



Science Initiative News

Fall 2022

SI Building Move-In

Over the spring and summer months, more than 120 faculty, staff, graduate students, research assistants, and post-docs moved into the Science Initiative Building. These occupants represent 21 separate lab groups and administrative units. They also represent 12 different departments, including Botany, EPSCoR, Ecosystem Science & Management, Geology & Geophysics, Hydrologic Sciences, Molecular Biology, the Program in Ecology, Zoology & Physiology, INBRE, Chemistry, Honors, and the Science Initiative. Research on floor 2 is focused on cell and molecular biology, floor 3 is focused on organismal biology, and floor 4 is focused on ecosystem and earth science. We look forward to the synergy and expanded creative potential before us now that we are co-located.

First Annual UW STEM Carnival

On Friday, September 16th, the Science Initiative will be hosting the first annual UW STEM Carnival from 10-3pm. This will also serve as the public grand opening of the building and we welcome all to come play and learn in STEM! Nearly all STEM departments on the UW campus will be offering interactive, hands-on activities at tables set up both outside and inside the new building. There will be free food, games, building tours, science instrument demonstrations, sign-up activities, plenary talks, and more! We invite all from the Laramie community and across the state to join us in welcoming the new Science Initiative Building and celebrating the research and education in the sciences at the university.

Active Learning Classroom (ALC)

We are very excited for the impact the new ALC will have on student learning. In May of 2022, educators teaching large classes in Chemistry, Biology, Physiology, Anatomy, and Genetics received LAMP training and are now implementing their knowledge of Team-based Learning (TBL) and Cooperative learning in their courses taught in the ALC in the SI building. This semester, 10 course sections are being taught in the ALC, including Organic Chemistry, Ecology, General Microbiology, Integrative Physiology, Human Anatomy, General Chemistry, Genetics, and 3 sections of General Biology. Over 1,500 students are enrolled in these courses.

IMPORTANT DATES

- First annual UW STEM Carnival - Friday, Sept 16, 10 AM - 3 PM, SI Building.
- Applications for the 2023-24 LAMP Summer Institute and Yearlong Training Program open Sept. 1 and can be found at uwyo.edu/lamp. The deadline for application submission is Dec. 20th.
- LAMP Coffee & Curriculum kicks off Sept. 2nd on [Zoom](https://zoom.us) on select Fridays from 8-9 AM.
- Wyoming Undergraduate Research Coalition (WURC) - monthly meetings (time and location TBD). Please contact Dr. Jamie Crait for membership information (craitj@uwyo.edu).
- WRSP Poster Symposium - last week of Nov.

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 SI@uwyo.edu

 uwyo.edu/science-initiative



Center for Advanced Scientific Instrumentation (CASI)

As the building has opened, CASI has begun to be populated with instruments for use by researchers across campus and contract users across the nation.

In mid-August, an X-Ray Diffractometer was delivered, installed on the 3rd floor of the building in the CASI Showcase, and calibrated for use. It provides detailed information about the internal lattice of crystalline molecular solids, and can be used in applications ranging from chemistry, molecular biology, pharmacy, physics, and chemical engineering.

Just delivered in early September is a Micro-CT Scanner, which will allow for high resolution, detailed, non-destructive X-ray scans of the internal anatomy of animals and museum specimens without damage to the artifacts. It can be used in applications ranging from organismal biology, engineering and materials science, biomedical imaging, archaeology and paleontology, and geology.

In the process of being ordered are also two electron microscopes, a Focused Ion Beam Scanning Electron Microscope (FIB-SEM), and a Transmission Electron Microscope (TEM). These microscopes will be housed in controlled rooms on the 1st floor of the building.

Program Updates

In May of 2022, the 2021-22 Class of LAMP Fellows (the largest ever) completed their yearlong training with a culminating ceremony and presentation of their final Instructional Strategies. The instructional strategies implemented by the fellows ranged from the integration of team-based learning into courses like Environmental Engineering and Craniofacial Disorders to the use of a flipped classroom in Agroecology. Fellows presented their strategies in the Active Learning Classroom of the new Science Initiative Building. Each poster shared details about the philosophy guiding instruction, the student learning outcomes, the active learning modalities and the assessment strategies used to monitor student learning.

Five Prior LAMP Fellows were selected to continue their pedagogical development in the yearlong LAMP ELC called “Leaving the Light On”: Diksha Shukla (Computer Science), Ginka Kubelka (Chemistry), Kira Heater (LCCC Mathematics), Claire Champion (Zoology/Physiology), and Rhiannon Jakopak (Haub School of Environment and Natural Resources). All of these educators have been selected to present their research at the Lilly Conference on College Teaching that will be held in November at Miami University in Oxford, OH.

The Science Initiative Roadshow had a busy spring semester with 16 separate outreach events that reached nearly 700 K-12 students in six Wyoming counties. We covered topics from animal migration and neural feedback to astronomy, botany, and physics. The Roadshow also began their Saturday Teen Science Cafes, which provided a space for teens in Laramie to engage in STEM and hear from local experts in the field. The Roadshow team is continuing to grow this fall semester with six paid Outreach Assistants helping to make these outreach events a success.

WRSP is excited to kick off a new year with 53 fellows, including 18 new students, for the 2022-23 academic year. Our program continues to demonstrate steady, positive growth since its initial cohort of four students in 2015. The WRSP supports students performing cutting-edge science with UW’s world class research faculty. WRSP students are a diverse and interdisciplinary group of scholars, and they are important ambassadors for undergraduate research and student success at UW and around the state. This fall, many WRSP students will travel throughout Wyoming to engage in STEM outreach, helping to spread excitement and demystify UW research contributions throughout our communities. In addition, our program will host the 2nd Annual WRSP Symposium with poster presentations in late November.

LAMP Supports WY Inclusive Excellence 3 Team Supported by HMI Grant

LAMP Director Rachel Watson continues as the Program Director for Wyoming’s Inclusive Excellence 3 work funded by Howard Hughes Medical Institute. A [recent press release](#) tells the story.

LAMP Supports Educator’s Outreach Network Conference hosted by COPSE

From August 4-6, local and statewide educators and community members gathered for a conference hosted by the Community Outreach Program for STEAM Engagement (COPSE) in the new Science Initiative Building. The conference kicked off with a half-day workshop on Problem-based learning (PBL) led by LAMP Director Rachel Watson. In the evening, a vendor fair featured UW-wide outreach and in-reach programs ranging from Science Loves Art and the Wyoming Migration Initiative to the College of Engineering Maker Space. Panel discussions featured graduate students, faculty, and community members involved in outreach. A keynote address was delivered by Cindy Jones, Program Manager of Engineering Outreach. Attending educators also had the opportunity to do hands-on activities in the Geology Museum, the Herbarium and the Ecology Biogeochemistry Core Lab.

People in SI



WRSP Scholar

Emily Purifoy

Hometown: Cheyenne, WY

Major: Animal & Veterinary Science

Faculty Mentor: Karen Mruk

Emily has been a part of the WRSP since 2019, and works with Dr. Karen Mruk (Pharmacy). The lab does research into zebrafish spinal injury and regeneration. Emily's project has been centered around the effects of diet on recovery for injured fish, as well as if the diets affect growth and survivability. She has taken part in a project on neutrophil response to injury, as well.



Roadshow Outreach Assistant

Quiana Jeffs

Hometown: Buena Park, CA

Major: Graduate Student in Neuroscience

Quiana is serving as an Outreach assistant for the Roadshow for her second semester, helping to design and implement curriculum for outreach lessons across the state. Although she is technically a graduate student in the Neuroscience program, one of her main passions is teaching, which is what brought her to the Roadshow. As a form of educational in-reach, Quiana designed a sleep workshop for the UW Wellness Center that is available to all students and faculty; this workshop takes a holistic approach to the topic of sleep, emphasizing practical changes rather than ideal ones to attain more restful sleep. Outside of her work with the Roadshow, she spends much of her time as a TA for Human Systems Physiology and working on her research which revolves around factors influencing learning and memory in both humans and mice.



LAMP Learning Assistant

Ruby Jenco

Hometown: St. Joseph, MO

Majors: Environment & Natural Resources, Wildlife & Fisheries Biology & Management

Faculty Mentor: Maggie Bourque

Maggie Bourque of the Haub School writes of her LA:

"Ruby has been an incredible active learning partner, leader, and assistant. We have been working together since fall of 2021, focused on enhancing, studying, developing, and implementing active learning curricula for first-year students across a range of fields of study. Ruby is sharp, insightful, and kind; I trust and value her vision for excellent active learning experiences, and her initiative and reliability for coordinating complex sessions in class and field-based settings is so strong, often communicating with guests and community partners as well as faculty and students. Ruby is a leader in the classroom sessions as well; increasingly we've been building full programs, lesson plans, and assessments together, and Ruby has taken the lead on planning peer-led study skills sessions, tours of campus facilities that are relevant to the topics we're studying, and facilitating leadership, outdoor experiences, and personal development sessions alongside the coursework. She's truly wonderful as a research and teaching assistant, mentor to first-year students, and emerging educational leader. Thank you to LAMP for supporting this partnership and for helping Ruby and me reach new levels of excellence in curriculum design and within our teaching practices!"



LAMP Fellow

Dr. Diksha Shukla

Assistant Professor of Electrical Engineering and Computer Science, UW

Diksha Shukla is the LAMP Featured fellow this Fall semester. Diksha completed her LAMP yearlong training in May of 2022 and immediately applied to become a member of the LAMP Educator's Learning Community. Diksha has studied the use of an artificial intelligence (AI)-based platform to learn AI techniques via an online student learning community. Her research has elucidated the impact of this learning community on students' cognitive growth. Diksha will present this research at the Lilly Conference for College Teaching. She will also be a featured facilitator at the next Odd Bedfellows Dialogue at Night Heron at 7:30pm on September 14th.