

Undergraduate Research Internships for Enhancing Diversity in Science and Engineering

Sponsored by the Office of VP for Research, Creativity and Technology Transfer

Vision

The internship program, "Undergraduate Research Internships for Enhancing Diversity in Science and Engineering" is part of a campus-wide effort to enhance diversity in the science fields and increase the number of women majoring in science (biological, physical and social) and engineering, and to increase the opportunities for women to be involved in undergraduate research at Montana State University.

Program Description

The program is designed to provide highly qualified undergraduate students with exposure to research in the sciences and engineering fields, and to gain some first-hand experience working with faculty and graduate students in many of the research labs or centers on campus. The program builds upon the prestigious Presidential Scholarship program, and provides a unique opportunity for incoming undergraduates to obtain an insider's view of the research engine of the university, how this complements and enriches the academic programs on campus, and how research can be an integral part of the undergraduate education at MSU. The program was established in Fall 2003. Each year four of the incoming Presidential Scholars are selected to participate in the "Undergraduate Research Internships for Enhancing Diversity in Science and Engineering" program. There are now 17 students who have been chosen for the internship program since its commencement in 2003.

Presidential Scholarships

The Presidential Scholarships are Montana State University's most prestigious freshman scholarship awards, recognizing academic achievement as well as special personal qualities. Up to twenty Presidential Scholarships are awarded each year to freshmen entering Montana State University in the fall semester. Recipients receive merit grants and annual resident fee waivers.

To be a competitive scholarship applicant, a cumulative GPA of 3.75 and a composite score of 30 on the ACT or 1320 total on the SAT are the expected norms. The application deadline for fall 2009 awards was January 9, 2009.

Internship Structure

During the first semester the interns review the research component of the institution, obtaining an overview of the Research Centers and Programs offered at MSU and the institution's collaborations with other research units, and understanding the role of research as an element of the undergraduate education offered at MSU. During the beginning semester the interns are under the direction of Dr. Cathy Whitlock, through the VP Research Office. The following semesters, the interns are assigned to work with a MSU faculty member, assisting in either the research lab or in other research venues. The selection will reflect the research interests of the interns and is made in joint consultation with the VP Research Office. It is expected that each intern will prepare a short paper outlining their experiences with the Internship Program; as well as research output that would be forthcoming from the specific research assignment.

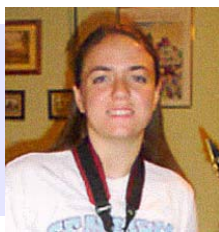
For more information on the **Internship** contact:

Cathy Whitlock, Director of Integrated Initiatives,
117 Traphagen Hall, MSU, Bozeman, MT 59717,
406-994-6910, whitlock@montana.edu
or visit <http://www.montana.edu/wrt/>

For more information on the **Presidential Scholarships** contact:

University Honors Program at Montana State University,
P.O. Box 172140, Bozeman, MT 59717,
406-994-4110, honors@montana.edu
or visit <http://www.montana.edu/honors>

Research Interns



Keely Obert is a Civil Engineering major, with a focus and interest on structural engineering. She claims this is in part due to her fascination with roller coasters, and in part due to high school interests in math, science, and drafting. Keely graduated from **Helena** High School with a 4.0 GPA, where she was also a swimmer and accomplished alto saxophonist. Keely worked with Jerry Stephens and Eli Cuehlo in Civil Engineering on his SACO Bridge Project. As a senior she was honored with an Excellence Award with Jerry Stephens as her faculty mentor in February 2007. (2003-2005)

Kristy Segal graduated from Warner Robins High School in Warner Robins, **Georgia** with highest honors (4.0 GPA). She is majoring in Ecology but is more focused on large mammals and genetics. In high school she worked at a veterinary clinic, which helped her to develop an interest in animals and gave her valuable hands-on experience working in a lab, assisting with surgeries, and helping with many different types of cases. Kristy spent her internship with Dr. Lisa Graumlich in the Big Sky Institute writing informational handouts on current science/resource issues. In 2005 she received a Big Sky Institute Science and Society Undergraduate Fellowship. As a senior she was honored with an Excellence Award with Scott Creel as her faculty mentor in February 2007. (2003-2005)



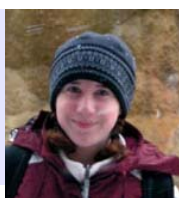
Katie Stahley graduated from **Billings** West High School first in her class of 465 with a 4.0 GPA. Her major is Political Science and Spanish. Katie loves almost everything outdoors. She backpacks, hikes, rock climbs, and skis. Her visit to Costa Rica was the "best experience of her life." Katie worked with the Montana Water Center analyzing water marketing laws in Western states and also updated their educational trunks. During Spring 2006 Katie researched trading protocols for Susan Capalbo. (2004-2006)

Dana Kreitel's major is cell biology and neuroscience with the bio-medical sciences option and plans to study sports medicine. She graduated from Carter County High School (**Ekalaka, MT**) with a 4.0 GPA. She loves being active, whether it is in the form of basketball, running, skiing, or just being outside getting exercise. Dana worked with Dr. Michele Hardy in Veterinary Molecular Biology using viruses to inhibit gene expression. (2004-2006)



Katie Baldwin is enthusiastic and interested in many disciplines. Her major is History with minors in German and Political Science. Katie's passions are study abroad and her work with the non-profit Girls International Forum. She updated the "Women in Research and Teaching" website, identified funding opportunities for the "Girls for a Change" program, traveled to Indonesia to work with the Girls World Summit team, read books on gender and prepared a survey for MSU faculty on how women are influenced by science. She interned with Carla Nappi in History and Philosophy on the history of science, and in Spring 2008 she worked with an independent study group with Engineers Without Borders to prepare a household water use survey for use in Kenya. She received a 2009 Student of Achievement Award in Spring 2009. (2005-2008)

Katy Hansen is from **Bozeman** and her major is Industrial Engineering with a Political Science minor. She worked with Dr. Linda Young researching various subjects in International Political Economy - which is a combination of Economics, Political Science and Sociology. She gathered statistics that showed the importance of trade and the impact of global associations such as the International Monetary Fund and the World Trade Organization. She also researched and presented a critical analysis of Hernando de Soto's *The Mystery of Capital* on granting property rights to slum dwellers in Lima, Peru and some implied worldwide policy implications. Lastly, she found case studies that showed the impact of trade agreements on rural agricultural producers. (2005-2008)



Erica Wineman's major is English and she is from **Livingston**. At Park High School she especially enjoyed studying literature and foreign language, writing, and playing saxophone and flute with the symphonic band and chamber groups. She also enjoys fiction, poetry, Shakespeare, and hiking. Erica interned for Bridget Kevane in Modern Languages. Her work included reading books and writing essays to help Dr. Kevane with the research for the book she is writing. Erica left MSU after the first year. (2006-2007)

Krysta Buska is from **Helena** and her major is biochemistry. Krysta enjoys dancing, travel, camping, hiking, boating, and scrapbooking. Krysta interned for Trevor Douglas in the Center for Bio-Inspired Nanomaterials for three semesters and a summer. She was trained on various lab equipment and techniques. Her research focused specifically on oxidative stress and a Dns-like protein from *Sulfolobus solfataricus*. Krysta also learned how to develop a research project from proposal to publication. (2006-2008)





Pavielle Haines is interested in Genetics, Biochemistry, Medicine and Political Science. She is also from **Bozeman** and enjoys playing her violin and clarinet, is interested in humanitarian issues, and participates in community service work. Pavielle interned with Liz Shanahan in Political Science. The project explored what promotes contentedness in society and the implications that it has for policy. Her work included making inquiries at the Gallatin County Public Health office about health data which they are required to collect, how it is archived, and the whereabouts of county-level health data at the state level. (2006-2008)

Jane Johnson is interested in the fields of history, political science and environmental sciences. She graduated from Flathead High School in from **Kalispell** as valedictorian with an International Baccalaureate diploma. Jane worked at the Northwest Agricultural Research Center near Kalispell during high school. She spent her internship with Liz Shanahan in Political Science on a project studying open space and conservation initiatives and referendums in several western states. They looked at census data and reviewed the literature to investigate the possibility of shifts in voter demographics. (2007-2009)



Tiphani Lynn is a **Great Falls** native who loves literature, botany, chemistry, and cats. Her major is cell biology and neuroscience and English. In high school she was on the debate team and participated in peer mentoring programs. She also enjoys spending time with her family, learning new things, and hiking. Tiphani started to work with Evelyn Boswell in the VP Research Office writing research news articles but did not complete her second year. (2007-2008)

Jacquelyn Sweiger is majoring in animal science with an emphasis on Veterinary Molecular Biology. She is from **Florida** where she went to high school, and enjoys drag racing, scuba diving, fire fighting, and playing music. She assisted Jan Bowman and Jyme Peterson in Animal and Range Sciences with the analysis of samples in their lab. She spent Summer 2008 working with a vet at All Creatures Medical Center. She did not complete her second year. (2007-2008)



Elizabeth Flesch is majoring in Fish and Wildlife and is from **Bettendorf, IA**. Elizabeth loves nature and enjoys observing the wildlife. She is interested in wildlife rehabilitation, and likes volunteering and nursing juvenile and injured wildlife back to health. She would like to pursue a Master's degree and become a wildlife biologist who leads research in national parks. She also enjoys reading, playing her flute, and outdoor activities. Elizabeth is interning with Robert Garrott in Ecology. During summer 2009 she did a sea turtle internship at Canaveral National Seashore in Florida. (2008-2010)

Samantha Forsythe is majoring in Cell Biology and Neuroscience. She is from **Billings, MT**. Samantha was born and raised in Billings, and grew up loving the outdoors. Running, camping, and fishing are a few of her favorite activities. She is excited about her sophomore year and looks forward to a new set of classes in the Cell Biology and Neuroscience Department. In particular, she is interested in the chemistry aspect of CBN. Samantha began her internship during her sophomore year. She is working with Ellen-Therese Lamm at the Museum of the Rockies studying collagen fibers within dinosaur skulls. This research is being used to support a theory about dinosaur development. Sammie did not complete her second year of the internship. (2008-2009)



Hanna Gertiser is majoring in Nutrition Science. She is from **Livingston, MT**. Hanna is interested in many things among which are cooking, hiking, running, backpacking, playing soccer and tennis, traveling, and spending time with friends and family. She was born in Germany and has lived in Livingston for twelve years. She is considering a minor in Spanish and would love to spend a semester studying in a South American country. Hanna began her internship during her sophomore year. She worked with Mary Miles in Health and Human Development. During Summer 2009 she is interned with Alison Harmon at the Towne's Harvest Garden. (2008-2010)

Erin Gunnink's major is Biotechnology and Engineering and she is from **Bozeman, MT**. Erin spent the summer working in the new SubZero Sciences Engineering and Research Facility at MSU with Dr. Ed Adams, learning about lab work and different computer programs, from hyperspectral imaging to website design. Her interests include painting and Spanish (which she is considering as a minor). She teaches taekwondo and has a Black Belt. She is interning with Cathy Zabinski in Land Resources & Environmental Sciences. (2008-2010)



Morgan Mends is from **Helena, MT**. Her major is Chemical Engineering. Morgan came to MSU because it has such a strong engineering program with many exciting opportunities for undergraduate research, and it allows her to stay in Montana. She enjoys reading, and loves to play the piano and the viola, and is discovering the joys of carpentry. Morgan is interning with Gary Strobel in Plant Sciences and Plant Pathology. She continues this work during summer 2009. (2008-2010)

Karsen Cullen (Bozeman, MT) is majoring in Biochemistry. She enjoys what some might label the quintessential Montana lifestyle - she is an avid skier and rock climber, and loves to pursue activities that gets her outside. She is also a voracious reader and movie lover. Karsen chose MSU for its economical benefits, because MSU has long been recognized for its strong science program and its location in an environment rich with research based opportunities, as well as the appeal of big mountain skiing closeby. (2009-2011)



Alyssa Hjelvik (Melstone, MT) is majoring in Biomedical Science. She is currently interested in fulfilling the pre-requisites for a pharmaceutical degree, and is majoring in Cell Biology and Neuroscience. She also enjoys traveling, new experiences, outdoor activities, and reading. The people, the environment, and the quality of learning are what brought her to MSU. (2009-2011)

Micayla Lakey (Chester, MT) is majoring in Chemical Engineering, but may possibly evolve into Biological Engineering. She was born and raised on a farm north of Chester, Montana. In high school she enjoyed chemistry and advanced biology classes, and speech and drama, band, choir, and tennis. She also enjoys reading, writing, camping, hiking, and boating. (2009-2011)



Erin Ryan (Deer Lodge, MT) is majoring in Civil Engineering. In high school she liked to stay busy by playing sports and being involved in National Honor Society and FFA. She also enjoys quilting, outdoor recreation, and trying new things. Erin chose to attend MSU because of its engineering program and location in the beautiful Rocky Mountains. (2009-2011)