The Wyoming Research Scholars Program (WRSP) is a university-wide program that pairs undergraduate science students with faculty mentors to participate in cutting-edge research starting as early as their freshman year. These mentored research experiences represent the pinnacle of active learning for students. Research Scholars will be more competitive for jobs and graduate programs following graduation because they have already gained the research skills and experience necessary to be practicing scientists. More information can be found at the WRSP website (http://www.uwyo.edu/wrsp).

Table 1. List of the 2016-17 Wyoming Research Scholars

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Hometown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah Brannon</td>
<td>Zoology &amp; Physiology/Environment &amp; Natural Resources</td>
<td>Westminster, MA</td>
</tr>
<tr>
<td>Jordan Brophy</td>
<td>Chemistry</td>
<td>Wray, CO</td>
</tr>
<tr>
<td>Isabella Buongiorno</td>
<td>Plant Sciences/Environment &amp; Natural Resources</td>
<td>Cheyenne, WY</td>
</tr>
<tr>
<td>Delta Burchi</td>
<td>Zoology &amp; Physiology</td>
<td>Laramie, WY</td>
</tr>
<tr>
<td>Ella DeWolf</td>
<td>Molecular Biology</td>
<td>Laramie, WY</td>
</tr>
<tr>
<td>Logan Eicholzer</td>
<td>Environment &amp; Natural Resources</td>
<td>Liverpool, NY</td>
</tr>
<tr>
<td>Logan Fairbourn</td>
<td>Microbiology</td>
<td>Cheyenne, WY</td>
</tr>
<tr>
<td>Olivia Glassock</td>
<td>Molecular Biology</td>
<td>Buffalo, WY</td>
</tr>
<tr>
<td>Samantha Haller</td>
<td>Zoology &amp; Physiology</td>
<td>Cheyenne, WY</td>
</tr>
<tr>
<td>Logan Jensen</td>
<td>Physics &amp; Astronomy</td>
<td>Greybull, WY</td>
</tr>
<tr>
<td>Lukas Lindquist</td>
<td>Geology</td>
<td>Ft. Collins, CO</td>
</tr>
<tr>
<td>Kenny Madsen</td>
<td>Chemistry</td>
<td>Cheyenne, WY</td>
</tr>
<tr>
<td>Brittany Nordberg</td>
<td>Zoology &amp; Physiology</td>
<td>Cody, WY</td>
</tr>
<tr>
<td>Kianna Olson</td>
<td>Physics &amp; Astronomy</td>
<td>Laramie, WY</td>
</tr>
<tr>
<td>Ryan Parziale</td>
<td>Physics &amp; Astronomy</td>
<td>Littleton, CO</td>
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<tr>
<td>Ashleigh Rhea</td>
<td>Zoology &amp; Physiology</td>
<td>Dillon, MT</td>
</tr>
<tr>
<td>Darbi Schlenker</td>
<td>Chemistry</td>
<td>Meeteetse, WY</td>
</tr>
<tr>
<td>Aaron Strom</td>
<td>Chemistry</td>
<td>Rock Springs, WY</td>
</tr>
<tr>
<td>Heather Townsend</td>
<td>Botany (Biology)</td>
<td>Douglas, WY</td>
</tr>
<tr>
<td>Narisse Trippel</td>
<td>Mechanical Engineering</td>
<td>Worland, WY</td>
</tr>
<tr>
<td>Kasey Trotter</td>
<td>Chemistry</td>
<td>Ft. Collins, CO</td>
</tr>
<tr>
<td>Rex Yeigh</td>
<td>Physics &amp; Astronomy</td>
<td>Buffalo, WY</td>
</tr>
</tbody>
</table>

Table 2. List of 2016 Summer Mini-Grant Awardees

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Hometown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebecca Brenner</td>
<td>Zoology &amp; Physiology</td>
<td>Harrisburg, NE</td>
</tr>
<tr>
<td>Kadi Cooley</td>
<td>Zoology &amp; Physiology</td>
<td>Powell, WY</td>
</tr>
<tr>
<td>Logan Fairbourn</td>
<td>Molecular Biology</td>
<td>Cheyenne, WY</td>
</tr>
<tr>
<td>Rida Fatima</td>
<td>Molecular Biology</td>
<td>Casper, WY</td>
</tr>
<tr>
<td>Tim Halstead</td>
<td>Geology</td>
<td>Lusk, WY</td>
</tr>
<tr>
<td>Sawyer Letourneau</td>
<td>Chemical Engineering</td>
<td>Fairfield, ME</td>
</tr>
<tr>
<td>Jaycey Lindsey</td>
<td>Animal &amp; Veterinary Science</td>
<td>Wright, WY</td>
</tr>
<tr>
<td>Katie Nelson</td>
<td>Molecular Biology; Chemical Engineering</td>
<td>Louisville, CO</td>
</tr>
<tr>
<td>Zach Parsons</td>
<td>Zoology &amp; Physiology</td>
<td>E Wenatchee, WA</td>
</tr>
<tr>
<td>Holly Rameieer</td>
<td>Chemical Engineering</td>
<td>Cody, WY</td>
</tr>
<tr>
<td>Susan Schmidt</td>
<td>Molecular Biology</td>
<td>Albin, WY</td>
</tr>
<tr>
<td>Mary Uselmann</td>
<td>Chemical Engineering</td>
<td>Anchorage, AK</td>
</tr>
</tbody>
</table>
2015-16 WRSP graduates include:

- Dianna Brutsman, from Cheyenne, WY – research internship at the Topeka Zoo in Kansas this summer.
- Rachael Coleman, from Cheyenne, WY – starting graduate school at Cornell University.
- Jazlynn Hall, from Rawlins, WY – starting graduate school at Columbia University.
- Vivek Jain, from Bangalore, India – research internship in physics at the University of Minnesota.
- Rhiannon Jakopak, from Scotland, SD – studying wildlife in Kenya this summer and returning to UW next year for graduate school.
- Annie Krueger, from Stevensville, MD – research position with Bayer; then pursuing a PhD in environmental toxicology.
- Thomas Rochais, from Flers, France – starting graduate school at the University of Pennsylvania.
- Rachel Schambow, from Janesville, WI – attending the UW-Madison School of Veterinary Medicine.
- Jordan Turner, from Marietta, GA – beginning graduate school in astronomy at UW.
- Matthew Lehmitz, from Laramie, WY – enrolled in a master’s degree program with the UW Botany Dept.

WRSP by the Numbers

Total Students Served (including 2016 graduates): 46

Number of Departments Served: 23, and includes the following:

- Animal Science
- Anthropology
- Botany
- Chemical Engineering
- Chemistry
- Computer Science
- Electrical & Computer Engineering
- Environment & Natural Resources
- Geography
- Geology & Geophysics
- Kinesiology and Health
- Mathematics
- Mechanical Engineering
- Microbiology
- Molecular Biology
- Neuroscience
- Pharmacy (School)
- Physics & Astronomy
- Plant Sciences
- Psychology
- Veterinary Sciences
- Zoology & Physiology

Student Hometowns: 27 students from Wyoming; 19 students from out-of-state
Student Gender Ratio: 31 female: 15 male

Figure 1. Student and Faculty Mentor Departmental Breakdown

* Category comprises departments with 1% each
The Science Initiative Learning Actively Mentoring Program (LAMP)

LAMP is a comprehensive, sustained mentoring and professional development program with an emphasis on how to best adopt active learning strategies in large-scale active learning classrooms at UW. LAMP will enable all science teaching faculty and graduate and undergraduate teachers to become trained in best practices / active learning strategies by 2022.

The 2016 Science Initiative Summer Institute (SI²) for Faculty and Graduate Students

The first annual Science Initiative Summer Institute (SI²) was held June 7th through the 12th; it was considered a massive success by mentors, faculty and graduate students alike. The diversity and collaborative nature of the group led to unprecedented articulation, collaboration and innovation beyond that anticipated/predicted. Fellows described the experience as being "transformational," "jump starting [their] active learning knowledge" and inspiring them to help other instructors. Fellows presented their plans for launching innovative curriculum during the 2016-2017 academic year and with continued LAMP support, they look forward to spreading the ripples of their revolutionized teaching and learning environments.
The 2016-2017 Faculty and graduate student Fellows:

Dave Anderson  Chemistry
Morgan Balabanoff Chemistry
Brian Barber  Biodiversity Institute
Jamie Crait  Life Sciences /WRSP Director
Ellen Currano  Botany
Melissa Gelwicks Chemistry
Jesse Hinshaw Molecular Biology
John Hoberg Chemistry
Abigail Hoffman Botany
Joshua Holmes Molecular Biology
Elliott Hulley Chemistry
Hayley Lanier Zoology and Physiology
Michele Larson Zoology and Physiology
Brian Leonard Chemistry
Hilary Madinger Zoology and Physiology
Jaya Maithil Physics and Astronomy
Michelle Mason Physics and Astronomy
Kali Nicholas Moon Botany
Chris North Botany and Life Sciences
Kristopher Parker Molecular Biology
Jonathan Prather Zoology and Physiology / Life Sciences Director
Sean Stettner Molecular Biology

Mentors:

Danny Dale Physics and Astronomy
Monia Haselhorst Life Sciences Program
Bethann Merkle Science Illustrator
Ed Nuhfer Retired Geologist and Faculty Developer
Sarah Prather Museum Consultant
Brianna Wright Life Sciences Program
Rachel Watson Molecular Biology / LAMP Director

"Overall, the science initiative fellowship has reawakened my passion for teaching and made me more aware of how much I missed the creative experience of designing curriculum."

"The idea of allowing students to develop their own opinions and ways to approach problems, with help in groups or individual, was eye-opening...The group activities negate the professor-student dichotomy, which drives students’ critical thought, promotes metacognition, and can enhance the classroom experience."

"I implemented many more active learning techniques during the lecture period and saw an increase in student response and attentiveness. It was great to have immediate (especially positive) responses to my new classroom techniques."

"For me [the Summer Institute was] really transformational"  – Dave Anderson, Chemistry Department Head

For More Information on The UW Science Initiative, The Learning Actively Mentoring Program and the Science Initiative Summer Institute, please visit our webpage at:

http://www.uwyo.edu/science-initiative/index.html

Or contact Rachel Watson:

rwatson@uwyo.edu
Dear University of Wyoming, Board of Trustees,

We write to convey our excitement at an early success from the UW Top-Tier Science Initiative! Pursuant to the Wyoming Governor's UW Top-Tier Science Program and Facilities Task Force report (page 12 and 13) regarding transformative research facilities, UW has exploited a target-of-opportunity to join the Astrophysical Research Consortium, placing UW among seven other top-quartile universities that operate one of the world's most advanced astrophysical observatories near Sunspot, New Mexico. The partnership enables UW access to world-class scientific instruments on the consortium's 3.5 meter telescope. It opens the door to collaborations and student exchanges with the University of Washington, Colorado, Virginia, Oklahoma, The Johns Hopkins, New Mexico State, and Georgia State. It also raises the profile of UW among U.S. flagship universities.

Top-Tier Status: Of the 225 Carnegie-classified "research-active" doctoral universities in the U.S., only 45 have access to a major research observatory. UW is now one of those institutions, placing UW Physics & Astronomy among a select group of top-tier universities. This ensures that UW faculty and students can conduct world-class research using top-tier facilities. It also provides our students with access to modern scientific instrumentation that will prepare them for challenging careers in strategic growth fields like remote sensing, digital imaging, computational analysis of large data sets, aerospace, instrumentation, electronics, and national defense industries.

Logan Jensen, a Trustees Scholar and junior from Greybull, WY, majoring in Physics & Astronomy is one beneficiary of UW's investment in top-tier scientific instrumentation. Logan has conducted research with several UW faculty since his freshman year at UW's Wyoming Infrared Observatory and now at the Apache Point Observatory. Logan says his access to UW faculty and research observatories was a major factor in his choosing UW over other universities. Logan is also supported by the SI's Wyoming Research Scholars Program (WSRP) as he conducts his undergraduate research.
Logan was one of nine physics bachelors, masters, and PhD students who made a three-day expedition to Apache Point in October for instruction in operation of the observatory. The observatory can also be controlled remotely from the UW campus by trained users.

Wyoming bachelors, masters, and doctoral students show their Wyoming colors upon the rotating dome of the Apache Point 3.5 meter telescope. The students are, from left to right, Logan Jensen, William Chick, Daniel Baldwin, David Kasper, Joe Findlay, Jessica Sutter, Derek Hand, Stephanie Mapes, and (former UW varsity swimmer) Jordan Turner.

This is just an early example of how the Science Initiative is making Wyoming graduates more competitive for the highly skilled workforce needed to ensure a prosperous state and nation.

On behalf of the students whose futures are bright because of their preparation at UW, we thank you for your support of UW students and our State through the Science Initiative!

Sincerely,

Gregory Brown, associate dean, College of Arts & Sciences
Chip Kobulnicky, professor of Physics & Astronomy & director of UW Observatories
Logan Jensen, physics major, Trustees Scholar, Wyoming Research Scholar, & aspiring scientist