as she is to forestry science, building successful and student-oriented research. She works closely with undergraduate and graduate students and treats them as colleagues and collaborators. Many top Forestry students who have worked with her have gone on to become her graduate students.

"As a scientist and professor, I strive to pursue meaningful and inspiring ecological questions, follow the scientific method to produce informative deliverables that will improve human land stewardship, foster positive relationships among academia, industry, and environmental groups, and share my enthusiasm for science and nature with my students in a hopefully contagious way," Kerhoulas says.



Biology Professor John Steele joined HSU in 2016 and has already become a leader in the department. As a neuroscientist and stem cell biologist, his research explores cellular pathways that human neurons access to survive injury, and what happens when these pathways break down in neurodegenerative diseases. His research program combines two cutting-edge technologies: human-induced pluripotent stem cell culture and CRISPR-based gene editing. These methods allow members of the Steele lab to edit, engineer, or regulate any gene in the human genome to answer complex questions about the pathogenesis of rare and common human neurodegenerative diseases.

His lab provides training opportunities for about 25 undergraduate and graduate students each semester. He teaches students in his lab highly complex experiments and helps them interpret their data, prepare presentations, and grow as independent scientists.

He excels not only as a scientist but also as a teacher, which shows in and outside the classroom. One nominator notes: "HSU students love Steele. Both his lower division and upper division courses are very popular and routinely fill up and have wait lists (the word has gotten around)."

He secured a major research grant of \$100,000 from the CurePSP Foundation and several smaller grants. He has obtained summer research stipends or travel funding for over a dozen of his students. He's also devoted to serving the University in various ways. He's club advisor to the Biological Sciences Graduate Students' Association, Chair of the GEAR Curriculum and Assessment Committee, a faculty mentor to INRSEP students and is actively involved in the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS).

SCHOLARSHIP RECOGNITION

It's the time of year where scholarships for the next academic year are being awarded. Take a moment to review what has been awarded so far for the 2019/20 academic year and appreciate the hard work that earned the deserving students these awards. Information about applying to scholarships can be found on the **Financial Aid** website as well as department websites.

Geoffrey Bain Jr. Memorial Scholarship	Michael Perez, Environmental Science & Management
Ernest P. Fusi Scholarship	Lucille Larson, Oceanography
	David Alvarez, Botany
Fusi & Fusi Dusi Family Scholarship	Chris Fabbri, Environmental Resources Engineering
Steinberg Family Geospatial Science Scholarship	Amelia Tauber, Wildlife Management Conservation
Siemens Scholarship	Edwin Espinoza, Computer Science
Lee-Mossman Scholarship	Leigh Douglas, Wildlife
Allan E. Nilson Memorial Forestry Scholarship	Dillon Martin, Forestry (Restoration)
	Brigitte Price, Forestry (Conservation)
	Rebecca Collins, Forestry (Wildland Fire Mgmt)
	Cole Nichols, Forestry (Restoration)
Dillard and Bailey Scholarship	James Lamping, Forestry (Soils)
	Gabriel Ordonez, Forestry (Wildland Fire Mgmt)
Don C. Banghart Forestry Scholarship	Quinn Bunstock de Hinojosa, Forestry (Hydrology)
Edwin & Joan Pierson Forestry Scholarship	Ryann Howard, Forestry
	Jessica Suoja, Forestry (Conservation)
Forestry Pathfinders Commemorative Scholarship	Marie Young, Forestry
Gayleen Smith Memorial Scholarship	Kawai Navares, Forestry (Soils)
Barnum Forestry Scholarship	Jacob Roggema, Forestry (Wildland Fire Mgmt)
HSU Forestry Alumni Scholarship	Cameron Stoflet, Forestry (Soils)
	Joseph Cofresi, Forestry (Wildland Fire Mgmt)
Jerry Partain Forestry Scholarship	Levi Ashe, Forestry (Conservation)
	Carson Grubb, Forestry (Conservation)
Louis H. Wayers Memorial Scholarship	Hector Piceno-Zamora, Forestry (Conservation)
	Cody Carter, Forestry
	Kristofer Shoblom, Forestry (Hydrology)
	Kyle Cota, Forestry (Wildland Fire Mgmt)
Mark B. Rhea Soil Science Scholarship	Megan Mitchell, Range Resource Science (Wildland Soils)
Robert Cary Forestry Scholarship	Zachary Maldonado, Forestry (Wildland Fire Mgmt)
	Brett Crandall, Forestry (Hydrology)
Schmidbauer Family Foundation	Zaine Huhtala, Forestry (Forest Operations)
	Dave Johnson, Forestry (Hydrology)
Ron Hoover Scholarship	Evan Goetz, Forestry (Conservation)
Women in Timber (WIT) Scholarship	Abigail Ladd, Forestry (Restoration)
Redwood Region Logging Conference	Conrad Stielau, Forestry (Wildland Fire Mgmt)
	DaShayne Sewart, Forestry (Wildland Fire Mgmt)
	Kylee Durrett, Forestry (Forest Operations)
	Wesley Navarre, Forestry (Forest Operations)
	Wiyaka Previte, Forestry (Wildland Fire Mgmt)
	Zach Rocha, Forestry (Forest Operations)

Academic Excellence Scholarship
Professional Promise Award
Outstanding Rangeland Resource Student

Gregory Mark Jennings Botany Award
F.R. Meredith Undergrad Botany Scholarship
Earl & Virginia Rumble Award for Excellence in Botany

Sterling J. Sam Botany Award
Milton J. Boyd Graduate Teaching Associate Award in Biological Sciences
Dennis K. Walker Botany Award
Michael B. Smeaton Biology Scholarship
Vera Woolford Scholarship
Robert S. Chambers Mathematics Scholarship
Elmo Moore Memorial Mathematics Scholarship
Travis Jepsen Memorial Mathematics Scholarship

Dr. Orval M Klose Mathematics Scholarship
Michael Tucker Mathematics Scholarship
Harry S. Kieval Scholarship
Harry Kieval Transfer Scholarship
Latika Patel Mathematics Scholarship
Paul Valentich-Scott Scholarship
Dr. Richard Paselk Biochemistry Scholarship
Humboldt Chemistry Scholarship

Humboldt Chemistry Research Scholarship
Charles and Judith Ferguson Dvorak Endowment
Lorensen Chemistry Scholarship

Imri Vasale, Forestry (Conservation)
James Lamping, Forestry (Soils)
Sierra Berry, Rangeland Resource Science
Tiffany Perez, Rangeland Res Science (Wildland Soils)
Kelly Pfeiler, Biology M.S.
Victor Garcia Balderas, Botany
Andres Rodriguez, Biology M.S.

David Alvarez, Botany
Kelly Pfeiler, Biology M.S.

Emily Hoefft, Botany
Morgan Richards, Cellular Molecular Biology
Daniel LaBelle, Kinesiology
Lilly Lyons, Mathematics
Camden Collins, Mathematics
Charlin Duff, Applied Mathematics and Physics
Jade Williams, Applied Mathematics
Annaliese Kuhn, Applied Mathematics
Michael Crow, Computer Science and Mathematics
Eric Malekos, Computer Science and Mathematics
Ana Sammel, Admitted Mathematics Student
Minh Nguyen, Applied Mathematics
Bennett Hosselkus, Oceanography
Alexander Engstrom, Biochemistry
Sean Mou, Chemistry
Jacob Begorre, Chemistry
Robert Freiburger, Chemistry
Christopher Rusiewicz, Chemistry
Alice Oberlander, Chemistry
Jasmine Collins, Chemistry

STUDENT OPPORTUNITY FUND ESTABLISHED

Initiated by the generosity of HSU alum Michael Paholsky, the college has established a new fund to support high impact learning opportunities for undergraduate students. These opportunities include research experiences, multi-day field-trips, service projects, internships, conference travel, leadership and professional development, diversity workshops, and study abroad.

Michael Paholsky (Physics and oceanography, 1981) lives in Clackamas, Oregon, and has had a distinguished career as a software engineer. He is passionate about reducing the financial burdens on students while ensuring access to high impact learning opportunities for all. We are grateful for his generosity.



Give to College of Natural Resources & Sciences

We can help you find the best way to make your gift, and perhaps find a gift option that you might not have otherwise thought was possible.

Give Now

If you'd like to setup a gift through an estate plan, please contact our Philanthropy Advisor

Maria Forrest
707.826.5038

CNRS Dean's Office

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