Dear friends and colleagues,

During academic year 2013-2014, Montana State University and the College of Letters and Science celebrated the Year of Engaged Leadership. Often referred to as the Year, it highlighted the many events and activities of the university that help develop the leadership skills of students, faculty, staff and community members. The Year included academic and non-academic programs, with each month focusing on a single characteristic of leadership such as listening, empathy, stewardship and community building. Every person has leadership qualities, and the Year of Engaged Leadership was intended to draw out those qualities, and in the process, advance others.

As Montana’s land-grant university, Montana State University has a long tradition of developing leadership through service and engagement. In 2011, the Carnegie Foundation for the Advancement of Teaching awarded MSU its community engagement classification, which brought national recognition to MSU’s commitment to community engagement and the diffusion of knowledge that benefits our local, state and national communities.

This issue of Confluence features some of the finest examples of service and engagement in our college. You’ll learn about community involvement in research projects focused on avalanches and elk migration patterns. You’ll read about student projects that welcomed international students to MSU, served the local homeless population, and collected oral histories about the historic 1988 Yellowstone fires. Finally, we highlight a program where faculty members volunteered their time in hands-on science and research projects for high school students, and another program where current and former students collaborated with communities throughout the state on innovative, meaningful projects.

As you read this issue of Confluence focused on service and engagement, and enjoy these highlights of faculty, staff, student and alumni accomplishments, we hope you’ll be inspired to learn more about what is happening across the college. You can visit our website at www.montana.edu/lettersandscience for frequently updated news. You can also follow us on Facebook at www.facebook.com/letters.science.

The next time you’re in Bozeman, please stop by and say “hello.” We’d love to see you and have you meet our faculty and students.

Best regards,

Nicol C. Rae
Dean
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COLLEGE OF LETTERS AND SCIENCE
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COLLEGE NEWS

THIS PAGE

Erica Garroutte, a graduate student in the Department of Ecology, works with participants in MSU’s Peaks and Potentials summer camp program to draw elk migration patterns. Photo courtesy of MSU Extended University.

BACK COVER

Top: Nathan Carroll, an MSU graduate student from Ekalaka, Mont. is one of the co-founders of a group that matches college students with communities. He confers here with a young scientist who attended the 2013 Dino Shindig in Ekalaka. Photo courtesy of Nathan Carroll.

Bottom: Citizen science volunteers walking up to the study plot in the Dome Mountain Wildlife Management Area. Photo courtesy of MSU Extended University.
When the mountains call, skiers answer. Backcountry alpinists know the call well, and it often takes them to high peaks and distant bowls where the snow is deep and untouched. For some, this means a good day recreating. For others, it can mean chancing territory ripe with deadly avalanches.

In the Intermountain West and at home here in Montana, backcountry avalanches pose a deadly threat and a stark reminder that Mother Nature rules all and takes no prisoners. Despite all of the snowpack information available in the 21st century, little is still known about the multitude of reasons that contribute to an avalanche accident. Thanks to a unique MSU research duo, bridging social science, snow science and technology, new light is being shed on a lesser-known contributor of backcountry accidents, the role of human behavior and decision-making.

Jordy Hendrikx, assistant professor in the Department of Earth Sciences and director of the MSU Snow and Avalanche Lab, and Department of Political Science professor Jerry Johnson, are using a smartphone app and skiers themselves to present a more holistic picture of avalanche accidents.

“Essentially, we’re highlighting the relationship between backcountry behavior and avalanche probability (using new technology), and making a case that there’s a direct correlation there,” Hendrikx said. “Our research is a bit of a paradigm shift for snow scientists and avalanche experts in the ways avalanche accidents are traditionally interpreted and examined, so it’s really exciting.”

Hendrikx said their research approach is unique because it includes a social scientist—a rarity in snow science—who can address the role of human behavior in backcountry travel. Johnson has been studying and teaching social science for the last thirty years. Both Johnson and Hendrikx are life-long skiers.

“Social science is about studying why and how people make decisions,” Johnson said. “What we’re doing in this research is trying to find a correlation between backcountry behavior and flaws in our decision-making. When we investigate decisions, consideration of social factors starts to make accident analysis look a little different.”

To blend the two data sets, backcountry terrain and decision-making, the research team is collecting crowd-sourced data through a smartphone app called SkiTracks. The app records a skier’s entire day on the mountain using global positioning (GPS) data from a skier’s phone and registers the skier’s exact location, terrain and their days’ worth of tracks. After the trip, users send their data directly to Hendrikx’s snow lab on the MSU campus. Users then use their smartphone to complete a short post-trip survey that asks questions about the skier’s behavior that day.

From left to right: GPS tracks for April 9, 2014 shown with orange diamonds representing considerable avalanche hazard/wind slab and persistent slab, and for April 23, 2014 shown with green circles representing low avalanche hazard/wind slab and warming. These data points are overlain on a 30-meter slope map where red is a steep slope and green is a lower-angled slope. Image courtesy of Jordy Hendrikx; Jerry Johnson; Jordy Hendrikx. Photo by Karl Birkeland. Background: The debris field from a fatal avalanche near Granite Peak in the Absaroka-Beartooth Wilderness, March 2014. Image courtesy of the Gallatin National Forest Avalanche Center.
“Social science is about studying why and how people make decisions. What we’re doing in this research is trying to find a correlation between backcountry behavior and flaws in our decision-making.”

JERRY JOHNSON, professor, Department of Political Science

“The data collection is twofold,” Hendrikx said. “The GPS app tracks technical terrain features like slope and angle, and the survey gathers information like group size, gender and the day’s goals. We’re then able to combine geography and terrain with the behavioral side of the skier, which allows us to investigate how and when backcountry skiers make their decisions about where to ski, so we essentially consider the ski track as a geographic expression of the group’s decision-making.”

Unlike lab research, the skiers themselves are intimately involved and directly embedded in the data collection.

“The skiers are invaluable to this project,” Johnson said. “We couldn’t do it without them.”

So far, tracks and survey data have been submitted locally from the Gallatin Valley and all across the U.S. Intermountain West, and globally from New Zealand, Norway, France and Slovakia. Johnson and Hendrikx are publishing and presenting the data collected thus far to avalanche professionals at snow conferences around the world.

“The end-goal of the research, and what we’re finding, is that avalanche accidents may be more predictable than originally thought,” Johnson said. “This holds a lot of promise in terms of how this could fold into current avalanche education. If we can highlight decision-making flaws, we may be able to lower the accident rate.”

According to Johnson, the results of the study might be applicable to other high-risk fields such as wildland firefighting, backcountry search and rescue response, snowmobiling and military use.

“How people behave ultimately influences their decisions,” Hendrikx said. “If we can interpret and share these findings through a geographic expression of decision, then we have the ability to potentially alleviate life-threatening backcountry accidents.”

For more information, or to participate in the study, please visit www.montana.edu/snowscience/tracks.
Teen-aged students throughout Montana are swabbing their noses for bacteria, tracking their dietary intake of Omega-3s versus Omega-6s, and making colorful maps of their brains, all as part of a year-long university experience called Bioscience Montana. Three faculty members from the College of Letters and Science—John Miller (cell biology and neuroscience), Jovanka Voyich-Kane (microbiology and immunology) and Ed Dratz (chemistry and biochemistry)—teach the three modules that comprise the immersive health sciences project for high school-aged students in Montana 4-H.

The program, which is funded by the National Institutes of Health, allows students to participate in hands-on science and research projects about how the brain makes choices, how scientists deal with infectious diseases, and the connections between nutrition and health. The students explore careers and studies in health science-related fields, and are exposed to digital media and social networking technologies.

The yearlong program begins in August when students spend an immersive week on the MSU-Bozeman campus, studying alongside faculty and students. Students continue to learn at home through bimonthly virtual lab meetings and student-devised experiments. In January, students return to the MSU campus to present their research findings, explore science and health careers, and begin work on a final project that can be shared with their communities.

Miller developed and leads the neuroscience module. For the 2014 program, Miller challenged students to construct an image of the homunculus of their face as it is represented on the surface of the sensory cortex of their brain. By measuring the relative sensitivity of different parts of their face, students estimated the relative number and density of nerve endings located in various facial areas. Using web-based interactive tools, students used this information about relative nerve cell densities to construct an image showing how their brains represent their faces, or their facial homunculus.

Voyich-Kane was in charge of the infectious diseases module, where students examined microbiota in their nose and throat with a goal of identifying normal flora versus Staphylococcus aureus and Streptococcus species. The students swabbed samples from their nose and throat, put their samples in a petri dish, and recorded observations about the growth of their samples. Finally, they identified the microorganisms from their mixed cultures and presented their diagnosis to the other students.

Dratz designed and led the metabolomics module, where the students learned how to process their blood in the biochemistry and organic chemistry labs, analyze their blood composition, and evaluate foods in their diet that improve or degrade their fatty acid balances.

Several students have developed their own science experiment projects after attending Bioscience Montana. For example, Dratz worked with two brothers, Colin and Colter Norick of Columbia Falls, Mont., to test the effectiveness of DHA, an Omega-3 fatty acid believed to improve brain function in people on typical diets. The brothers recruited fellow Columbia Falls High School students to receive a standard dose or a double dose of a DHA supplement or a placebo. Two months later, preliminary data showed that teens who took DHA showed improved cognitive function and attention compared to the placebo; however, the double dose did not produce superior results to the standard dose.

The brothers won several awards with their project, including an all-expenses paid trip to Los Angeles to present their research project at the Intel International Science and Engineering Fair.

“Many studies have been done on DHA and brain function, but most previous work was on infants or elderly people,” said Dratz. “There is very little of this kind of work on young people with no health complaints. This science could be helping lots of kids improve their brain function.”

Similarly, Elizabeth and Emma Carlson of Helena, Mont., conducted the same experiment they did in the infectious diseases module on their horses for a Montana State Science Fair experiment. The sisters were testing whether their 30-year-old horse would have a weaker immune system than other younger horses, and therefore, a higher bacteria count. They found, however, that all of the horses had a similar amount of bacteria. Therefore, they concluded that all horses have a similar amount of bacteria, regardless of their age.

“This program has interested both Liz and I in research careers,” Emma Carlson said. “We liked the lab work and the fieldwork. We are also glad that we got to explore this field through Bioscience Montana.”

Excerpted from MSU News Service
A young scientist examines his samples in the infectious disease module. Image courtesy of Bioscience Montana.

A student prepares his blood sample for analysis during the metabolomics module. Image courtesy of Bioscience Montana.

A participant in the neuroscience module works on her homunculus. Image courtesy of Bioscience Montana.
Top: The Carter County Museum in Ekalaka, Mont.

Right: Nathan Carroll and Jade Simon examine foot bones of a fast-moving, birdlike dinosaur in the paleo-lab at Montana State University. They consult with the Museum of the Rockies to confirm identifications of fossils in the Carter County Museum collection. Simon is a current M.S. student in paleontology.

Facing page, left: Derek Brouwer, a 2013 graduate in history and religious studies, worked on history projects for the museum.

Facing page, right: Sabre Moore graduated in 2013 with a degree in history and minors in museum studies, Native American studies and English literature.

All photos by Casey Page and reprinted with permission from the Billings Gazette.
The Student Community Outreach ProjEct (SCOPE) began as a small pilot program during the summer of 2013 with six MSU students working to revamp the Carter County Museum in Ekalaka, Mont. After a successful start, the organizers are continuing to match students with Montana communities to collaborate on innovative, meaningful projects that combine outreach and student research.

“This concept isn’t new at all,” said Shelby Rogala, a 2012 graduate with a degree in philosophy and SCOPE’s interim director. “We are a land-grant university. This is our mission. But we hope to make it more accessible and more supported.”

MSU students from any discipline have the background and abilities to benefit a community, Rogala said. The core group that worked in Ekalaka majored in earth sciences, history, graphic design, landscape design and film. Some of the participants had worked together on MSU’s student newspaper, the Exponent. Some were active in MSU’s student government.

While in Ekalaka, the students prepared dinosaur fossils and redid an area of the Carter County Museum devoted to Native American artifacts. They organized a two-day Dino Shindig that drew more than 360 visitors to this southeast Montana town of 300. They built display cases and prepared for a new 12,000-square-foot addition that will feature fossils and casts of fossils found in southeast Montana. They planted trees, native plants and heirloom vegetables. They designed logos, a children’s coloring book and the museum website.

“Some of the things they have done we could not have done—ever,” said Marilyn Schultz, assistant director of the Carter County Museum.

Rogala said the collaboration was a huge success. She gave much of the credit to Nathan Carroll, one of the co-founders of SCOPE and an Ekalaka native who graduated from MSU with a degree in paleontology. He is now pursuing his master’s degree at MSU while serving as curator of the Carter County Museum.

Sabre Moore, one of the students who spent the summer in Ekalaka, said, “It was a wonderful opportunity. It was definitely one of the best things I have agreed to do.”

The museum project allowed her to use her history major and three minors (museum studies, Native American studies and English literature) in a variety of ways, Moore said. She designed exhibits for the Native American collections, for example. She helped the museum reach Native American Graves Protection and Reparation Act (NAGPRA) accreditation, set up new displays and created a handbook for the museum collections.

Rogala says that part of her job is looking for resources both off and on campus to support the SCOPE students. Those who worked at the Carter County Museum volunteered their time, receiving free lodging at a nearby camp for hunters with physical challenges. They were plied with cookies and homemade casseroles. Some earned classroom credit for their work. Others carried the experience with them as they started their first job after graduation.

Rogala is working particularly closely with MSU’s Undergraduate Scholars Program to write grants that will support SCOPE students. She is also checking into internship and scholarship possibilities.

Colin Shaw, director of the Undergraduate Scholars Program and an assistant research professor in the Department of Earth Sciences, said he believes in SCOPE.

“Undergraduate research and engagement are two pillars of the MSU mission that we have been working to integrate for some time,” Shaw said. “SCOPE will connect the research and creative energy of our undergraduate students with real community needs.”

“As a student-conceived grassroots organization, SCOPE is well positioned to build relationships with the community and find new ways for our students to help in solving real-world problems through research and creative projects,” Shaw said. “This is really a great way for our students to combine rigorous academic research with service to the broader community.”

To learn more about SCOPE and see a list of current projects, please visit their website at scopemontana.wordpress.com.

Excerpted from Evelyn Boswell, MSU News Service
Enter a new college atmosphere, no matter your background, comes with many emotions. It’s often exciting and scary to sleep in a different place, eat different food and make new friends. As a student who has studied abroad, I can testify that the anxiety and excitement involved in this transition is amplified when you are an exchange student. Walking into class your first day becomes an entirely different kind of intimidating when English isn’t your first language. Finding sheets for your dorm, rides from the airport and a social circle to explore isn’t easy when you’re new in town.

At MSU, the new student-led program Fostering Relationships between International, Exchange and Domestic Students (FRIENDS) helps to ease the confusion for exchange students while helping MSU students explore other cultures. FRIENDS is an exciting way to broaden participants’ cultural horizons and make our school more welcoming to all students. The program has completed two semesters successfully.

Hannah Wilson, a senior majoring in history and economics, was inspired to start the FRIENDS program after her semester abroad at Hallym University in Korea. She found their program of pairing incoming exchange and local students to be effective and helpful in her travels. Upon her return to Bozeman, she realized MSU did not have such a program. She partnered with Griffin Ruehl, a senior in chemical engineering and liberal studies (global and multicultural option), as well as the Office of International Programs, to assign incoming exchange students buddies from MSU.

Based on students’ interest and foreign language study areas, each MSU student is paired with an incoming exchange student before the exchange student arrives. Through email correspondence, the exchange student is able to connect and discuss any questions about packing and what to expect. At the start of the semester, the pair can explore campus, buy books, and attend events together as they get accustomed to the semester to come.

Although the program spans only two weeks at the beginning of the semester, many students remain friends after the program ends—some even become roommates. “It is short-term, requires little administrative work and can be as extensive as the pair of students wants it to be,” explained Wilson.

Caroline Lima Salles de Souza, a chemical engineering junior from Rio de Janeiro, Brazil, reflects positively on the program. “Knowing that there would be someone here to help me in my very first steps gave me peace of mind to face whatever I had to face here,” said Salles de Souza.

Lara-Louise Kunik, a junior from Germany studying American studies, also enjoyed the program. She reflected that the
FRIENDS program made her more excited to come to Bozeman and, after her arrival, it made it easier to make friends who were not study abroad students. According to Kunik, one of the hardest parts of studying abroad is adjusting to cultural differences. “It is nice to know that there is someone you can rely on. If you need help with anything, you can just ask your buddy. It gives you a sense of safety,” said Kunik.

Rhuel reported that these responses are common. The FRIENDS after-program surveys have provided almost only positive feedback, an impressive feat considering the youthfulness of the program. When asked about his hopes for the program’s future, Rhuel stated, “…my biggest goal for the program is longevity. There have been programs like this that haven’t lasted…that is why we chose to make this program shorter to lessen the time commitment.”

It’s clear that the FRIENDS program brings a much-needed resource to exchange students in a simple, effective and fun way. Because it is created and maintained by students, the program is relevant to the community and manageable for students’ busy schedules. It also allows MSU students to make connections if they intend to study abroad in the future.

MSU is working towards becoming a more diverse campus, yet it remains easy to go through four years of college without interacting with people from many different cultures. This cultural isolation is not representative of the rapidly globalizing workforce or life in general and, without exposure to other cultures, students are missing out on a major educational opportunity. The FRIENDS program provides that opportunity in an informal and exciting way, and stands as a great new asset to the MSU campus. This is a program MSU needs to nurture to promote a diverse campus and community.

Greta Robison is a senior studying geography, Native American studies and cultural studies. She writes regularly for the Exponent, MSU’s student school paper, and has a passion for cross-cultural experiences. When she’s not studying, she enjoys working at MSU’s Women’s Center, making food, playing her harp and reading.

“Knowing that there would be someone here to help me in my very first steps gave me peace of mind to face whatever I had to face here.”
– CAROLINE LIMA SALLES DE SOUZA, exchange student from Brazil
Since 2007, Jill Davis, an instructor in the Department of English, and her WRIT 101/201 students have helped homeless individuals while working with community programs such as Habitat for Humanity, Family Promise and The Community Café. They also volunteer at the annual Project Homeless Connect, a day that provides information and services to persons who are homeless or at risk of becoming homeless. Through these experiences, Davis and the students have deepened their understanding about the causes and impacts of homelessness.

The Soloist, the 2009 book for One Book-One Bozeman, was pivotal in generating more interest community-wide in the Homeless Connect Yearbook Interview Project. In this project, Davis’ students interview 50 to 75 individuals annually who have experienced loss of health, employment, and family members, which ultimately led to the loss of housing. These interviews have been shared at the National Homeless Coalition Conference, and read each spring to members of the Greater Gallatin Homeless Coalition to educate Bozeman stakeholders about the challenges faced by this marginalized group.

Students love the work and comment that deep held stereotypes have been dispelled. “I’ve found that in order to understand our own path we have to practice empathy with another’s. It was incredible to have the opportunity to listen to an individual’s story and learn about his choice,” said Breanna Holmes, a 2014 English education graduate.

Tessa Kostas, a food and nutrition major, remarked that, “Ever since my interview experience, I now look at people differently. I no longer judge those who I see on the street, for I know that they each have their own unique stories of struggle.”

“I now look at people differently. I no longer judge those who I see on the street, for I know that they each have their own unique stories of struggle.”

- TESSA KOSTAS, food and nutrition major

WRIT 101 students Riley Rivers (left) and Reece Koth (right) preparing dinner for those in need at the Community Café. Photo by Roger Miller.
The Yellowstone fires of 1988 burned for nearly three months, from June 14 until September 11. In the end, the fires impacted 793,880 acres—36 percent of the total acreage in Yellowstone National Park—and touched the lives of over 20,000 people. The fires were so large and intense that they defined tactics for fire fighting for years to come and greatly contributed to wild land fire science.

Recognizing that as time passes more is forgotten, the Yellowstone Heritage and Research Center in Gardiner, Mont. initiated an oral history project to record the memories of people who experienced the 1988 fires from which future generations can learn.

Todd Jensen, a senior in liberal studies, was selected to conduct interviews and collect the oral histories. The Heritage and Research Center provided Jensen with an initial list of potential interviewees and contact information. Over the summer, he contacted people and invited them to spend an hour or so reminiscing about their time in Yellowstone during the 1988 fires.

Jensen interviewed maintenance people, superintendents, fire scientists and locals from Gardiner. He found that people were very eager to share their experiences, and for many, involvement in the 1988 fires were the proudest moments of their careers.

“Interviewing leaders such as Richard Rothermel, Bob Barbee and Don Despain was an education in itself. They will go down in history and it was an honor to meet them,” Jensen said. “I also learned that wild land fires are a part of nature and play an important role in the sustainability of many species. The 1988 fires were an once-in-a-lifetime experience for those who were there. Participating in the Yellowstone Oral History Project was a once-in-a-lifetime experience for me.”

The recorded interviews, as well as transcripts of the interviews, are housed at the Yellowstone Heritage and Research Center where they are available to the public.

Todd Jensen is a senior studying liberal studies (Quaternity option). He was born and raised in Bozeman, and loves the outdoors, nature, wildlife and Yellowstone National Park.
MSU graduate student engages the community through

CITIZEN SCIENCE PROJECTS

By Jessianne Wright

Last summer, ecology graduate student Erica Garroutte called upon the public to help gather data for her elk migration research through a citizen science program. Volunteer community members collected grass samples and elk scat from the Dome Mountain Wildlife Management Area, which is located north of the north entrance to Yellowstone National Park. Garroutte is analyzing the samples to determine how climate change may be affecting the timing of grassland green-up, and as a result, elk foraging and migration patterns.

The study area is the northern region of the Greater Yellowstone Ecosystem (GYE) and Garroutte hopes her findings will be useful and important for a variety of local people who have a stake in the ecosystem, a main reason for getting the public involved in her studies. “The citizen science programs allow participants to feel invested in the topic,” she said. They also serve as a fun way of educating the public on her research.

“My kids and I have only been to a handful of events where we had so much fun learning and being a part of relevant science in our area.”

- CITIZEN SCIENCE PROJECT VOLUNTEER

Analysis of grassland samples will determine the relationship between Garroutte’s findings and the NDVI across different elevations and land uses within the study area.

Her study is “ground truthing” the relationship between NDVI and grassland biomass and forage quality, Garroutte said, and knowing the limitations and utility of their research tools is important in order for managers and researchers to be confident of their findings using NDVI.

Working with Andrew Hansen, a professor in the Department of Ecology, Garroutte completed her second field season during the summer with the help of three undergraduate students, and will finish analysis and write her thesis this school year.

In addition to her work on the utility of NDVI, Garroutte taught two Peaks and Potentials camps, which are educational camps for high-potential 5th through 7th graders, and worked with the Montana Apprenticeship Program, a six-week summer immersion hands-on research experience for underrepresented minority high school students. “This has been a really fun way to get kids involved in my research,” she said.
Including the public in her study, from volunteers to children, has given Garroute the opportunity to look at the findings with a diversity of perspectives. “Kids,” Garroute notes, “have a very unique way of observing the environment and often bring up interesting questions about the research that I have not thought of myself.”

For example, in one of her Peaks and Potentials classes, Garroute discussed the decisions elk make during migration—either to spend energy migrating to higher-quality forage or remain residential, eating moderate-quality forage. One student said it resembled his decisions at home, when he has to do chores before ice cream, sometimes it is worth the energy to do the chores and then get the ice cream, and sometimes it is better to play and have no ice cream.

“No I think about this every time I read about migration,” Garroute said.

Garroute said that public engagement benefits local people because it provides them with an opportunity to get involved. However, she added, “The real benefit has been all that I have learned from the local community about this ecosystem and the importance of the relationship between local populations and wildlife conservation.”

Jessianne Wright is an undergraduate studying history, environmental and animal sciences, and writing. In addition to her studies, she works with and trains horses.
LIBERAL STUDIES STUDENT WINS PRESTIGIOUS UDALL SCHOLARSHIP

Cara Thuringer, a senior majoring in liberal studies (environmental studies option) and photography, was named a 2014 Udall Scholar in the environmental category. The award will provide her with a $5,000 scholarship, and the opportunity to gather and discuss issues with the other 2014 Udall Scholars in Tucson, Ariz.

“It will be exciting to get to know them,” Thuringer said, adding that they will be key players in the environmental movement in years to come.

Thuringer has been involved in several MSU activities related to the environment. She was the sole student representative on the University Facilities Planning Board during academic year 2012-2013, which allowed her to give input on the design and renovations of campus buildings. She has been a student senator with the Associated Students of MSU (ASMSU) and belongs to the Network of Environmentally Conscious Organizations (NECO).

Thuringer was one of two recipients of the Izaak Walton League of America National Scholarship in 2013. This fall, she is traveling to Vietnam, Morocco and Bolivia to study climate change through a School for International Training program that will allow her to study how different cultures interact with the environment and how they respond to climate change. She plans to graduate in the fall of 2015 and continue her environmental activism in nongovernmental organizations.

The Udall Foundation is an independent federal agency that was established by Congress in 1992 to provide federally funded scholarships for college students intending to pursue careers related to the environment, and to American Indian students pursuing tribal public policy or health care careers.

Excerpted from Evelyn Boswell, MSU News Service

CELL BIOLOGY AND NEUROSCIENCE MAJOR WINS GOLDWATER

Connor Murnion, a senior majoring in cell biology and neuroscience with a minor in psychology, received a 2014 Goldwater Scholarship. The scholarship is the nation’s premier scholarship for undergraduates studying math, natural sciences and engineering. It provides recipients up to $7,500 a year for tuition, fees, books, and room and board.

Three MSU students, all members of the University Honors College, were awarded Goldwater Scholarships in 2014. MSU has now received 61 Goldwaters, making the university one of the nation’s top institutions for numbers of recipients. The other recipients were Katherine Kent (chemical and biological engineering) and McLain Leonard (chemical engineering).

Murnion, who came to MSU because of the opportunity to conduct research, has been working in professor Frances Lefcort’s laboratory since the spring of his freshman year. His research focuses on a rare but devastating condition called Familial Dysautonomia, a disorder of the autonomic nervous system caused by incomplete development of sensory and autonomic neurons.

After graduating from MSU, Murnion wants to travel and then attend graduate school to research education so he can more effectively teach young children. Eventually, he wants to affect public school policies, establish his own school or work in a private school that aligns with his educational beliefs.

Cassia Wagner, a junior majoring in chemistry, received an honorable mention from the Barry Goldwater Scholarship and Excellence in Education Program.

Excerpted from MSU News Service.
MSU GRAD STUDENT RECEIVES NEWKIRK FELLOWSHIP TO STUDY SOLAR CYCLES

Ricky Egeland, a graduate student in physics, received a 2014 Newkirk Fellowship from the High Altitude Observatory (HAO) in Boulder, Colo. Egeland was the only recipient this year and the first winner from MSU.

Newkirk Fellowships are awarded on the basis of academic excellence, scientific potential and the compatibility of the student’s interests with current research at the observatory. The HAO conducts research and provides support and facilities in the areas of atmosphere, ionosphere and magnetosphere, long-term solar variability, solar transients and space weather. The Newkirk Fellowship will allow Egeland to study the magnetic cycles of sun-like stars to better understand the dynamo mechanism responsible for these cycles.

“In order to come to a more full understanding of the long-term dynamic behavior of the sun, we must consider the sun in the context of similar stars, building a statistical sample of sun-like stars which are at different states of activity and evolution,” Egeland said.

Egeland, a native of East Grand Forks, Minn., graduated from the University of Minnesota, Twin Cities, in 2003. He then became a software developer at the European Organization for Nuclear Research (CERN) and worked in Switzerland until 2010. He came to MSU after working briefly in Brazil at the Observatório Nacional in Rio de Janeiro.

Want to know more?
www.montana.edu/lettersandscience/2014/egeland/
Excerpted from Evelyn Boswell, MSU News Service

ANTHROPOLOGY STUDENT’S SOLUTION EARNHS HIM PUBLICATION IN INTERNATIONAL JOURNAL

Michael Ruiz, a senior majoring in anthropology and a member of the University Honors College, had a paper published in the International Journal of Arts and Sciences on a quick, safe and effective method he developed for defleshing bones. The removal of soft tissue from skeletal remains to reveal the underlying bone is a process necessary to the work of forensic scientists and forensic anthropologists.

Ruiz said he began the research project as a requirement for his selection as a McNair Scholar at MSU. He came up with the research idea while reading literature in the area of physical anthropology, the area of anthropology that interests him the most. He was intrigued by previous research that found that tissue could be removed from bones without damaging the surface of the bones using a solution of common household bleach, although the technique took some time. Ruiz’s technique speeds up the process without harming the bone surface by increasing the amount of common household bleach in the solution.

“I was just very interested in figuring out an efficient way to (deflesh the bones) and making a contribution,” Ruiz said. He said that he was honored that his work had “contributed something new” to the discipline.

In addition to publication of his paper, Ruiz also presented his findings at a conference held at Harvard Medical School. He recently received a Montana University System Governors Best and Brightest Scholarship in the merit-at-large category, a $2,000 annual scholarship.

Ruiz is spending this school year on a student exchange to Stony Brook University in New York, which offers courses in physical anthropology not taught at MSU.

Want to know more?
www.montana.edu/lettersandscience/2014/ruiz/
Excerpted from Carol Schmidt, MSU News Service
ECOLOGY PROFESSOR’S WORK WITH AFRICAN WILD DOGS HIGHLIGHTED IN NEW YORK TIMES

Ecology professor Scott Creel and the Montana State University-affiliated Zambian Carnivore Programme were featured in an article in the Science section of the New York Times for their work studying African wild dogs, a little-studied and unique predator.

In the article, Creel described recent research showing that wild dog packs are essentially the mammalian equivalent of a honey-bee hive, with non-breeding adults working so hard to raise the pack’s offspring that they compromise their own survival.

“The evolution of cooperation has been extensively studied for 50 years, and it is very rare for a mammal to trade its own survival for the benefit of its relatives,” Creel said.

Creel works closely with the field-based Zambian Carnivore Programme (ZCP) being run by Matt Becker, who graduated from MSU in 2008 with a doctorate in ecology. ZCP studies five key African carnivores—lions, leopards, hyenas, African wild dogs and cheetahs—and 21 prey species.

From a conservation perspective, Creel said ZCP’s goal is to provide the data needed for Zambia to manage and protect African carnivores and their prey species. From the side of pure science, ZCP’s research is working to shed light on the sometimes-subtle ways that predators affect prey and vice versa.

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“Research all over the world is revealing that the loss of top carnivores causes fundamental changes to ecosystems,” Creel said.

“Zambia is dealing with these problems a lot better than most nations.”

Creel is one of three principal investigators on a $1 million National Science Foundation grant that is helping the Zambian Carnivore Programme to study predators and their prey in Zambia’s national parks. Photo courtesy of Scott Creel.

Excerpted from Sepp Jannotta, MSU News Service

MATH PROFESSOR WINS FULBRIGHT TO UNITED KINGDOM

Elizabeth Burroughs, an associate professor of mathematics education in the Department of Mathematical Sciences, won a Fulbright Scholar grant to work with faculty and students at the University of York, which is on the west side of England and approximately 200 miles north of London. Burroughs’ research focuses on improving the preparation and professional development of K-12 teachers.

While at York, Burroughs will teach an undergraduate course for future elementary teachers, “Inquiry in Mathematics.” She will also continue work on gender equality issues in education and the psychology of learning while in England.

“I like to help students explore the psychology of math education and how it fits with teacher performance,” Burroughs said. “Judith Bennett, my co-worker at the University of York, is conducting similar research in the science field, so I will be able to contribute expertise to their program and learn at the same time.”

Burroughs, who has been teaching at MSU since 2007, is also the principal investigator of the Examining Mathematics Coaching project, a five-year, $3.5 million project funded by the National Science Foundation to research mathematics coaching.

The Fulbright Scholars program is an international exchange program sponsored by the U.S. government and is designed to increase international understanding between people. Burroughs is one of approximately 1,100 U.S. faculty and professionals who will travel abroad through the Fulbright U.S. Scholar Program in 2014-2015.

Excerpted from Tanya Reinhardt, MSU News Service

Excerpted from Sepp Jannotta, MSU News Service

Confluence College of Letters and Science 2014–2015
CHEMISTRY PROFESSOR RECEIVES INAUGURAL DISTINGUISHED PROFESSOR AWARD

Joan Broderick, a professor in the Department of Chemistry and Biochemistry, is the first recipient of MSU’s Woman in Science Distinguished Professor Award. The award was established by Nancy Seleski, an MSU alumna who is the director of supply chain and quality for 3M’s Industrial Business, to honor outstanding faculty women in the sciences. The award recognizes faculty who champion equity and diversity and have excelled in research accomplishments, teaching and mentorship, as well as made contributions to Montana and/or MSU. The recipient receives $4,000 a year for two years.

Broderick has an international reputation for her research and has published 71 peer-reviewed papers. She is also recognized as a committed teacher and mentor. Her research lab examines iron, which is abundant on Earth and everyday life, but also in biology. Hemoglobin is one example of such iron, but she focuses on other kinds of iron that initiate specific biological reactions. Her work could have wide applications in biomedicine and green energy.

“She has earned international recognition for using many complementary experimental approaches to thoughtfully attack complex problems in metallobiochemistry,” said department head Mary Cloninger, who nominated Broderick for the award. “She is an outstanding teacher at both the undergraduate and graduate levels, and she goes out of her way to mentor younger scientists and colleagues. She just exemplifies what we all aspire to do in teaching, mentoring and advancing knowledge. She richly deserves this award, and I feel very fortunate to have her as a colleague.”

Want to know more?
www.montana.edu/lettersandscience/2014/broderick/
Excerpted from Evelyn Boswell, MSU News Service

MICROBIOLOGY AND IMMUNOLOGY FACULTY RECEIVE GRAND CHALLENGES EXPLORATION GRANT

Seth Walk and Blake Wiedenheft, microbiology and immunology, received a $100,000, 18-month Grand Challenges Exploration Grant from the Bill & Melinda Gates Foundation to study how disease-causing microbes interact with the human gastrointestinal tract.

Approximately 100 trillion microorganisms live in the gastrointestinal tract, and several recent studies suggest that these microbes play a critical role in human health and disease. However, tools for systematically manipulating these microbes and measuring the response by human cells are currently not available.

To overcome these limitations, Walk and Wiedenheft have teamed up with Jason Spence from the University of Michigan to design new methods for measuring how cells in the human gastrointestinal tract respond to “good” and “bad” microbes. The researchers are using intestine-like tissue generated from stem cells, called human intestinal organoids (HIOs). HIOs represent a creative new system to study how microbes interact with the intestine and may lead to new treatments for disease.

Grand Challenges Explorations is a $100 million initiative funded by the Bill & Melinda Gates Foundation to foster innovation in global health research. To receive funding, applications must present a bold idea in one of five critical global health and development topic areas such as agricultural development and neglected tropical diseases.

The Gates Foundation wants to see basic research translate into applied research that can benefit people in underdeveloped countries, Walk said. He added that, “The Gates Foundation is really keen on developing new ways and more relevant ways to look at human infection.”

Excerpted from Evelyn Boswell, MSU News Service
On a quest to learn more about fires in the Northern Rockies, MSU, Salish Kootenai College (SKC) and federal researchers are looking to trees, lakes and oral traditions for insights they can share with land managers.

David McWethy, a paleoecologist in MSU’s Department of Earth Sciences and a Montana Institute on Ecosystems fellow, led a team of students sampling sediments from several lakes on the Flathead Indian Reservation. At the same time, Rick Everett of SKC led a group of students collecting tree ring and fire scar samples.

The charcoal, pollen and other materials they expect to find in lake sediments will speak to the frequency and timing of ancient and recent fires, much like they have done in other MSU studies in Yellowstone National Park, New Zealand, Tasmania and elsewhere in the world, said McWethy.

Tree rings and fire scars will reveal when fires occurred, how severe they were and information about what the climate was like during the life of the tree, said Everett, the overall project leader and a forestry professor at SKC.

The goal, according to the team, is to prepare for the future by reconstructing the past. They hope the lessons they learn from ancient and recent fire management will help land managers determine how management and restoration might best reduce the risk of hazardous fire activity while promoting the long-term resilience of native coniferous forests of the Northern Rockies.

Working in conjunction with the Confederated Salish and Kootenai Tribes Tribal Forestry and Cultural Resources, the research team chose study sites with mixed-coniferous forests (primarily Douglas fir and Ponderosa pine) that hadn’t been logged or disturbed by human activities, but contained...
individual trees that were scarred by fire. They looked for forest sites that could be paired with a lake where sediments could be analyzed to add a much longer history of fire.

After collecting lake sediments, tree rings and fire scars, the research team will compare their findings with oral tradition about fires in the region.

“The need for information is particularly compelling on tribal lands, where tribal members and forest managers have a strong interest in preserving historical continuity and incorporating traditional knowledge in management strategies,” Everett said.

A grant from USDA National Institute of Food and Agriculture Tribal Colleges Research is funding the two-year project. Collaborating with McWethy and Everett are Emily Heyerdahl from the USDA Forest Service Rocky Mountain Research Station Fire Sciences Lab in Missoula, Greg Pederson from the U.S. Geological Survey in Bozeman, and 12 tribal students.

“There is a critical need to better understand the historical context for applying fuel treatments intended to reduce fire risk in mixed forest types across the western U.S., and to identify management strategies that may support resilient future forests,” McWethy said.

By “fuel treatment,” he is referring to methods of reducing fuel for fires, McWethy said. Managers might thin a forest by removing small diameter trees, for example. They could use prescribed burns to remove shrubs and grasses.

“Understanding what happened in the past under different conditions gives us an idea of what’s going to happen in the future,” he summarized.

McWethy, whose collaborations also include a project in Lebanon, said the group will not only learn about fire management in the Rockies, but its findings could add to the knowledge about the increasing incidence of large fires in the world.

“An increase in large fires is a global phenomenon,” McWethy said. “Although we’ve had large fires in the past, they didn’t affect people as much because there were fewer people across landscapes in the western U.S.”

Excerpted from Evelyn Boswell, MSU News Service

Written on this tree ring are the sample number and name of the site (Hollearing) where it was obtained in the Mission Mountains on the Flathead Indian Reservation. The lines help mark alignment in case the tree disc needs to be reassembled. Photo by Dave McWethy.
Carly Urban, an assistant professor in the Department of Agricultural Economics and Economics, has partnered with the Federal Reserve Board in Washington, D.C. to study the effectiveness of mandatory financial education in high school. The project was funded with a grant from the FINRA Investor Education Foundation.

Policymakers have promoted financial education as a means of combating low levels of financial literacy and negative financial behaviors among the U.S. population. However, previous research on the effectiveness of financial education has found mixed results in improvements in financial wellbeing, often due to data and methodological limitations.

Urban was able to address some of the limitations of previous research by using better data provided by the Federal Reserve Bank of New York Consumer Credit Panel/Equifax, a database with detailed information on consumer debt and credit. She also focused her analysis on three states that implemented financial education mandates after the 2000 elections and had well-documented implementation. Urban applied a new statistical approach that compares the changes in credit scores and default in states after implementation of financial education mandates to the changes in comparable states that did not pass mandates.

Using this methodology, Urban was able to more accurately assess the effect of financial education on financial outcomes. “We find that if a rigorous financial education program is carefully implemented in high school, it can improve the credit scores and lower the probability of severe default for young adults,” said Urban.

Behrad Noudoost. 

According to Frances Lefcort, the head of the Department of Cell Biology and Neuroscience, the team’s basic research may have implications for understanding a myriad of mental health issues. “Schizophrenia and attention deficit disorders have been linked to visual stability, so the work Behrad is doing offers valuable knowledge to other scientists working in cognitive neuroscience,” Lefcort said.

Want to know more? www.montana.edu/lettersandscience/2014/noudoost/

Excerpted from Tanya Reinhardt, MSU News Service

Carly Urban. 

**Professor Studies Impact of Mandatory Financial Education for High School Students**

**MSU Professor and Team Publish Brain Research in Nature**

Behrad Noudoost, an assistant professor of neuroscience in the Department of Cell Biology and Neuroscience, is part of a team that published a paper in the journal *Nature* on how the brain processes visual information.

Noudoost and the team studied saccadic eye movements—those movements where the eye jumps from one point of focus to another—in an effort to determine exactly how this happens without us being overcome by our brains processing too much visual information.

“We wanted to know what causes the brain to filter out unnecessary information when we shift our vision from one focal target to another,” Noudoost said. “Without that filter the visual information would overwhelm us.”

The study found that neurons in the prefrontal cortex of the brain start processing information in anticipation of where we are going to look before we ever do it, suggesting that selective processing might be the mechanism for visual stability.

Noudoost said this new information can help scientists better understand the underlying causes of problems such as dyslexia and attention deficit disorders.

**Professor Studies Impact of Mandatory Financial Education for High School Students**

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A team of researchers from the Department of Chemistry and Biochemistry recently published a paper in the online version of the scientific journal Proceedings of the National Academy of Sciences (PNAS) that breaks new ground on how DNA, the genetic code in every cell, responds when exposed to ultraviolet (UV) light.

DNA is built like a staircase and carries genetic instructions that are unique to each person. It’s very hardy and generally able to stand up to ultraviolet rays, but UV rays sometimes cause mutations. UV exposure is a major cause of skin cancer, and while there are nearly 5 million cases of skin cancer each year in the U.S. alone—and 9,000 related deaths—the numbers would be far worse if DNA were more easily damaged.

“UV is actually very damaging, yet our DNA is damaged less than expected,” said Bern Kohler, a chemistry professor and co-author of the paper. “In the early evolution of life on Earth when there was no ozone layer, the amount of UV would have been far higher and yet life, and the DNA that is central to life, survived. We’ve been trying to understand the molecular mechanisms that make DNA resist UV damage.”

Too quick for the eye to see, UV light causes an electron to be transferred from one base to another on a single DNA strand. A base is the smallest unit of the genetic code, a small molecule that constitutes an individual “rung” on DNA’s ladder. The transferred electron then returns to its starting point in a fraction of a nanosecond. The back-and-forth motion of the electron explains how DNA remains undamaged most of the time. At the same time, the researchers note that the transferred electron could be used to repair damage in a way that mimics how certain repair proteins fix UV damage.

The new discovery was possible because of an infrared laser instrument built by postdoctoral researcher Yuyuan (Tom) Zhang, an expert in ultrafast spectroscopy and first author of the PNAS paper, Kohler said. The instrument, which is the only one of its kind in Montana and one of only a handful in the world, shoots extremely short pulses of ultraviolet light at DNA samples, then measures the vibrations created in DNA in response. The vibrations are so fast that Kohler describes their speed in terms of femtoseconds instead of nanoseconds. A femtosecond is one millionth of a nanosecond. A nanosecond is one billionth of a second.

Undergraduate students Jordan Dood and graduate student Ashley Beckstead were also co-authors. The MSU researchers collaborated with Xi-Bo Li, Khiem Nguyen and Cynthia Burrows at the University of Utah in Salt Lake City, and Roberto Improta at the Istituto di Biostrutture e Bioimmagini in Naples, Italy.

The National Science Foundation and the NASA Astrobiology Program provided funding for the work performed at MSU for this study. Zhang developed the laser instrument with funding from the M.J. Murdock Charitable Trust.

Want to know more?
www.montana.edu/lettersandscience/2014/dna/
Excerpted from Evelyn Boswell, MSU News Service
Assistant professor Ben Poulter, Department of Ecology, is part of a team that recently published a paper in the journal *Nature* on their findings that dryland ecosystems, which include deserts to dry-shrublands, play a more important role in the global carbon cycle than previously thought.

In fact, Poulter and his collaborators believe that dryland ecosystems may be a driving factor in the global carbon cycle, and are urging global ecologists to include the emerging role of dryland ecosystems in their research.

“Our study found that natural events in Australia were largely responsible for this anomaly,” Poulter said. “La Nina-driven rainfall during 2010 and 2011, as well as the 30-year greening up of its deserts and other drylands, contributed to significant changes across the globe.”

Poulter, who came to MSU in January, has a dual appointment with the Institute on Ecosystems where he investigates the role of fire and invasive species in dryland systems to further understand the mechanisms for dryland greening and carbon cycle consequences. Before coming to MSU, he worked in France at the Laboratoire des Sciences du Climat et de l’Environnement (LSCE) where he contributed to compiling information for the Global Carbon Project’s annual global carbon budget assessment.

He realized during that process that the world’s land carbon sink in 2011 seemed to be absorbing an unusually large amount of carbon, Poulter said. Carbon dioxide moves constantly between land, oceans, vegetation and the atmosphere. When one of those absorbs more carbon dioxide than it releases, it’s referred to as a carbon sink.

Poulter and his collaborators investigated the phenomena with a variety of data sets and modeling approaches. They eventually discovered surprising interactions between climate extremes and desert greening that increased in importance over the past 30 years. Further study showed that the dryland systems in the Southern Hemisphere, specifically Australia, had particularly high productivity in response to increased La Nina-phase rainfall.

The authors discovered that an increase in the precipitation sensitivity of a range of ecosystem processes occurred between the periods of 1982-1996 and 1997-2011. One of those processes was the greening of desert vegetation. Together those processes led to a four-fold increase in net carbon uptake to precipitation over the past 30 years.

The discoveries described in *Nature* caught the attention of many major media outlets, including National Public Radio, ABC Science and Reddit.

Want to know more? [www.montana.edu/lettersandscience/2014/poulter/](http://www.montana.edu/lettersandscience/2014/poulter/)

Excerpted from Evelyn Boswell, MSU News Service.
UNDERSTANDING COYOTE HOWLS, YIPS COULD HAVE WIDER IMPLICATIONS

A study by Sara Waller, an associate professor of philosophy, on the howls and yips of coyotes has contributed to an international research collaboration called the Canid Howl Project. The research effort includes a citizen science project in which Web visitors listen to recorded howls and then decipher visualizations, or spectrograms, of those sounds. Dog owners can even contribute audio recordings of their own dogs' howls.

Waller collaborates with Arik Kershenbaum of Cambridge University and several other researchers on the Cooperative Predator Vocalization Consortium. Kershenbaum created the Canid Howl Project site, which was featured as the “Project of the Day” on SciStarter, a popular database of citizen science projects.

Waller studies the vocalizations of predators that are social and cooperative to learn about the foundations of language and how meaning transfers from one mind to another. Human beings use language, as well as tone, facial expression, body language and gesture, to communicate with one another. She has been studying coyote vocalizations for more than a decade, trying to determine what information the coyotes are sharing, to understand why they howl and contribute to an understanding of the evolution of language.

Waller is also studying the vocalizations of feral cats that use different kinds of vocalizations than domestic cats. While feral cats are solitary hunters, they are also social; they tend to live in colonies, and females often “babysit” for other females and share duties such as guarding kittens.

Waller’s coyote communication research was also part of a NASA-funded effort to study the possibility of life on other planets. The NASA team believed Waller’s insights into the vocalization of non-human species could give insights into possible communication with life beyond Earth.

PSYCHOLOGY STUDY SHOWS THAT INTERVENTIONS HELP WOMEN’S RELUCTANCE TO DISCUSS ACCOMPLISHMENTS

A study published by Jessi L. Smith, professor in the Department of Psychology, and Meghan Huntoon, a former student of Smith’s and now a doctoral student in psychology at Northern Illinois University, has found that gender norms about modesty help explain why women don’t feel comfortable bragging about their own accomplishments.

Their findings were presented in an article entitled, “Women’s Bragging Rights: Overcoming Modesty Norms to Facilitate Women’s Self-Promotion” which was published in the journal Psychology of Women Quarterly.

Smith noted that society disapproves of women who are perceived to be bragging about themselves. However, Smith said, American men who brag about their accomplishments are perceived as confident and capable.

“We live in a society where cultural gender norms are powerful and imbedded in our history,” she said. “This is no way, shape or form to be blamed on women. It’s just part of our culture, and it is our job to find ways to change these cultural norms.”

Smith and Huntoon’s study, which included approximately 80 MSU undergraduate students, also found that intervention techniques can overcome women’s reluctance to discuss their accomplishments and help them communicate more effectively about their successes.

The study received a lot of attention from national media outlets, including Time, The Washington Post and The Huffington Post.

Want to know more?
www.montana.edu/lettersandscience/2014/smith/
Excerpted from Carol Schmidt, MSU News Service
MSU GRADUATE WINS FULBRIGHT SCHOLARSHIP

Gabe Lavin, a recent graduate with a degree in anthropology, won a Fulbright scholarship to study Arabic culture through the oud, a pear-shaped string instrument similar to a guitar, in Muscat, the capital of Oman. The country is located on the southeast coast of the Arabian Peninsula.

Lavin said he started playing the oud in Morocco in 2010. In 2012, he further developed his skills while studying in Egypt on a Boren scholarship at an oud conservatory with Naseer Shama, a famous Iraqi oud player. Through musical encounters, Lavin said he has gained a better understanding of the vast cultural diversity in Northern Africa and the Arabian Peninsula.

Over the past two years, Lavin has traveled extensively playing with oud groups in a consortium of countries and cultures, including Khartoum in the Sudan.

“Gabe’s ability to gain international experiences has helped him capture the essence of anthropology, and more specifically, ethnomusicology,” said Laurence Carucci, professor of anthropology and Lavin’s former academic adviser. “As a top-tier research institute, MSU needs to continue exploring other cultures, and this is an excellent way for Gabe to contribute to that global body of research.”

“Oman is in the midst of a musical renaissance,” Lavin said of the country bordered by Yemen, Saudi Arabia and the United Arab Emirates. “I want to help bring different cultures together through music, and Oman is the ideal place to do it.”

According to Carucci, Gabe has a tremendous advantage in studying an Arabic culture because of his sophistication and his relatively strong Arabic language skills. Lavin studied Arabic through MSU’s Arab language program prior to studying in Morocco and Egypt.

The Fulbright student program is an international program sponsored by the U.S. government and is designed to increase international understanding between people.

Excerpted from Tanya Reinhardt, MSU News Service

STUDY BY ECOLOGY ALUM REVEALS CHANGING DIETS FOR YOSEMITE BEARS

Black bears in Yosemite National Park and elsewhere are notorious for seeking out human food, even breaking into cars and cabins for it. Now a new study conducted by Jack Hopkins, who earned his Ph.D. in fish and wildlife biology from MSU in 2011, reveals just how much human food has contributed to the diets of Yosemite bears over the past century.

Hopkins and his collaborators estimated the proportion of human-derived food in bears’ diets by analyzing chemical isotopes in hair and bone samples. The results, published in the March issue of the journal *Frontiers in Ecology and the Environment*, show how bears’ diets have changed over the years as the National Park Service took different approaches to managing bears and people in Yosemite.

“Yosemite has a rich history of bear management practices as a result of shifting goals over the years. What we found was that the diets of bears changed dramatically after 1999, when the park got funding to implement a proactive management strategy to keep human food off the landscape,” said Hopkins, now a research fellow at the University of California, Santa Cruz.

While at MSU, Hopkins worked with ecology professor Steven Kalinowski as his major professor and Kalinowski is a co-author on the newly published paper.

“Once bears start eating human food, they often have to be killed,” Kalinowski said. “The old adage that a ‘fed bear is a dead bear’ is sadly true. The Park Service works very hard keeping human food from bears, but they have a nearly impossible job. I wouldn’t blame them if they got discouraged. What Jack’s research shows is that their efforts are working. Yosemite’s bears are getting into a lot less food than they were a couple decades ago.”

Want to know more?
www.montana.edu/lettersandscience/2014/hopkins/

Excerpted from Evelyn Boswell, MSU News Service
AGRICULTURAL ECONOMICS AND ECONOMICS

Economics students Kirkwood Donavin (M.S., applied economics) and Jacob Ebersole (economics and finance), together with Neil Liotta (biological engineering) and Colin Gaiser (sociology), teamed up with local Kenyans and MSU’s chapter of Engineers Without Borders (EWB) to evaluate the welfare impacts of EWB water and sanitation projects. In nine years, this student-led organization has drilled 11 improved wells and constructed 15 sealed composting latrines at 22 primary schools in western Kenya. The goal of these projects is to improve health and education outcomes in these communities.

With support from Sarah Janzen, an assistant professor of economics, the team of student researchers are evaluating whether the anticipated impacts are happening. This past summer, the research team surveyed more than 800 households in Khwisero District, where EWB has worked for the past 10 years. In the coming year, the research team will use the data to compare health and education outcomes between communities with EWB interventions and those without. The results will help EWB evaluate whether their projects actually decrease contraction of water-borne illness, and whether they improve school attendance and performance. The students hope their findings will help MSU’s chapter of EWB to increase their global impact.

CELL BIOLOGY AND NEUROSCIENCE

At their September meeting, the Montana Board of Regents approved the new MSU Center for Mental Health Research and Recovery. It will draw on MSU’s research strength in neuroscience, electrical engineering, computer science, biochemistry, psychology and nursing, among other disciplines, to address pressing mental health challenges in the state.

“The goal of the center is to create a hub in Bozeman, on the MSU campus, that will take advantage of expertise we have at MSU,” said Frances Lefcort, the center’s interim director and head of the Department of Cell Biology and Neuroscience.

Lefcort said the center’s work will focus on four areas: basic science, which will be focused on neural mechanisms underlying mental illnesses such as depression, bipolar disorder and schizophrenia; translational research, which will be focused on developing new neurotechnologies for diagnosis and treatment; clinical research, which will be focused on prevention, intervention and identifying populations at risk; and outreach, which includes soliciting information about mental health needs while also providing information about advances in diagnoses and treatment strategies.

The center is being established in collaboration with the National Alliance on Mental Illness for Montana, or NAMI Montana. It will draw from the expertise of more than 20 MSU departments or colleges, as well as other offices and entities. One of those entities is MSU Extension, which is positioned to help share the center’s findings with the public. MSU Extension has a presence in all 56 Montana counties. The center will be funded by public and private grants, contracts and gifts.

MSU has launched a new, multidisciplinary center that is designed to help improve the diagnosis and treatment of mental illness throughout Montana. In research that will be relevant to the center, neuroscientist Behrad Noudoost is pictured observing brain waves on monitors in an MSU laboratory.
CHEMISTRY AND BIOCHEMISTRY

MSU will serve as the lead institution on a new $10 million, four-year project to form a research center focused on innovative energy research. Chemistry professor John Peters is the principal investigator on the proposal and will direct the Bozeman-based center.

The Biological Electron Transfer and Catalysis (BETCy) Energy Frontiers Research Center (EFRC) unites participants from seven institutions into an integrated team to conduct basic research, looking for scientific breakthroughs to help build a new energy economy in the United States. The Department of Energy’s Office of Basic Energy Sciences is funding the project.

Peters said a main focus of the BETCy EFRC research is to figure out how electron flow is controlled as it pertains to the production of biofuels. Biofuels are produced in microbes as part of their metabolism. Knowing how electrons are trafficked around cells during metabolism could provide the basis for directing more of a microbe’s cell energy toward the production of biofuels.

“This is something that’s really unique and innovative in the area of basic energy science. It could lead to some big advances in bioenergy,” Peters said.

In addition to Peters, the BETCy EFRC involves three other MSU professors: Brian Bothner, also in the Department of Chemistry and Biochemistry, Eric Boyd in the Department of Microbiology and Immunology, and Ross Carlson in the Department of Chemical and Biological Engineering, as well as researchers at Arizona State University, the University of Georgia, the University of Kentucky, Utah State University, the University of Washington and the Colorado-based National Renewable Energy Lab.

EARTH SCIENCES

Doctoral candidate John Scannella and three co-authors had a paper published in the *Proceedings of the National Academy of Sciences* (PNAS) that reveals new insights into the evolution of Triceratops. Their findings are based on more than 50 specimens that have been collected in recent years from the Hell Creek Formation near Jordan and the Fort Peck Reservoir in Montana.

By recording precise stratigraphic information for each Triceratops, and analyzing the morphological details of the skull, it appears possible to see evolutionary trends in Triceratops. Stratigraphy is the study of the layer of rocks.

Over one to two million years at the end of the Cretaceous Period, Triceratops went from having a small nasal horn and long beak to having a long nasal horn and shorter beak. The dinosaur with a small nasal horn and long beak is a Triceratops horridus. It was only found lower in the Hell Creek Formation. The dinosaur with a long nasal horn and shorter beak is a Triceratops prorsus. It was only found near the top of the Hell Creek Formation. Skulls found in the middle of the Hell Creek Formation showed characteristics of both Triceratops horridus and Triceratops prorsus.

“This study provides a detailed look at shifts in the morphology of a single dinosaur genus over time,” Scannella said.

Scannella was lead author of the PNAS paper. Co-authors were MSU graduate student Denver Fowler, paleontologist Mark Goodwin from the University of California Museum of Paleontology, Berkeley and Regents Professor of Paleontology Jack Horner of MSU.
DEPARTMENT HIGHLIGHTS

ECOLOGY

Michael Sawaya, who earned his doctorate in ecology at MSU, was part of a team of scientists at MSU’s Western Transportation Institute that published a study of Banff National Park bears showing that a system of wildlife crossing structures is helping to maintain genetically healthy populations of bears spanning the Trans-Canada Highway.

The findings of the MSU genetics study, which collected some 10,000 hair samples from black bears and grizzlies, were published in the British journal *Proceedings of the Royal Society B*, and a photograph of one of Banff’s wildlife overpasses was featured on the publication’s cover. The study, which focuses on the flow of genes through the population, highlighted how many of the bears that crossed the Trans-Canada Highway had sired or birthed cubs. The WTI group extracted DNA from hair samples collected at wire snares located at the crossings and compared those data with the DNA from samples collected far and wide within the surrounding habitat on both sides of the highway.

“Showing that the black bears and grizzlies using the crossings to traverse the highway are also breeding is a major finding,” said Sawaya, who wrote the paper as the final piece for his doctorate. “While there have been a lot of studies showing that wildlife are using these crossings, this is the first time anyone has shown that animals using the crossings are breeding often enough to ensure that the populations on either side of the highway are not being genetically isolated.”

Ecology professor Steven Kalinowski, who was Sawaya’s doctoral adviser, co-authored the paper along with WTI researcher Tony Clevenger.

Uncertain of why bighorn sheep haven’t recovered like other Montana species did after they were nearly wiped out 80 years ago, Garrott said pneumonia is one factor, but genetics and general herd health may be others. Montana currently has about 5,500 bighorn sheep in 48 herds across Montana. Approximately 72 percent of those herds have fewer than 100 animals. During the winter of 2010 alone, Montana lost 20 percent of its total bighorn sheep population.

The research team will focus its attention on seven herds, analyzing such things as genetics, disease, nutrition and metabolism, pregnancy rates, predators, habitat use and movement patterns. The herds involved live separately, ranging across the state from the Missouri River breaks to Montana’s western border.
ENGLISH

English professor Marvin Lansverk received the Innovative Course Design annual award from the American Society for Eighteenth-Century Studies for his course “Storytelling the Eighteenth Century: Novelists, Narratives and the Rise of the Novel.” In the course, Lansverk incorporates storytelling and service-learning to teach students about the rise of the novel in the 18th century.

The prize carries a $500 award. Lansverk was also selected to serve on the national organization’s Innovative Course Design Committee, responsible for selecting the award recipient for academic year 2013-2014.

Judges for the contest said that the course’s story-focused assignments both “reinterprets the rise of the novel and reimagines the way students interact with literature,” turning passive reading into active storytelling. Students are required to conduct community public storytelling of the course material in an elementary school, a library or a local boys or girls club using drama, puppets and traditional storytelling techniques. Lansverk said that as a result of the service-learning component, there is improved student engagement, critical thinking and understanding of the material.

Lansverk, who has taught at MSU since 1988, is a specialist in 18th century British literature, the history of the novel, and the works of William Blake. He is also a former chair of the MSU Faculty Senate. He first piloted the course in 2012 and is teaching it again this semester.

HISTORY AND PHILOSOPHY

History professor Billy Smith is using geographic information systems (GIS) to create maps of what Philadelphia was like in the last half of the 18th century, when the city served as the setting for the Constitutional Convention and as the nation’s capital during the 1790s.

With assistance from Stuart Challendar, earth sciences, Smith is constructing GIS maps and related databases to analyze various topics about Philadelphia, ranging from residential, demographic, racial, gender, political, religious, retail, wealth, criminal and disease patterns. He is also mapping people’s everyday interactions in working, shopping, drinking, going to bawdy houses and socializing. This technology permits scholars to ask fresh questions about the past. How segregated or integrated was the city? What kinds of ethnic or religious neighborhoods did they create? Moreover, how do we translate the findings into a deeper understanding of early America?

All of the maps and data, as well as historical interpretations, are available for free at philadelphiaencyclopedia.org. The website also contains a layer with two-dozen engravings from 1798 depicting how the city looked at the time.

Smith hopes that other scholars and genealogists will use the information, as well as educators in the classroom.
MATHEMATICAL SCIENCES

The Department of Mathematical Sciences is in the process of rebuilding its faculty after a series of retirements over the last 5 years, as well as some faculty leaving to pursue other opportunities. In the past two years, the department has hired seven new faculty members, and they are bringing new energy and enthusiasm to mathematical sciences programs.

In fall 2013, the department welcomed Jennifer Green, who came from the University of Nebraska-Lincoln and works in statistical education, and Laura Hildreth, who obtained her Ph.D. in 2014 from Iowa State University and works on spatial statistics and statistical models.

Five additional mathematics and mathematical education faculty members arrived on the MSU campus in fall 2014. David Ayala received his Ph.D. at Stanford in 2009 and works on homotopy theory of manifolds and topological field theories. Scott McCalla earned his Ph.D. at Brown University in 2011 and works on pattern formation, spatial dynamics and social modeling. Kevin Wildrick received his Ph.D. in 2007 at the University of Michigan and is developing tools for analysis on metric spaces. Mary Alice Carlson earned her Ph.D. in 2014 from the University of Nebraska-Lincoln and her research focuses on elementary school mathematics teachers, how they learn about mathematics content and classroom teaching strategies. Last but not least, Megan Wickstrom received her Ph.D. in 2014 from Illinois State University and her research is focused on the ways elementary and middle school teachers incorporate research into their teaching.

We look forward to the contributions these new faculty will make as we continue to be one of the leading mathematical sciences departments in the Mountain West.
MICROBIOLOGY AND IMMUNOLOGY

Microbiologist Ryan Jackson received a $100,000, two-year fellowship from the National Institutes of Health to continue his work investigating how bacteria fend off invading viruses.

“NIH’s investment in Ryan is a major stepping stone for his early career in science and a huge endorsement for research at Montana State University,” said Blake Wiedenheft, Jackson’s mentor and an assistant professor in the Department of Microbiology and Immunology. “These sorts of awards are rare at any institution, and I think that this is something that the MSU campus should celebrate.”

Jackson uses his expertise in X-ray crystallography to determine the molecular structure of bacterial ribonucleoprotein complexes that ward off viruses. By analyzing X-ray diffraction patterns from crystalline proteins, Jackson is able to determine the location of each atom in a biological machine. The tiny machines that Jackson studies are part of an immune system inside bacteria that identifies and destroys invading DNA.

Bacteria and viruses are often lumped together as enemy agents, but they are not the same, Jackson said. Viruses are much smaller than bacteria and can reproduce only by hijacking the cellular replication machinery. Viruses infect bacteria by injecting their DNA through the cell wall. If the genes on the viral DNA are made into proteins, the virus multiplies.

Understanding how these machines work has led to their use in medicine, and now components of these bacterial immune systems are being repurposed to help find cures for genetic diseases.

MODERN LANGUAGES AND LITERATURES

During summer 2014, the China Studies Program in the Department of Modern Languages and Literatures again ran its study abroad program in China. Seven MSU students went to two different Chinese universities in Beijing and Shanghai to attend a month-long language and culture summer camp.

All seven students were on full scholarships awarded by Lanzhou University and the Chinese National Office for Teaching Chinese as a Foreign Language. The summer program was organized in cooperation with MSU’s Office of International Programs. Assistant professor Hua Li laid the foundation by helping all the students win scholarships, making pre-trip preparations such as student orientation meetings and coordinating arrangements with the Chinese host universities throughout the spring and summer.

In Lanzhou, the International Summer Program is designed to give students an introduction to Chinese history, culture and the scenic landscapes of northwestern China through courses in Chinese language, culture and society. The students also went on several field trips to Tibetan ethnic enclaves, including Jiayu Pass of the Great Wall and Dunhuang’s Buddhist grotto temples. In Beijing, through four weeks of intensive Chinese language learning and colorful traditional Chinese culture experiences, students not only heightened their skills and interest in speaking and reading Chinese, but also gained a deeper understanding of Chinese culture through first-hand experience.
NATIVE AMERICAN STUDIES

The works of Blackfeet artist Louis Still Smoking were featured in the inaugural opening of the MSU Native American Studies Gallery of Contemporary American Indian Art. The gallery is located in Wilson Hall on the MSU campus.

Still Smoking, currently studying art with a minor in Native American Studies at MSU, grew up on the Blackfeet Reservation in Browning and graduated from Flandreau Indian School in 1998. He was a stone sculptor for 11 years, co-owned an art gallery in Pierre, S.D. and taught art classes before deciding to further his art studies.

Still Smoking said he finds all mediums equally important opportunities to use art to express his view of the world. Artists in his family inspire him, as well as the Impressionists, Lucian Freud, research on history and the American Indian Movement. His work was featured in Native Max Magazine’s Winter 2013/2014 issue, and was displayed at the Helen E. Copeland Gallery at MSU. He currently has work on display at the Contemporary Indian Art Gallery in Bozeman.

PHYSICS

Students and fans gathered in the Bobcat Stadium for the Sept. 20 football game between Montana State University and Eastern Washington got to experience MSU’s first game-day high-altitude balloon launch from inside the stadium. The launch, which occurred 20 minutes before kickoff, lifted a custom-made “GO CATS” banner high above the Gallatin Valley while special high-definition cameras captured spectacular images from “near-space.”

The latex weather balloon reached 85,000 feet and then floated east. Besides sharing images from the edge of space, the flight demonstrated the benefits of a valve and computer system designed and developed by MSU students. The students can command the valve to release helium from the balloon, allowing it to stay aloft as long as the students want. Once the students saw that the balloon was floating over an easily accessible location between Livingston and central Montana, they commanded a tethered dart to pop it. The students drove to its landing spot to retrieve the balloon and the scientific instruments it was carrying.

Balloon flights are the highlight of the BOREALIS program at MSU, said Angela Des Jardins, director of NASA’s Montana Space Grant Consortium (MSGC). As a component of MSGC, BOREALIS works to strengthen aerospace research and education in Montana.

BOREALIS provides students with unique hands-on opportunities to design, build, fly and analyze personalized and collaborative high altitude experiments, Des Jardins said. Students fly equipment designed to record and analyze their scientific inquiries in carefully constructed payloads that travel up to altitudes of 100,000 feet.
POLITICAL SCIENCE

Faculty in the Department of Political Science are publishing four books this year that address the complexities of politics and policy, institutions and norms of the world that we live in, alternatively focusing on Montana, the United States and internationally.

Montana politics is the focus of Battle for the Big Sky by associate professor David Parker. Delving into one of the few competitive races of the 2012 election, the U.S. Senate campaign in Montana, Parker provides insights from the exceptional access he was granted by both candidates over the 21 months preceding the election. The Montana setting offers readers a view into the rising political influence of the West, the importance of “place” in politics, and the impact of congressional styles and constituent relationships on campaigns and elections.

The Science of Stories is the first comprehensive work on Narrative Policy Framework (NPF), a new theoretical framework developed by associate professor Elizabeth Shanahan and colleagues that quantifies the import of policy narratives (i.e., the stories stakeholders construct advocating for a policy outcome) in policy decision making. Because our political environment is increasingly comprised of sensational imagery and symbolic language to market policy “realities,” NPF has become a popular theoretical framework to understand the polarization, gridlock and hyperbole that underpin contemporary U.S. politics.

Associate professor Eric Austin and his colleague Sandra Parkes Pershing have a textbook out, Organizational Theory and Governance for the 21st Century, which will give students of public administration the knowledge and tools to be effective members and managers of those organizations. Organizations, whether public, private or non-profit, are becoming increasingly diverse and complex. Their book draws students into the complexity and sophistication of theory, describing how and why organizations operate as they do, but also brings to bear emerging theory from disciplines including economics, chaos theory, neuroscience and others to address current organizational challenges.

Professor Franke Wilmer has authored a groundbreaking textbook, Human Rights in International Relations, which provides an introduction to the field that blends both theory and concrete developments. The text discusses issues ranging from war and genocide to social and economic needs to racial and religious discrimination, and how governments both protect and violate the human rights of their citizens. Two themes—the tension between values and interests, and the role of the state as both a protector of human rights and a perpetrator of human rights violations—are reflected throughout the text.
PSYCHOLOGY

Recent work by assistant professor Rebecca Brooker and colleagues has been in the news for its identification of neural networks that may underlie links between self-regulation and mental health in children. Their work suggests that activity in preschoolers’ brains that is believed to denote monitoring for errors may be developing earlier in children who are at greater risk for developing anxiety problems. Their findings have been widely covered by both scholarly and popular media such as Developmental Neuropsychology, Cognitive Developmental Neuroscience and Anxiety.org.

The study, which is funded by the National Institute of Mental Health, also found that parents’ use of harsh discipline appears to lead to greater error monitoring. These findings are consistent with current research suggesting that more anxious individuals have more concerns about making errors than do less anxious individuals.

Brooker joined the psychology faculty in fall 2013. She operates the Development of Mind and Emotions Lab at MSU. Research in the lab examines the complex interplay between biology and the environment that influences development across the lifespan. Their primary focus is on emotion, behavior, and mental and physical health as products of this biological-environmental interplay.

SOCIOLOGY AND ANTHROPOLOGY

Colter Ellis, who earned a Ph.D. from the University of Colorado at Boulder in 2011 and joined the MSU faculty in fall 2014, researches the way people understand and interact with the environment and animals. He examines the animal welfare and environmental stewardship practices of beef producers, the community impacts of unconventional oil and gas exploration, and the human dimensions of invasive species management.

In his work, Ellis takes both an applied perspective, focusing on local perception and action, and a theoretical approach, that connects local perspectives to their larger historical contexts. He has published in a wide range of peer-reviewed journals, including The Sociological Quarterly, The Journal of Contemporary Ethnography, Society & Animals and the Journal of Interpersonal Violence.

A recent article, “The Symbiotic Ideology: Stewardship, Husbandry, and Dominion in Beef Production,” won an award from the Rural Sociological Society for the best paper published in their journal Rural Sociology. The paper examines the way ranchers understand environmental stewardship and animal welfare.
COLLEGE OF LETTERS AND SCIENCE ADVISORY COUNCIL

Established in 2005, the College of Letters and Science Advisory Council is the college’s outside advisory group that serves as a “cabinet” for the dean and associate deans. This council is comprised of leaders from the business, civic and academic communities who bring special qualities, expertise and interests applicable to the college’s initiatives in areas such as undergraduate education, strategic planning, financial management and development priorities.

In 2014, Dean Rae reorganized the council and enlarged it to include 12 members. Dr. John Kiely, a chemistry alumnus and retired chemist, has agreed to serve as the chair of the council, and Marshall Gingery, an earth sciences alumnus who retired as the assistant superintendent for Grand Teton National Park, is serving as the council’s vice chair.

The new group held their first meeting in September and the focus of their discussions was two-fold. First, council members will assist the college’s various departments in enhancing their students’ educational experiences. Every student at MSU will take courses in the College of Letters and Science, and the Advisory Council members seek to share their post-college experience and knowledge to help students prepare for their professional life after graduation. Council members will participate in lectures and seminars, and possibly get involved in the MSU Alumni Foundation’s Bobcat Mentoring Program.

Secondly, the Advisory Council will reach out to communities beyond Bozeman, through meetings, talks and other speaking engagements, to spread the word about College of Letters and Science programs and projects in both the liberal arts and the sciences.

A list of Advisory Council members is included on the inside front cover. You can read more about these individuals by visiting: www.montana.edu/lettersandscience/advisory_council.html.

ASSOCIATE DEAN MELODY ZAJDEL RETIRES

Melody Zajdel, who served MSU for 35 years including seven years as an associate dean in the College of Letters and Science, retired at the end of November. In announcing Zajdel’s retirement, Nicol Rae, the Dean of the College of Letters and Science, said that she had been an indispensable part of the College of Letters and Science and the Dean’s Office for many years. Zajdel joined the MSU Department of English in 1979 as an assistant professor and was promoted to associate professor in 1988. During her career at MSU, she taught a tremendous variety of courses ranging from College Writing I to Survey of American Literature, from Research Writing to World Literature. She was a tireless advocate for university women at MSU. She served on the board of the MSU Women’s Center for 14 years. She was also a member of the minor committee for the Women’s, Gender and Sexuality Studies minor for 12 years, serving as the chair or co-chair for that committee on several occasions. Zajdel also worked on several program and curriculum initiatives for the university, such as the creation of the University Honors Program and development of a new core curriculum through MSU’s Reinventing the CORE project.

COLLEGE OF LETTERS AND SCIENCE SELECTS FELLOWS IN ENGAGEMENT TO CELEBRATE THE YEAR OF ENGAGED LEADERSHIP

During academic year 2013-2014, MSU held the Year of Engaged Leadership to highlight the many events and activities of the university that help develop the leadership skills of students, faculty, staff and community members. To celebrate the Year, the College of Letters and Science established the Fellows in Engagement program to recognize those in the college whose work includes a strong component of engagement with the communities served by MSU. Tenure-track faculty, non-tenure track faculty and staff were eligible for these fellowships.

The fellows each participated a campus-wide talk about one or more engagement effort arising out of their MSU roles. The talks were focused on engagement, or on scholarship and the engagement that ensues from it, allowing the college to highlight engaged leadership among faculty and staff. Fellows received a stipend to support their research and/or engagement activities.

To see a list of individuals selected as Fellows in Engagement in the College of Letters of Science please visit, www.montana.edu/lettersandscience/Engagement/.

www.montana.edu/lettersandscience
**THE KATZ FAMILY CHAIR IN NATIVE AMERICAN STUDIES**

*By Mike Lynch, Montana State University Alumni Foundation*

With the arrival of Joseph P. Gone this fall, another exceptional Native American scholar steps in to hold the Katz Family Chair in Native American Studies. Gone, a Montana native and member of the Gros Ventre nation, is taking leave from his position as an associate professor of psychology and American studies at the University of Michigan to occupy the chair formerly held by Henrietta Mann and Bill Yellowtail.

“The scholars who hold this chair have accomplished a great deal in their respective fields,” said Walter Fleming, department head in MSU’s Department of Native American Studies. “They serve as role models for our students and invigorate our faculty through the perspectives they bring to campus.”

The broad range of perspectives that each chair brings with them to MSU offers students a chance to look at new subject areas or to view their studies through a different lens. Mann, a Cheyenne Indian and once named one of the ten leading professors in the nation by *Rolling Stone Magazine*, focused students’ attention on preserving Native American language, culture, traditions and land. Yellowtail, a Crow Indian who once served as regional director of the Environmental Protection Agency, challenged students to think in terms of personal sovereignty—the idea of people being in charge of themselves, their family and their future—and to consider the future of Native American peoples in the West.

As the new chair, Gone brings a more cross-disciplinary approach to the department, applying psychology and sociology to better understand the influence a person’s culture has on their mental health. Recently named a Guggenheim Fellow, Gone will also be developing his book, *Rethinking American Indian Mental Health*, based in part on his work studying substance abuse programs for Native Americans in Montana.

Established in 2000 by Sheldon and Audrey Katz, this partially-funded chair is one of only a few in the nation focused on Native American Studies, positioning MSU as an educational leader in the study and support of Native American cultures and peoples. Fully-funded, this chair will enable MSU to bring more scholars like Gone into the Department of Native American Studies, and provide more opportunities for students across campus to gain a deeper understanding and appreciation for the enduring impact Native American culture contributes to our region.

Contact Melissa Dulin, Director of Development, at 406-994-3046 or melissa.dulin@musaf.org for more information about growing the capacity of the Katz Family Chair in Native American Studies.

*Portions of this article were informed by, Wipf, Breanna. “A terrific Honor: Montana Native Receives Guggenheim Fellowship for Psychology Work.” Great Falls Tribune 6 May 2014: Print.*

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