



## Science Initiative News

Spring 2024

### Program Updates

Throughout the fall 2023 semester, college educators in the LAMP yearlong training implemented the instructional strategies that they developed during the summer institute and ensuing summer months. They immersed their students in active learning modalities ranging from problem-based learning to cooperative learning. The LAMP educators aligned these active learning strategies with their student learning outcomes, and with assessment strategies designed to measure students' achievements. During the spring 2024 semester, LAMP educators will analyze their assessment data and prepare to present at the end-of-year poster session (more information in the "important dates" section). The robust work of these professors would not be possible without their collaboration with LAMP Learning Assistants (LAs).

The Science Initiative Roadshow had an incredible record breaking fall 2023 semester reaching 4,209 K-12 students across 14 separate outreach events. This spring is gearing up to be equally as exciting and jam-packed with 18 events planned from Evanston to Lusk and Cody to Hanna! Our STEM Day requests are continuing to grow across the state, and we are expanding into science outreach for all ages, beginning with older adults at senior care centers to preschool students! We have been fortunate to receive generous donations from Williams Technologies, Dominion Energy, Union Wireless and Rocky Mountain Power to help continue to grow our program. With our dynamic

crew of 15 undergraduate and graduate outreach assistants who represent 10 STEM departments across campus, this semester is set to be an adventure filled with learning and discovery for Wyoming people of all ages.

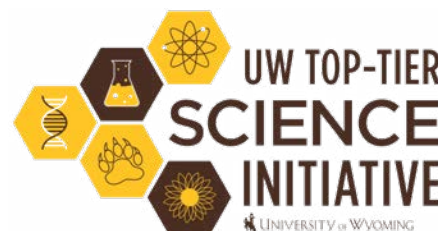
### IMPORTANT DATES

- LAMP Poster Session – Friday, May 3rd, 3-6 PM, Active Learning Classroom (SIB 2010). Join us as LAMP educators present assessment data from their classrooms.
- LAMP Coffee & Curriculum – most Fridays, 8-9 AM, on [Zoom](#)
- Apply to be a LAMP Learning Assistant! The soft deadline for Fall 2024 applications is April 13th, 2024, and the hard deadline is May 1st, 2024 (please find the application on the [LAMP LA website](#)).
- WRSP applications are open now and are due March 22 ([apply here](#)).
- Registration for Undergraduate Research Day is due March 25. The event will take place April 20.

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## Program Updates, Cont'd.

This year's class of Wyoming Research Scholars features 50 talented undergraduate researchers from communities across Wyoming and beyond. WRSP scholars are working in faculty labs across campus, and their projects focus on disciplines such as chemistry, biology, engineering, physics, geology, archaeology, and computer science. Several Wyoming Research Scholars are set to present their findings at national conferences and in peer-reviewed journals this spring. Additionally, Research Scholars will be volunteering to help with the State Science Fair in March, engaging in K-12 STEM outreach with the Science Roadshow, and participating in the Women in STEM conference at UW on May 14. Spring semester culminates with Undergraduate Research Day, which will be held Saturday, April 20 on the UW campus. This event includes hundreds of undergraduate researchers presenting talks and posters on their work. Because professional development is an important component of the Wyoming Research Scholars Program, we hold workshops to help our students improve their science communication and prepare for their presentations at Undergraduate Research Day. Moreover, the student-led Wyoming Undergraduate Research Coalition will be hosting workshops in April to provide a venue for peer-to-peer feedback and preparation for this exciting event – a true showcase for a year's worth of hard work on cutting-edge research.

## Active Learning Classroom (ALC)

The Active Learning Classroom (ALC) is again full of active, engaged learning this semester. Eleven course sections are being taught in the ALC. This semester, those courses include 2 sections of Organic Chemistry II, 2 sections of General Biology, 2 sections of Animal Biology, and 1 section each of General Microbiology, Medical Microbiology, Genetics, Best Practices in Active Learning, and Human Anatomy. In total, nearly 1,000 students are enrolled in these courses.

## SI Building Construction Updates

Construction continues on the last remaining shelled-out spaces in the Science Initiative building, including the Model Organism Research Facility (MORF) on the 1st floor of the building, a space for physical science research on the 1st floor, as well as the Student Collaborative Research, Outreach, and Learning Laboratory (SCROLL) on the 4th floor of the building. Construction of these spaces will finish in fall of 2024.

## Featured WRSP Mentor & Scholar



**Dr. J.J. Shinker**  
Professor, Geology &  
Geophysics



**Maille Gray**  
WRSP Scholar

Climate, water and the west are three topics that drive Professor Shinker's (J.J.'s) research and teaching interests. In particular, J.J. is interested in how the atmosphere moves and operates during extreme events such as droughts, ENSO, and early snowmelt events and what impact such extremes have on water resources, vegetation, fire and environmental disturbances in the west. Additionally, J.J. utilizes Geospatial visualization tools such as animated map sequences to simultaneously illustrate spatial and temporal patterns of climate variables and 3D visualization environments to view and understand the multi-dimensional nature of climate processes. J.J. is also the faculty advisor for the Multicultural Association of Student Scientists (MASS), a recognized student organization at UW whose mission is to promote and support underrepresented students in the sciences and social sciences. J.J. is also a LAMP Fellow, bringing active learning into the many innovative courses she teaches.

J.J.'s current projects include: timing of early and late snowmelt in Wyoming headwaters; timing of precipitation anomalies during ENSO events and the implications for water resources; the role of climate change and variability on vegetation and fire; using modern climate analogs to understand past environmental disturbances; developing web-based animated maps of climate; and development of 3D climate visualization tools to enhance learning approaches in the classroom.

Maille Gray, a WRSP scholar and undergraduate student with majors in Environmental Systems Science and Geography, from Lander, is working with Dr. Shinker. Maille is currently working on reconstructing global climate composites using the most recent ERA5 data systems. Maille will be using this in combination with other analysis tools to determine the impact of El Niño/Southern Oscillation on the central Rocky Mountain headwaters. Maille recently presented her research "Visualizing the impact of vapor pressure deficit on intra-annual climate variability" at a Board of Trustees Meeting, as well.

## People in SI



### WRSP Scholar

#### Tera Swaby

**Hometown:** Aurora, CO

**Major:** Physics

**Faculty Mentor:** Chip Kobulnicky

Tera works with a research team of undergraduate students and Dr. Henry Kobulnicky to observe transiting exoplanets of other stellar systems at Red Buttes Observatory (RBO). From this the team characterizes the radius, orbital size, and mass of these exoplanets. This information is shared with collaborators at Pennsylvania State University who further analyze the exoplanets with the help of other telescopes. She has also started the process of writing a paper on the brown dwarf TOI-5610b surrounding an M Dwarf star and hopes to publish soon.



### Roadshow Outreach Assistant

#### Charlie Nuncio

**Hometown:** Tokyo, Japan

Masters student in Geophysics

“Having grown up in areas lacking strong educational opportunities, I am ecstatic to give back to the community and get Wyoming students excited about everything science. My background is in geology and archaeology, and my research at UW is to geophysically evaluate uranium deposits in the Shirley Basin using electrical, electromagnetic, and seismic methods. Uranium in the ground gets altered by groundwater movement, so my goal is to figure out what kind of methods best detect this and the deposits themselves. I ultimately hope that my contributions will help the energy industry move closer towards cleaner sustainability. When not cooking up science lessons and staring intensely at rocks, I spend my time recording music and fencing. I am beyond excited to share with students my love of rocks, rock, and things that look like rocks, but contrary to popular belief are not rocks.”



### LAMP Learning Assistant

#### Bailey Iacovetto

**Hometown:** Steamboat Springs, CO

**Major:** Agricultural Education

Mentor professor Dr. Joseph Russo writes about Bailey:

“I have had the pleasure of working with a truly gifted [Learning] Assistant for the past four semesters, a budding professional by the name of Bailey Iacovetto. As an agricultural education major, Bailey came to me as a part of LAMP, the Learning Actively Mentoring Program. In the Fall of 2023, I can say that Bailey truly hit her stride and was, to say it accurately, figuratively ‘on fire.’ Because she herself had mastered the material in my classes, she was able to fashion learning exercises for students, deliver a lecture or two, compose test questions, and host mentoring sessions (many of which were on her own time) ... all the while, maintaining a full load of credits. She engaged with the students in a manner which allowed them to ask the proverbial ‘dumb question’ in order to fine tune their own understandings and broaden what that could do for their development as pre-service educators. She is a poster child of sorts for the entire idea of ‘learning actively,’ and is an invaluable resource to me and my students.”

### LAMP Fellow

#### Kassandra Willingham

Assistant Lecturer, Molecular Biology, UW

It is not uncommon to find Prof. Willingham (Kass) sitting in the STEM foyer surrounded by a group of actively learning students. Authentic, available and deeply committed to evidence-based pedagogical practices, Kass knows that when students’ hearts are engaged, their heads will follow. In Kass’s classroom, she implements team-based learning. Along with the assistance of at least four learning assistants (LAs), Kass coaches her students as they cooperatively build concept maps, re-teach difficult concepts to their peers and metacognitively reflect upon their own learning. During the Fall semester of 2023, four different observers attended Kass’s General Microbiology class and found that even on a single day, Kass’s students experience as many as seven of the modalities on the Active Learning Spectrum. Observers also noted Kass’s implementation of Universal Design for Learning (UDL); she always provides both a paper and digital option for submission.

