

College of & Natural Resources & Sciences

Inside the Issue



WELCOME TO NEW STUDENTS, FACULTY & PRESIDENT!

There are many new people to celebrate this Fall! p. 02

NEW EQUIPMENT IN CNRS CORE FACILITY

A micro CT scanner system in the Core enhances student learning p. 04

NEWS FROM MATHEMATICS

News from the Mathematics department and student highlights. p. 05

OFFSHORE WIND

Updates on the research supporting offshore wind and stories from student internships. p. 07

MESSAGE FROM THE DEANS

Dr. Dale R. Oliver and Dr. Rick Zechman

The excitement of new students, full of optimism and idealism, is still very much with us in the College of Natural Resources and Sciences in this 4th week of the fall 2019 semester. Even before the semester began, we had a record number of students who participated in our place-based learning communities where they were in the field and in the lab exploring what it means to be a scientist in this wild and scenic part of California.

Speaking of optimism and idealism, please take a few moments to read about our five new permanent faculty members as well as HSU's brand new president. We are excited to welcome and to work with these talented educators. They join a group of highly talented and highly effective faculty and staff, including HSU's Outstanding Professor of the Year, Dr. John Reiss, from the Department of Biological Sciences.

We continue to be proud of the accomplishments of our students. If you want to read about more about CNRS students, be sure to visit your favorite department websites, or check out the **Achievements** page on the CNRS web site.



WELCOMING THE CLASS OF 2024!

Each Fall, we are excited to welcome new Lumberjacks to our campus. We are looking forward to meeting and learning with this new group of students.



HSU'S NEW PRESIDENT TOM JACKSON, JR.



In July 2019, Tom Jackson, Jr., Ed.D. became the eighth president of HSU. Prior to his appointment he served as the president of Black Hills State University in Spearfish, South Dakota since 2014. He has held other leadership roles within higher education including vice president for student affairs at both the University of Louisville and Texas A&M University-Kingsville. He has also held administrative positions and served on the faculty at McMurry University, California Polytechnic State University, San Luis Obispo, the University of Southern California and St. Mary's University.

"I welcome the opportunity to work with HSU's talented faculty and staff, alongside community members, to ensure that those life-altering opportunities are expanded for current and future students," says Jackson.

Faculty and staff in the College of Natural Resources & Sciences are excited to work with the new university president!

WELCOME NEW FACULTY

Hunter Harrill, Forestry & Wildland Resources

Dr. Harrill is the new Assistant Professor of Forest Operations in the Department of Forestry and Wildland Resources. He grew up in Monterey Bay and is an alumnus of HSU (B.S. Forestry 2006 & M.S. Natural Resources 2010). He began his career in the private forest industry on the North Coast then took a once in a lifetime opportunity to travel abroad to earn his Ph.D. in forestry from the University of Canterbury in Christchurch, New Zealand; where he has lived and worked for the last nine years. His research interests are diverse but relate to the physical feasibility, economic viability, safety & environmental effects of timber harvesting operations; including the integration of new methods and technology to improve them.



Karen Kiemnec-Tyburczy, Biological Sciences

Dr. Kiemnec-Tyburczy's doctoral program research focused on chemoreception in lungless salamanders in the department of Zoology at Oregon State University. As a post-doctoral candidate at Cornell University, she investigated whether genetic variation in anuran immune genes plays a role in resistance to an emerging infectious pathogen spreading through Central America. Most recently, she has been teaching a variety of biology courses at the university level. She has been employed at Humboldt State University since 2013, where she has been teaching upper-division courses like genetics, genetics laboratory, and evolution. Since arriving here, she has initiated research projects on the genetics of invasive bullfrogs, Pacific newts, and treefrogs.



Kami Larripa, Mathematics

Dr. Larripa has a Ph.D. in Applied Mathematics from UC Davis with an emphasis on modeling biological systems and work in a math research group in physiology and medicine. Some current projects include studying cancer cell metabolism, macrophage differentiation, and stem cell signaling. She loves living on the beautiful North Coast and enjoys our beaches and trails as much as possible when not on campus.



Jennifer Marlow, Environmental Science & Mgmt

Jennifer Marlow graduated from Middlebury College with a degree in Environmental Studies and Literature, and from the University of Washington School of Law in 2010. Ms. Marlow's research interests are in climate justice, climate adaptation, climate displacement, and the law of climate change more generally. She is a practicing attorney and is licensed to practice law in Washington and Alaska.



Jorge Monteiro, Chemistry

Dr. Monteiro proposes to study new systems capable of luminescence and of generating singlet oxygen, and understand the structure-property relationships that lead to high efficiency of both processes. The generated knowledge will contribute to the design of new efficient systems that have improved luminescent and/or luminescent and singlet oxygen generation properties.



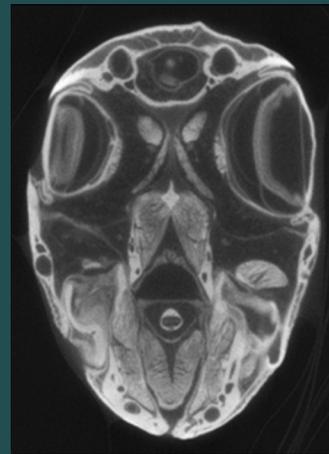
NEW TECHNOLOGY FOR BIOLOGY CORE RESEARCH FACILITY

HSU Professors John Reiss, Paul Bordeau, Brandon Brown, and Missy Hawkins received funding for a Micro Photonics SkyScan 1273 Desktop High Energy MicroCT scanner system, to serve as a major addition to the Core Facility in the College of Natural Resources and Sciences at Humboldt State University. The Biology/CNRS Core Facility is shared-use laboratory for student and faculty research in the sciences, established about 15 years ago, which currently has major equipment in the areas of genetic analysis, chemical analysis, and microscopy (including a modern ESEM with EDS). This award will allow the addition of a microCT scanner to the facility, integrating with existing 3D analysis and printing software, and greatly increasing the range of studies that can be undertaken at HSU.

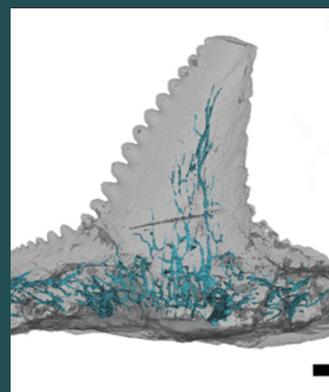
The Biology/CNRS Core Facility represents the first major endeavor on the HSU campus to create a true interdisciplinary, shared-use facility in the sciences. The MicroCT scanner will serve as a keystone addition to the facility by bringing together researchers from departments across the college, including those such as Geology and Fisheries Biology. By adding a microCT scanner to the facility, not only will particular research projects be enabled, but we will also greatly increase our ability to train undergraduate and graduate students in the sciences. More specifically, the instrument will enhance the experience of students in the Instrumental Methods in Geology course. HSU has a student population that is at least 43% underrepresented minority students, and has the greatest concentration of Native American students in the California State University system. Through participation in individual research projects and programs such as the Indian Natural Resources and Science Program (INRSEP) we will be able to train these students on a modern research instrument, encouraging them to pursue careers in science.



Above: Micro Photonics SkyScan 1273 Desktop High Energy MicroCT scanner system



Above: MicroCT-based 3D reconstruction of tooth of the fossil shark *Carcharopsis wortheni* (blue represents nutritive canals). Scale bar = 5mm



Above: MicroCT slice of the cichlid fish *Neolamprologus brichardi*, stained with phosphotungstic acid for contrast, showing eyes and cranial cavity

OUTSTANDING PROFESSOR GIVES PUBLIC LECTURE



Professor John Reiss, Department of Biological Sciences, Outstanding Professor Award recipient, has had a lasting effect on his students, his colleagues, and the University community through 21 years of excellence in teaching, sustained scholarly activities, and a consistent record of service. During his tenure at HSU, Reiss has taught myriad courses, from Comparative Anatomy of the Vertebrates (ZOO 370) to California Natural History (BIOL 306). Students consistently praise his accessibility, his dedication to his students' success, and his outstanding teaching in the classroom. Reiss has been a graduate advisor to 15 graduate students, and his research has resulted in approximately 25 peer-reviewed papers and a book, which has received excellent reviews by experts in the field. Reiss has a long record of service to the University. He recently was chair of the Department of Biological Sciences Curriculum Committee, where he led the department through a set of curricular revisions for each of its three majors: Biology, Botany, and Zoology. Reiss has established himself as one of the most distinguished professors in the institution.

Dr. Reiss will give a lecture in the JVD Theatre on September 25th at 5:00pm.

NEWS FROM MATHEMATICS



The Mathematics Department continues its support for all of the first-year STEM place-based learning communities (PBLCs). Several modules and longer data-based assignments have been developed by Sonja Manor and Ellery Ames, both lecturers in Mathematics, to link concepts in the introductory Mathematics courses with the scientific themes explored in the PBLCs. Examples include estimating the growth of algal cells in a culture, examining the rate of sea level rise at distinct locations in the region, and calculating changes in the acidity of the ocean. The Department offered a pre-semester training with the materials to all instructors using this curriculum. Mathematics is partnering with Computer Science to launch their own PBLC in Fall 2020, called "Representing Realities". The PBLC aims to connect the way patterns and structures are represented in local Native American art and cultural artifacts, and in the disciplinary languages of Computer Science and Mathematics.

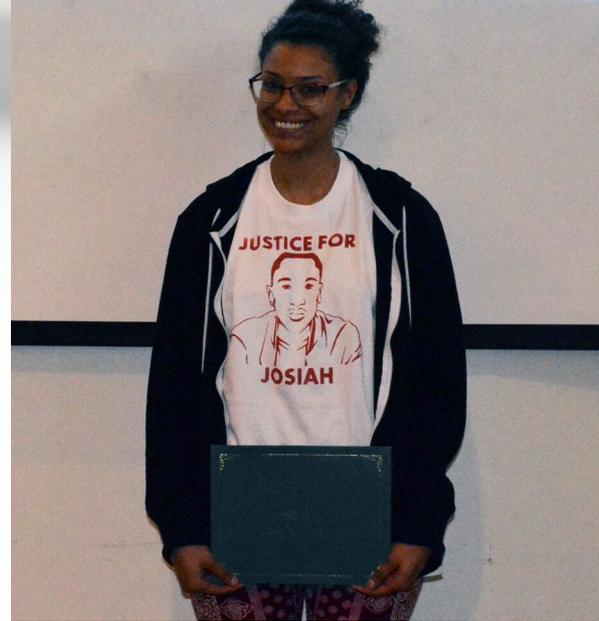
Professor Peter Goetz is enjoying a sabbatical year after earning his promotion to the rank of Full Professor. He is continuing his productive collaboration with Dr. Andrew Conner, an Associate Professor at Saint Mary's College of California. Their latest research paper "Classification, Koszulity, and Artin-Schelter Regularity of Certain Graded Twisted Tensor Products" was recently accepted for publication in *The Journal of Noncommutative Geometry*, a publication of the European Mathematical Society.

Professor Yoon Kim is one of the senior tenure-track faculty in Mathematics with expertise in Statistics. Professor Kim often advises experimental researchers on their methodology and data analysis. His most recent work from last summer include two consulting projects with Korean medical researchers that resulted in a paper entitled "Radiotherapy for initial clinically positive internal mammary nodes in breast cancer," in the *Radiation Oncology Journal*, and a second publication "An ecological study of geographic variation and factors associated with cesarean section rates in South Korea". The second publication represents a new research collaboration between Professor Kim and faculty from Seoul National University, College of Medicine.

The Mathematics Department welcomes a new tenure-track faculty member this Fall, Dr. Kami Larripa. Professor Larripa was hired as an Applied Mathematician charged with contributing to the success of lower division Mathematics offerings. Professor Larripa is uniquely qualified for the job: she is an excellent classroom instructor and has extensive experience with organizing and facilitating the Mathematical Contest in Modeling (MCM). The MCM typically draws many science majors and an increasing number of women, and helps spread excitement and passion for mathematics. Professor Larripa's research area is Mathematical Modeling, with an emphasis on modeling biological systems. Some of her current projects include studying cancer cell metabolism, macrophage differentiation, and stem cell signaling. She has been a participant of two prestigious workshops since 2016 American Math Society Math Research Community (MRC) in Physiology and Medicine and Math Biosciences Institute: Women Advancing Mathematical Biology, and is following up on resulting research collaborations.

MATHEMATICS DEPARTMENT STUDENT HIGHLIGHTS

Jade Williams is an Applied Mathematics major with a minor in Applied Statistics. Jade was the recipient of the 2018-19 Travis Japsen Memorial Mathematics Scholarship. Jade has worked as an instructor for Supplemental Instruction (SI) courses for introductory statistics both in 2018-19, and in the current academic year. Jade has also used her statistics expertise in her position as an employee of the HSU Student Health & Wellbeing Services. Jade's projects in collaboration with the Health Center have included the analysis of HSU's "Safer Campus" survey, as well as analyzing the effectiveness of mental health literacy training.



Michael Wilson graduated in 2019, with a major in Applied Mathematics, and a minor in both Applied Statistics and in Computer Science. Michael took many opportunities during his undergraduate career to get research experiences, for example, he worked on a project analyzing calcium signaling in zebrafish under the direction of Dr. Ethan Gahtan (Psychology) and Dr. Bori Mazzag (Mathematics). After graduation, Michael won a prestigious NIH Summer Internship under the direction of Dr. Mark Ahlman, and completed a research project entitled "Modeling pharmacokinetic FDG changes in clinical trials. Does the treatment change background or inflammation?" He is currently in his first year of a PhD Program in Statistics at Florida State University.

OFFSHORE WIND ON THE NORTH COAST

The Schatz Energy Research Center is conducting three overlapping studies on the feasibility of offshore wind farms on the California north coast. Offshore wind could make a significant contribution towards the state's target of 100% clean electricity by 2045. The region outside Humboldt Bay boasts some of the strongest, steady wind speeds in the nation, offering consistent generation for the California electrical grid.

Developing a wind farm outside of Humboldt would require upgrades in the harbor and to the electrical transmission system, an assessment of environmental and geological constraints, and collaboration between ocean resource stakeholders including fisheries, local tribes, and the US military. To address this breadth of research, faculty and students from across Humboldt State are participating in the Schatz Center's wind feasibility studies (see list, to the right).

Two graduate students will be submitting theses on their offshore wind research this year. Julia Anderson's thesis focuses on the cost model she has been building for offshore wind outside Humboldt Bay. Julia presented a poster on her current model at the Ocean Renewable Energy Conference in Portland this September. Ciara Emery's thesis, which collected data through stakeholder interviews and public meetings, is on stakeholder perceptions of offshore wind development in Humboldt County.

The Schatz Center was recently awarded three grants totalling \$923,000 to conduct offshore wind feasibility analyses. California's Ocean Protection Council is funding analyses of environmental impacts, coastal infrastructure, stakeholder engagement, and energy policy. The Bureau of Ocean Energy Management is funding the wind resource and grid compatibility assessments, preliminary subsea cable design, and economic analysis. The CA Governor's Office of Planning and Research is funding assessments of military mission compatibility, geologic and seismic constraints, and the environmental impacts of subsea cabling. Final reports will be delivered by late 2020, and will be publically available soon thereafter.

To learn more about the Schatz Center's offshore wind research, visit schatzcenter.org/wind



Humboldt Bay Harbor Entrance

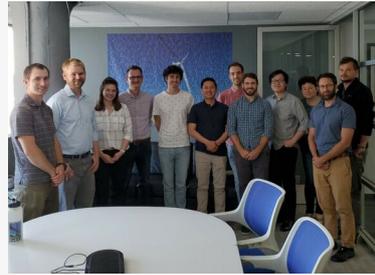
Faculty & Student Collaboration on Feasibility Studies

- Dr. Laurie Richmond, Ciara Emery, and Laura Casali are engaging with stakeholders to identify impacts and benefits of offshore wind development.
- Dr. Mark Hemphill-Haley and Dr. Eileen Hemphill-Haley are conducting an assessment of geologic & seismic constraints.
- Dr. Steve Hackett and Julia Anderson are investigating economic viability and development.
- Dr. Peter Alstone and Craig Mitchell are conducting an energy policy analysis.
- Dr. Charles Chamberlin, Karsten Hayes, and Tina Ortega are profiling the wind behavior and generation capacity off California's north coast.
- Dr. Chamberlin and Dr. Peter Lehman are working with a Schatz Center team on grid compatibility constraints.
- Dr. Arne Jacobson is the principal investigator for all three wind studies. The Schatz Center's wind team also includes Mark Severy (project manager), Max Blasdel, Dave Carter, Greg Chapman, Tanya Garcia, and Andy Harris.

STUDENT OFFSHORE WIND INTERNSHIPS

Desa Smith, Marine Biology

Desa got to work with Engineers all around the globe at Principle Power, with locations in California, Portugal, and France. She also partnered with an ecological consultant in Arcata, Sharon Kramer, from H.T. Harvey. Both the internship and partnership opened her eyes to the many different types of careers one can have with a degree in Marine Biology. Before beginning the offshore wind internship, she had very little knowledge of wind turbines or wind energy.



The most rewarding part of the internship was growing skills that will help her in her future career and strengthening her knowledge of marine renewable energy, specifically offshore wind farms. She was excited to apply what she learned from her Marine Biology, Invertebrate Zoology, and Mammalogy classes, but the internship centered around reading, data analysis, and writing. The final project was a White Paper for Principle Power's use, in which she spent the majority of the summer writing about the environmental impacts of a 5-year prototype offshore WindFloat. As a science major, she never thought she would need writing skills, but the internship taught her that it is an important skill to have. The improved skills in data analysis and writing that she obtained through this internship will help her through the rest of her educational career as well as her lifelong career. She says, "If someone had asked me to write a single-spaced 30-page paper just six months ago, I would have told them no way I could do that. However, through Principle Power, I did just that." She plans to apply what she learned from her internship by being more involved in the marine renewable energy field, which she would not have considered if it weren't for Principle Power.

Craig Mitchell, Environmental Resources Engineering

Craig spent the summer working for Aker Solutions, which is part of a Public-Private consortium working to develop the first floating offshore wind park in the United States. Before attending university, he served in the United States Coast Guard as a marine electrician. Working with Aker Solutions has been a fantastic opportunity to gain career experience that builds on both his maritime trades background and his university education. "I have been both thrilled and humbled by some of the experiences I have had this summer. From being entrusted to present at an industry networking event on only my third day to accompanying project partners from EDPR on a visit to the manufacturing facilities in Tranby and Moss, I would say that this internship has far exceeded my expectations in terms of professional exposure."



Craig's primary role for the summer was to generate electrical power systems models for different potential floating wind projects around the world. Through this work, he had the opportunity to learn new software tools and explore optimal solutions for wind parks ranging from 150 to 600 megawatts. He also attended networking events hosted by both Aker Young and the Solutioneers and organized weekly social events for offshore wind and the ix3 summer interns. Additionally, his colleagues were great resources for helping him pursue his off-work passion for trail running. Together with a co-worker, he completed the 7-fjells hike in Bergen.



Craig is grateful for everything he learned at Aker Solutions and hopes to carry this experience forward into an exciting career in offshore wind after he completes his studies!

Give to College of Natural Resources & Sciences

Whatever your interest or desired level of giving ... every gift makes a difference.

Give Now

To learn more about the different ways you can support the College of Natural Resources & Sciences with your gift today, or through a planned gift please call or email:

Maria Forrest

CNRS Philanthropy Advisor

707.826.5038

Maria.Forrest@humboldt.edu

College of Natural Resources & Sciences

FORESTRY BLDG, RM. 101

VISIT US ON SOCIAL MEDIA

