Dear friends and colleagues,

In 2017, under the leadership of President Waded Cruzado, Montana State University embarked on a year-long series of discussions, seminars, workshops and lectures that highlighted the importance of diversity at MSU and informed the preparation of the Diversity and Inclusion Framework Report for the university. MSU is committed to fostering diversity in race, gender identity, age, language, socioeconomic status, religion, political affiliation, sexual orientation and geographical background, and the College of Letters and Science is equally dedicated to creating an inclusive community that embraces a rich mix in the composition of its student body, faculty and staff.

An excellent example of where the university’s efforts are evident is in the recruitment and retention of Native American students. The number of American Indian and Alaska Native students enrolled at MSU has been steadily increasing over time, from 305 in 2007 to 712 in the fall of 2017. The university offers a wide variety of targeted programs for Native students, many of which are housed in the Department of Native American Studies and the Office of American Indian and Alaska Native Student Success in the College of Letters and Science. These include the Rockin the Rez recruitment program, the Native Pathways to Success orientation program, tutoring and academic advising for Native students, and use of the American Indian Student Center.

The college’s efforts in diversifying our faculty are also proving to be very successful. During the 2008 academic year, 48 out of 171 (28 percent) of the college’s tenured and tenure-track faculty were women. For the current academic year, women account for 76 out of 199 (38.2 percent) of the tenured and tenure-track faculty in the college. You can read about some of our outstanding new female faculty members in the sciences and mathematical sciences on pages 14 and 15.

But beyond all of the diversity data, strategic plan goals and hiring plans, the college strives to be an intentional community of scholars and learners that is friendly and welcoming. We want to be a place where students feel safe expressing their opinions or trying out new ideas in class, safe to try a new experiment or technique in the research lab, safe to make a new friend with someone whose background and story is different than their own.

We hope you will enjoy this issue of Confluence, and learning about our wonderful students and faculty and the exciting projects and programs they are involved in.

We invite you 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 and Twitter at www.facebook.com/letters.science and twitter.com/LettersScience.

Best regards,

Nicol C. Rae
Dean

To read MSU’s Diversity and Inclusion Framework Report:
www.montana.edu/lettersandscience/DiversityReport.pdf
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Thank you to MSU News Service.
A mother of six who re-enrolled in college the year after her oldest daughter began college achieved a life-long goal: earning a bachelor’s degree.

Athena Hall graduated from MSU with a bachelor of arts in liberal studies with the quaternity option through the liberal studies online degree completion program offered through the College of Letters and Science. Quaternity is an option where students explore four different, but interconnected, concepts of knowledge in subject areas of social sciences, natural sciences, fine arts and humanities.

Hall, whose children were 23, 21, 18, 16, 15 and 9 when she graduated, said it is satisfying to achieve her goal.

“This is something I’ve always wanted to do,” she said. “I didn’t expect to go back to school when I did, but it has been important to show my kids that I can do these things. I just wanted them to know they could (go to college), too. It’s important for them, and for me, to see that I can finish it.”

Hall, 40, and her husband, Mark, married in 1992, and they both earned GED diplomas. Athena started taking college courses at the University of Great Falls when she was 17, but after the Halls’ second child was born, she set aside her education to become a stay-at-home mom and home school their growing family.

After the Halls’ fifth child was born, Mark served two tours of duty with the National Guard in Iraq. He came back from Iraq in 2011 with post-traumatic stress disorder (PTSD) and a traumatic brain injury, injuries that left him unable to work full-time. In addition to caring for their six children and helping Mark recover, Athena began working in 2013.

At 36, she also decided to return to college. Using credits from the University of Great Falls and Great Falls College MSU, she completed two associate degrees in 2014. But, concerned she would lose momentum if she took a break, she rolled right into coursework for a bachelor’s degree from MSU.

Most of the classes Hall has taken for the bachelor’s degree have been delivered online, but she said she has driven to Bozeman from Great Falls about once a week for class. The greatest challenge surrounding her return to college has been balancing her family obligations with schoolwork, Hall said, but it helps that her kids are supportive, and she manages by staying up late to complete schoolwork while her family sleeps. Juggling her part-time job—a contract position where Hall manages religious education programming for Malmstrom Air Force Base’s chapel—can also be challenging, she said, but she appreciates the flexibility that comes with the position.

A TRiO Scholar at MSU, Hall said she has also greatly benefited from the services offered by the TRiO office. TRiO Student Support Services—which launched at MSU in 2015—is funded by a $1.1 million U.S. Department of Education TRiO grant. The program provides students with tutoring, a career coach, financial literacy training, mentoring, study skills training and many other support services offered through the Allen Yarnell Center for Student Success.

In order to be eligible for the TRiO Student Support Services program, students must be a citizen or permanent resident of the United States, be an admitted MSU undergraduate student and demonstrate academic need. In addition, participants must meet at least one of the following requirements: have a low income as defined by the U.S. Department of Education, be from a family from which neither parent has a bachelor’s degree, or be registered with the MSU Office of Disability Services.

Hall said that the TRiO program has helped her manage her obligations by giving her tools to succeed academically, financially, socially and emotionally. She calls TRiO at MSU when she needs help, stops by the TRiO office when she’s on campus and participates in TRiO events, she said.

Jordy Hendrikx, former director of the Liberal Studies Program at MSU, said Hall’s drive and motivation are “exemplary.”

“The whole liberal studies degree completion team is thrilled to see her achieve her goals,” Hendrikx said. “The online degree completion program has been designed specifically with students like Athena in mind, that want to complete their degree in their own time, from their own place.”

With her bachelor’s degree in hand, Hall plans to pursue a master’s degree in history. She would then like to teach while she pursues a doctorate in socio-cultural anthropology.

For his part, her husband said he is impressed by her humble determination—both to their family and to her education.

“Due to Athena’s dedication to her family and myself, I have been able to recover from my physical injuries, and make significant ground with my [traumatic brain injury] and PTSD to the point that I have been able to go to college through the VA at [Great Falls College MSU],” he wrote in a letter to TRiO.

“Athena’s story is so much more than she would ever say out loud,” he added. “I am certain she will continue on to her doctorate and has so much in store for her life.”

Excerpted from Amanda Eggert for the MSU News Service
Many times over the last six years, 65-year-old Barbara Selyem thought of giving up and dropping her quest to earn a college degree in math at Montana State University.

But Selyem stuck with it. Thanks to her professors, to her friendships with younger students, and thanks to her own hard work, determination and faith, she graduated with a bachelor’s degree in mathematics.

“I’ve been faithful to what I started out to do,” she said. “But I’ve had a lot of help. Nobody gets anywhere without a lot of help.”

Her professors told her they couldn’t recall any woman older than her graduating in math. Roughly 23 percent of MSU students are older than traditional age, having been out of school at least three years when they enroll. Of all 2,204 students who graduated in May, MSU officials said Selyem has the earliest birthday.

“I’m the oldest math co-ed,” Selyem said, right after her last final. She wore her gray hair long, a small cross around her neck and a tired smile.

“I will not miss finals or exams or homework,” she said. “I will miss the students, my classmates, a lot. And some favorite teachers. I can’t say enough about the math department. Everybody has been so good to me, so gracious.”

The state of Montana offers free tuition to state residents 65 or older. Selyem said she didn’t take advantage of that program, and paid the same tuition as everyone else. Money left to her by her mother helped cover tuition.

Asked why she decided to enter college at age 59, Selyem said it’s a story that goes back to St. Louis, Mo., where she grew up.

Married at 16, she earned her high school diploma through correspondence courses. She took a college entrance exam and won a four-year college scholarship, but she didn’t want to leave her infant son. Divorced at 22, she tried night school, but with two sons to raise, she dropped out.

She landed a job as a secretary with a company manufacturing grain elevator buckets. Over two decades, she rose through the company, becoming office manager, selling, loading trucks, packing, training and marketing. She became a vice president.

In 1998, she moved to Montana and married Bruce Selyem, a Museum of the Rockies photographer. He loved photographing old grain elevators and started the Country Grain Elevator Historical Society. She wrote histories to go with the photos, and they published books and calendars.

One day Barb Selyem told a neighbor she’d had a dream about going back to school and studying math. She enrolled at MSU.

“I tell people, I believe this is where I’m supposed to be,” she said.

Earning a math degree is hard enough, but it’s even harder for an older student to memorize equations and theorems. She often found it frustrating.

“Believe me, I’ve cried a lot over the last six years,” she said. “I’ve wanted to quit so often.”

Driving to MSU one day on Stucky Road, she was crying, thinking of dropping half or all her classes. She needed a sign. Passing a cattle field that sometimes held a bison, she thought
if the animal was standing by the fence, that would be a sign. Not only was the bison standing by the fence, she said, “but he was staring right at me.”

Technology proved a big help. She used a Livescribe Smartpen that recorded the professor’s lecture while she took notes. She listened to recordings of every single lecture a second time. She used her smartphone to photograph classroom boards full of equations.

Professors were great, always welcoming when she sought help. Friendships with students provided her greatest support.

“I love them all,” she said. “I’m going to miss them.”

She and younger students formed small study groups, corrected each other’s math mistakes and encouraged each other. She became like a second grandmother to one young woman. Looking back, she sees those friendships as her purpose.

“The reason I had to struggle was so that other people could help me,” she said.

As to the future, she plans to write a book—not of math, but of poetry.

On graduation day, Barb Selyem expected to be cooking for a big graduation party with 50 or 60 people at her house, including classmates and professors. Her younger son and his family were coming out from Missouri. She plans to hand down her graduation robe to her grandson.

“I feel proud that I’ve been faithful,” she said. “There’s no part I’ve done all on my own. It’s been all these people coming to the party that I’ve got to thank.”

Reprinted with permission from the Bozeman Daily Chronicle.

—I’ve been faithful to what I started out to do. But I’ve had a lot of help. Nobody gets anywhere without a lot of help.”

— BARBARA SELYEM

DIVERSE PERSPECTIVES
STATISTICS STUDENTS FROM AFRICA MAKE CONNECTIONS AT MSU

By Jessianne Wright

Nnamdi Ezike. Photo by Jay Szott.

Priscilla Omari-Baah. Photo by Jay Szott.
T
he first time Nnamdi Ezike and Priscilla Omari-Baah saw the United States, they were aboard separate aircrafts flying from Africa to their final destination, Bozeman, Mont. Omari-Baah and Ezike were on their way to begin their first semester at Montana State University, and are now among nine other graduate students in the Department of Mathematical Sciences hailing from either Ghana or Nigeria.

Gaining Experiences
Ezike describes himself as a math guy. “Statistics is fun. It is very intuitive,” he said. Prior to attending university in his home country of Nigeria, Ezike worked as a data entry clerk and that is where his interest in math really took off.

“During the process of entering data and all that fun stuff, I fell in love with how data was speaking,” Ezike said. “I decided to study statistics, and that was it, and I’ve never looked back.”

He came to the U.S. in 2015 to seek an advanced degree in statistics, having found Montana State after researching numerous other schools. “Trying to narrow down which states was a pain,” he said. Ezike says a major factor for him was the really nice environment that’s not too troublesome, but I didn’t know Montana was as cold and I didn’t know Montana wasn’t diverse.”

“I think the first few months were super hard, cultural shock everywhere,” he explained. “If I want African food, for example, I have to order it,” he said, noting that there aren’t stores where he can purchase the kind of ingredients he finds at home.

Ezike feels overall that the adjustment happened faster than he anticipated, though. “I think it is largely due to the people around me. The faculty members here in the Math Department, they have amazing personalities. You can chat with them about a lot of things, which you can’t do back home.”

“I feel like with the people around, adjusting was easy,” Ezike added. “The Montana residents, I feel, are super nice, and they have this charming personality. Everyone smiles at you, everyone says, ‘How are you doing?’”

In summer 2016, Ezike was awarded a scholarship to attend summer school at the University of Washington in Seattle and he is a recipient of a 2017 Outstanding Graduate Teaching Assistant Award from the Math Department. Ezike is on track to graduate in May 2018 and hopes to pursue a Ph.D. program in another part of the country in order to experience more of the U.S.

Ultimately, Ezike would like return to Nigeria. “Go share the impact of knowledge on the people back home. That’s the whole big idea,” he said. “But first I’ll probably live here for a while and get all the right experiences, you know, get professional experience.”

Making Connections
Like Ezike, Omari-Baah came to MSU in hopes of bringing what she learns back to her home in Ghana. Omari-Baah, who is also pursuing a master’s degree in statistics and is slated to graduate in the spring, said she’s studying to be an actuary, which is a business professional who assesses risk measurement and management, such as for insurance companies.

“In a few years, I’d like to go back home because I feel that the insurance industry in Ghana is imagined, but it hasn’t reached its full potential yet,” she said. “But I will still need that experience of knowing how things are done here to be able to impact my country more beneficially.”

After obtaining a degree in actuarial science from Keane Nkrumah University of Science and Technology in Kumasi, Ghana, Omari-Baah worked with a statistician as a teaching assistant at the university. “Working with him and helping undergraduate students with their research and their work, that is when I got interested in statistics,” she said.

“That brings me to here,” she added, smiling. Omari-Baah chose MSU on recommendation of a current student in the program. At the time, she didn’t know anything about Montana, but through a Google search she learned about the state’s cold weather. “I just thought about it as a new experience because coming from Ghana, you never really experience any temperature below like 68 degrees Fahrenheit,” she said.

“So, I thought it would be a new experience, just different kind of people, different culture, and basically make new friends, make new connections,” Omari-Baah said. She says she hasn’t been disappointed.

“I really, really like the mountains because where I do come from in Ghana is very mountainous. Every time I see the mountains it reminds me of where I do come from,” she said. “It is just very refreshing. You come here and there’s that serenity that helps you, especially when you have to study statistics,” she laughed.

“I like Bozeman, especially the way that you can sit on the bus and people will ask you about yourself and they want to get to know you,” Omari-Baah said. “I was in New York and nobody would want to talk to you on the bus or the train, but over here people are very welcoming and they just want to get to know you and make connections.”

“I take it very positively that we have such a strong international reputation for the quality of our programs,” said Elizabeth Burroughs, professor and head of the Department of Mathematical Sciences. “I think it speaks highly of our faculty, that they have built programs that have a personal touch, and that is what would draw students to come here from so far away. The department really embraces the opportunities that come from having diverse perspectives among us.”
Matthew Weingart, a second-year graduate student in the Department of Earth Sciences, studies how indigenous people influenced forested ecosystems on Montana’s Flathead Reservation and how landscape management enhanced or overrode natural climate variability in shaping patterns of fire and vegetation.

Weingart, who is a Klamath tribal member and descendant of the Confederated Salish and Kootenai tribes, earned his undergraduate degrees in hydrology and forestry with a minor in mathematical sciences from Salish Kootenai College on the Flathead Reservation.

In 2017, he was awarded a National Science Foundation Graduate Research Fellowship to support his work studying the ecological past of the Flathead Reservation. The prestigious fellowship will pay his tuition and provide him with an annual stipend of $34,000 for the next three years.

“We are a region with little research having been done on it, and knowing these past interactions can provide important information to the tribes,” Weingart said. “The area is unique because it’s a topographically diverse mixed-forest habitat that has been occupied by humans for at least the last 10,000 years.”

Weingart is reconstructing the environmental history of the region by examining the pollen and charcoal preserved in Rainbow Lake sediment cores to learn what role humans, fire and climate had in shaping the present vegetation communities.

“We use lake sediments to infer past environmental conditions, vegetation, fire, and how they may relate to human activity,” Weingart said. “You can find out what type of vegetation was growing at a particular time, how much fire activity there was, as well as how much precipitation there was.”

Weingart said his work has already helped to uncover the past in a region where indigenous people lived and hunted.

“The Natives burned a lot and we want to know if they influenced forest fires in the past,” Weingart said. “They weren’t really agriculturally advanced like we think of it now, but they knew the culturally important plants, such as blue camas and bitterroot, would benefit from fire, so they would burn to promote new growth. And, on the hillsides, there are tons of berry species. When the shrubs would come back [after burning them off], the deer would come to eat the nice new plants. And when the deer would arrive, they would hunt them.”

But the value of learning about the past is not limited to filling in the gaps of what life might have been like, Weingart said. There are also important lessons that can be applied to the future.

“What we’re learning is important because we know our climate is currently changing,” Weingart said. “Knowing what happened in the past can help us plan for the future by establishing informed policies and help land managers make relevant objectives when managing natural resources.”

Weingart said that after he earns his master’s degree he plans to pursue a Ph.D., then enter the workforce to gain experience before returning to academia.

“I hope to work in some type of management scenario for five or six years before becoming a professor at an institution whose focus is on minorities and people who are traditionally underrepresented in the STEM fields,” he said.

Excerpted from Skip Anderson for the MSU News Service
After graduating from the University of Oregon in 2015, Megan Bruun wanted to come to Montana State University in order to research sexual minorities as a way of making a contribution to this world.

“Ultimately my career goal is to be an activist,” said Bruun, now a graduate student in the Department of Psychology. “I quickly learned that I’m not good at making picket signs and I don’t yell into a megaphone very well.”

“I realized that research is what I’m really good at, it kind of called to me, so I really use research as a vehicle for activism.”

In all of her work, Bruun looks beyond traditional interpretations of gender. She considers male and female, as well as transgender, lesbian, gay and bisexual.

Bruun is working on several research projects right now, one of which is a collaboration with Jessi Smith, professor in the Department of Psychology, and Shannon Willoughby, assistant professor in the Department of Physics. This collaborative project will reveal some of the stereotypes for women in the STEM fields and the overall gender climate at Montana State.

Smith says Bruun has brought another perspective to the study, looking at problems with sexism, but also overall prejudices in sexual orientation. “It’s been a great addition to our research program having her here,” Smith said.

Smith said a common problem for minorities is the threat of microaggression—those indirect, subtle or unintentional forms of discrimination. “Microaggressions are subtle ways people get hurt. It’s death by a thousand cuts, if you will,” Smith said. “They’re small, but they add up. They create a culture where you don’t feel like you fit in.”

In 2014, MSU conducted a climate study on LGBTQ students, and according to Ariel Donahue, the director of the Diversity Awareness Office, the study showed that nine percent of undergraduate students identified as LGBTQ. “Looking at our demographics, LGBTQ are the largest underrepresented minority on our campus,” Donahue said. “This is an often times invisible population, which we know can create isolation and feelings of not belonging.”

The Diversity Awareness Office has implemented several programs in order to promote a climate of acceptance, including mentorship, a discussion group and sexuality education classes. Bruun has volunteered for all three.

The LGBTQ Mentorship Program serves about 25 mentor pairs each year, and is an opportunity to pair an older LGBTQ individual, such as a graduate student or faculty member, with an undergraduate who identifies as LGBTQ. Bruun says she’s shared experiences and offered advice, and just gives younger LGBTQ students someone to talk to.

Expanding on the mentorship program, Bruun is a moderator for DisQourse, a discussion group for students and faculty interested in queer theory, a line of critical inquiry into issues of sexuality, power and marginalization.

Bruun is also a Safe Zone trainer, helping to bring awareness and education about LGBTQ identity to groups on and off campus through a set of educational courses. “It’s an opportunity to provide education on LGBTQ. It allows for education and asking questions without offending anyone,” Donahue said. Between 300 and 500 people are trained through Safe Zone each year.

Each of the programs rely completely on volunteers, and Donahue said of those volunteers, “They really each bring their own background and perspective. That is what makes it really special.”

“We have a lot of people who are secure in their beliefs and they want to give back,” Donahue said.

That is certainly the case with Bruun.

“I’m a super big believer that we need to connect to our community and give back to our community and my community is the LGBT community,” Bruun said. “So, I want to do as many things as possible to contribute…I want to be fully invested.”
A Mentor and Inspiration
NON-TRADITIONAL STUDENT EARNS GEOLOGY PH.D.

By Evelyn Boswell
Anita Moore-Nall has spent many winters camping in Baja, Mexico, skied competitively in Switzerland and searched for gold in Romania. She has measured lakes in Mongolia, investigated mines in Montana and examined dinosaur eggs in China.

Recently, after earning her third degree from Montana State University, this accomplished geologist said her next adventure just might be teaching introductory geology or helping introduce more ecology or Native sciences into Native American Studies. Perhaps she’ll apply for a postdoctoral position and continue her research. The options are many.

“Anita’s accomplishments are impressive,” said Mary Hubbard, head of MSU’s Department of Earth Sciences in the College of Letters and Science. “She has worked as a professional geologist, raised a family, competes as a high-level amateur athlete in several sports and completed her Ph.D.”

“In her quiet way, she has served as a mentor and inspiration for Native and non-Native students in the department,” Hubbard continued. “Her current breadth of expertise from geochemistry, economic geology, structural geology and tectonics to her knowledge of Montana Native communities positions her well for the next stage of her career.”

Moore-Nall has long been tied to MSU and fascinated with geology. An enrolled member of the Apsaalooke (Crow) tribe, she grew up on the Blackfeet Indian Reservation where her father, Paul H. Moore, worked as an engineer with the Bureau of Indian Affairs. Moore graduated from Montana State College in the 1950s. Moore-Nall earned two bachelor degrees from MSU in 1984, one in geology and the other in photography. After earning her Ph.D. in 2017, she is now a non-tenure track professor at MSU.

Growing up near Glacier National Park helped set her path, Moore-Nall said. Her father’s family also had a placer claim near Sheridan, Mont. While visiting her mother’s family on the Crow Indian Reservation, Moore-Nall collected agates along the Little Bighorn River. During family fishing trips, Moore-Nall panned for gold and collected garnets and agates.

“I like being outdoors,” Moore-Nall said. “I like the mountains, just the way geology connects everything together.”

After earning her first two degrees, Moore-Nall worked first for the U.S. Geological Survey, then as an engineering technician for the Mineral Hill Gold Mine in Jardine, Mont. and the engineering department of the U.S. Forest Service in Bozeman.

After taking a break to raise her two children, Moore-Nall returned to work in 2006. As a consulting geologist, she sought gold in Romania, uranium in North Dakota and tellurium in various states and Mexico.

Moore-Nall started pursuing her Ph.D. in earth sciences in 2010. For her dissertation, she investigated potential connections between abandoned uranium/vanadium mines in southern Montana and northern Wyoming and lead and mercury contamination in the Bighorn River. Along the way, Moore-Nall won numerous awards, including a $38,500 Alfred P. Sloan Foundation Indigenous Graduate Partnership (SIGP) scholarship, a $10,000 Dennis and Phyllis Washington Native American Graduate Fellowship, several graduate fellowships from Hopa Mountain and numerous travel awards to present her work. At the same time, she participated in a research trip funded by a National Science Foundation grant with MSU examining dinosaur eggs in China.

“Anita is committed to using her geoscience expertise to make a difference for Native people,” said longtime collaborator Mari Eggers, a research scientist in MSU’s Center for Biofilm Engineering. “When she learned that the Bighorn River on the Crow Reservation is over the health standard for lead and that fish had elevated mercury, she decided to research the sources of these metals for her doctoral dissertation.”

“She has been and continues to be active in the national American Indian Science and Engineering Society as well as the Society for American Indian Graduate Students at MSU, for instance, volunteering her time to do a STEM workshop for Crow students at Little Big Horn College,” Eggers continued. “This past summer, she volunteered for a month with BioRegions International, contributing both her scientific and cultural expertise to an exchange in Mongolia.”

“She is also doing cutting edge, interdisciplinary work as a geoscientist,” Eggers said. “Anita is researching and publishing on the environmental health risks to tribes from energy development on their land. As part of her doctoral research, she looked at how microbial communities transform oil deposits, resulting in the release of heavy metals into water sources.”

“She continues to explore this intersection of geosciences and microbiology, as well as traditional ecological knowledge and would love to teach courses that encompass both geosciences and Native science,” Eggers said. “Anita has also been a great collaborator with our Crow Water Quality Project, contributing her expertise both in geology and in GIS. In particular, she suggested we add uranium to our parameters for home well water quality testing—something that hasn’t typically been done in Montana. We discovered that it is, indeed, a health risk in about 6 percent of home wells.”

Hubbard added that Moore-Nall has “traveled to many places around the world and is comfortable in many cultures across our planet. I am excited to see how that next stage plays out as she has much to offer the next generation—well really, all generations.”
STUDENT HIGHLIGHTS

CELL BIOLOGY AND NEUROSCIENCE MAJOR WINS GOLDWATER

Magdalena (Maggie) Russell, a senior from Bozeman who is majoring in cell biology and neuroscience with a minor in math, received a 2017 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.

Russell came to MSU as a Presidential Scholar and is also a student in the Honors College. She conducts research in the lab of Frances Lefcort, MSU Letters and Science Distinguished Professor. Lefcort’s research is focused on familial dysautonomia, a genetic disease that devastates the sensory and autonomic nervous systems. In Lefcort’s lab, Russell cultures neurons in vitro and then tests compounds to see if it is possible to rescue some of the cells that die as a result of familial dysautonomia.

In 2016, Russell was able to expand on her laboratory experience as part of a semester-long exchange to the University of Oslo in Norway. Along with taking classes at the university, she conducted research at the Norwegian Center for Stem Cell Research under its director, Joel Glover, a colleague of Lefcort’s.

“I used many of the same techniques I learned at MSU, but the experience of working in a different lab setting taught me a lot about what different research environments can be like,” Russell said. “I really enjoy doing research.”

Last summer, Russell worked with Dr. Stephen Tapscott at the Fred Hutchinson Cancer Research Center in Seattle as part of the center’s Summer Undergraduate Research Program. Tapscott’s lab focuses on developing therapeutics for muscular dystrophy.

With Russell’s Goldwater, MSU has now produced 68 Goldwater scholars, keeping the university one of the nation’s top institutions for number of recipients.

MSU STUDENT ACTIVIST WINS NATIONAL NEWMAN AWARD

Michael Hollinger, a senior from Nikiski, Ala., majoring in political science with minors in psychology and economics, was named a 2017 Newman Civic Fellow by Campus Compact. The award "recognizes and supports community-committed students who have demonstrated an investment in finding solutions for challenges facing communities throughout the country." MSU President Waded Cruzado nominated Hollinger for the award based on his work bringing attention to human trafficking in Montana.

Hollinger is one of the co-founders of the HEART Initiative—HEART is an acronym for Humble Efforts Actualizing Real Transformation. He organized a discussion panel attended by more than 350 people, served as a member of an FBI-affiliated task force against human trafficking and co-lectured during a special presentation organized by the MSU Women’s Center. Hollinger has trained for HAVEN’s 24-hour crisis support line and is also involved with the Bounty of the Bridgers, a food pantry for the MSU community. Additionally, Hollinger served as an ASMSU senator.

“Each and every one of us has that spark to be a powerful voice for lasting change,” he wrote in applying for the Newman award.

Hollinger, who is also a student in the Honors College, was one of 237 national student leaders representing 37 states selected as a 2017 Newman Civic Fellow. Fellows join a network of students from around the country who will share ideas and tools through online networking and the honor frequently puts them in the running for other awards.

Want to know more? www.montana.edu/news/16961

Excerpted from Carol Schmidt, MSU News Service

Excerpted from Denise Hoepfner, MSU News Service
MONTANA WILSON WINS PRESTIGIOUS GATES CAMBRIDGE SCHOLARSHIP

Montana Wilson, who graduated in May with dual degrees in economics and political science with a minor in Native American studies, won a 2017 Gates Cambridge Scholarship. He plans to use the scholarship to earn a master's degree in development studies at the University of Cambridge in England.

Wilson, who is from Poplar, Mont. and an enrolled Gros Ventre of the Fort Belknap Indian Community and a member of the Assiniboine and Sioux tribes of the Fort Peck Indian Reservation, is the first Native American Gates Cambridge Scholar in the history of the scholarship program, according to the Gates Cambridge Trust.

“This means a lot to me,” Wilson said. “The biggest thing is it has a lot to do with the future work I’m going to do. I have every intention of going into economic development, and this is an amazing opportunity to study at one of the world’s leading universities, in a program that is leading the field in economic development. It will give me the tools to come back and help my tribes and various tribes around the country.”

Wilson is one of 36 Americans and 54 scholars from other parts of the world to receive the prestigious scholarship funded by the Gates Foundation. Recipients are selected based on outstanding intellectual ability, leadership potential, a commitment to improving the lives of others and a good fit between the applicant’s qualifications and aspirations and the postgraduate program at Cambridge for which they are applying.

“Montana represents a new generation of MSU Native students: worldly, savvy, extremely intelligent, but committed to helping tribal communities with the skills, experience and energy they possess,” said Walter Fleming, head of the Department of Native American Studies. “Within Native communities, Montana is well respected as someone who will put all his energies toward success, whether it is running a complex pow wow or helping tutor a friend.”

Excerpted from MSU News Service

Want to know more? www.montana.edu/news/16711

SARAH COLDIRON RECEIVES FULBRIGHT TO TEACH ENGLISH IN SOUTH KOREA

Sarah Coldiron, a history and French major from Boise, Idaho, received a 2017 Fulbright Fellowship to teach in South Korea. Coldiron was involved in a wide range of outreach and volunteer service activities during her years at MSU, earning her a 2017 Torlief Aasheim Award for Community Involvement. These activities included teaching foreign languages at Bozeman High and Belgrade High, Sacajawea Middle School, as well as Irving, Longfellow, Whittier, Morning Star and Meadowlark elementary schools in Bozeman.

She also volunteered with the school district’s Child Advancement Project, served as a resident adviser, a student ambassador for the College of Letters and Science, an orientation leader and an MSU FRIENDS international student mentor. She has organized blood and clothing drives through National Residence Hall Honorary, helped organize on-campus date auctions with proceeds going to charity, and worked with Reach, Inc. working with disabled members in the community. She is a member of Kappa Delta Pi and Alpha Lambda Delta honor societies and was a 2017 recipient of an MSU Excellence Award. While at MSU, Coldiron also studied abroad in Montpellier, France.

Ada Giusti, MSU French professor and one of Coldiron’s mentors, said it was a pleasure watching Coldiron grow in proficiency in French, in Francophone cultures and in literary analyses.

“(Sarah is) intelligent, adaptable, collaborative and clearly displays a global mindset,” Giusti said. “These attributes, coupled with her passion for learning and teaching, have made her an excellent student and, I am certain, will make her a wonderful teacher.”

Excerpted Carol Schmidt, MSU News Service
NEW FACULTY MEMBERS IN MATH AND SCIENCE DISCIPLINES INCREASE DIVERSITY IN THE COLLEGE

The College of Letters and Science has worked very hard to achieve gender parity amongst its faculty, with special emphasis on the sciences side of the college, and these efforts have proven to be very successful.

During the 2008 academic year, 48 out of 171 (28 percent) of the college’s tenured and tenure-track faculty were women. For the current academic year, women account for 76 out of 199 (38.2 percent) of the tenured and tenure-track faculty in the college. These numbers were bolstered by a series of very successful faculty searches during the 2017 academic year, which resulted in the following outstanding scholars coming to MSU this fall in the sciences and mathematical sciences:

Biostatistician Nicole Bohme Carnegie is an assistant professor of statistics in the Department of Mathematical Sciences. She studies methodological issues related to infectious disease transmission and control. This work incorporates elements of infectious disease modeling, statistical modeling of networks and causal inference methodology, with a strong substantive grounding in the area of HIV prevention. In recent projects, she used genetic analyses to investigate how much information the HIV virus contains about the structure of the network of contacts over which HIV spreads, and developed methods for analyzing data from prevention trials to estimate population-level effects of treatment. She earned her doctorate in statistics at the University of Washington, and has held research positions at New York University and the Harvard School of Public Health, as well as a previous faculty position at the University of Wisconsin-Milwaukee, where she helped to build a new school of public health.

Diane Debinski is a professor of biology and the new department head in the Department of Ecology. Her lab pursues research and teaching in the fields of conservation biology, landscape ecology and restoration ecology, including biodiversity preservation, effects of habitat fragmentation and climate change. In grasslands, her research has focused on evaluating the use of fire and grazing in the context of managing for plant, bird and pollinator communities. In montane meadows, she has been conducting both observational and experimental studies of community responses to drought and environmental variation. She received her Ph.D. in biology from MSU, and served as a professor in the Department of Ecology, Evolution and Organismal Biology at Iowa State University for 23 years before returning to MSU. At Iowa State, she served as a co-PI on a National Science Foundation Institutional Transformation ADVANCE grant that focused on recruitment and retention of women in science, technology, engineering and math (STEM) disciplines.

Astrophysicist Anne Lohfink joined the Department of Physics as an assistant professor. She studies accreting (growing) supermassive black holes, which can have masses of millions or billions times that of our Sun, and are growing ever larger due to gas, dust and shredded stars that are dragged in by gravity. As the materials spiral inward, they emit light across a wide range of the electromagnetic spectrum, from the radio to the X-ray band. She analyzes this light to learn more about how the accretion process is able to convert gravitational energy into light so efficiently. The X-rays can even tell us about one of the three fundamental properties of a black hole—its rotation. Before coming to MSU, Lohfink earned her doctoral degree in astronomy from the University of Maryland, College Park and worked as a postdoctoral researcher in the Institute of Astronomy at the University of Cambridge, UK.
Geologist Devon A. Orme joined the Department of Earth Sciences as an assistant professor. The core of her research lies in sedimentary basin analysis and low-temperature thermochronology, and their relation to tectonics, the evolution of continental margins and surface processes. This multidisciplinary work seeks to understand the processes that govern sedimentation, basin architecture and orogenic growth. Currently, she has active field-based research projects in California, Tibet, India and Wyoming. She is developing undergraduate-based field research in southwest Montana with other faculty in the Department of Earth Sciences. This fall, she is teaching a course on the “Geology and History of Glacier National Park,” which includes a field trip to the park. She earned her Ph.D. from the Department of Geosciences at the University of Arizona, where she also earned a Certificate in College Teaching. She conducted her postdoctoral studies at Stanford University before coming to MSU.

Astrophysicist Amy Reines joined the Department of Physics as an assistant professor. Her research is focused on the origin of supermassive black holes that reside at the center of normal galaxies, including the Milky Way. Amy uses observations from the Hubble Space Telescope, the Chandra X-ray Observatory and the Very Large Array radio telescope to find and study the smallest “dwarf” galaxies hosting supermassive black holes, as they can provide clues to the puzzling question: How did these monster black holes get started in the first place? She earned a Ph.D. in astronomy from the University of Virginia, where she was a NASA Earth and Space Science Fellow. In 2011, she began a NASA Einstein Postdoctoral Fellowship at the National Radio Astronomy Observatory in Charlottesville, Va. She was subsequently awarded a NASA Hubble Fellowship in 2014, which she took to the University of Michigan in Ann Arbor, Mich. and the National Optical Astronomy Observatory in Tucson, Ariz.

Christine Verhille joined the Department of Ecology as an assistant professor of fisheries ecophysiology. She studies the physiological mechanisms limiting the performance and resilience of fish populations within their complex and changing environments, where they must eat, swim, grow and reproduce in order to thrive. She has worked with Endangered Species Act-protected fish species such as green sturgeon, Delta smelt and Central Valley steelhead, and plans to work with pallid sturgeon, Arctic grayling, mountain whitefish and Westslope cutthroat trout in Montana. After earning her doctorate in zoology at the University of British Columbia in Vancouver, Canada, she completed a postdoctoral fellowship at the University of California, Davis. She then worked as a senior aquatic scientist for a fisheries consulting firm in California before returning to research as a postdoctoral fellow at Mount Allison University in New Brunswick, Canada.

Two more women have accepted positions in the college with an August 2018 start date: Madison Myers as an assistant professor in the Department of Earth Sciences specializing in volcanology and Kate Banner as an assistant professor of statistics in the Department of Mathematical Sciences.

“I am very proud that we have significantly increased the gender diversity of our faculty in recent years, and have made particularly strong advances in the STEM disciplines of science and mathematics,” said Nicol Rae, dean of the College of Letters and Science. “In 2016 and 2017, the college made 12 hires in the sciences and mathematics, eight of whom were women. Of the college’s seven STEM department heads, four are now female. These increases indicate the significant advances being made nationally by women in STEM and the impact of the ADVANCE grant that MSU received from the National Science Foundation, which has helped create a very welcoming climate at MSU for female science and mathematics faculty.”
DUNLOP RECEIVES PRESTIGIOUS FELLOWSHIP TO STUDY CULTURAL HISTORY OF FRENCH WIND

Catherine Dunlop, a history professor in the Department of History and Philosophy, received a competitive residency to study how Europeans have incorporated France’s mistral winds into literature and art. The eight-week fellowship from the Camargo Foundation will allow Dunlop, who specializes in modern European history, to study at the foundation’s campus in Cassis, France. She plans to work on the manuscript of a book that she is writing about the significance of the mistral wind in French history.

“(The residency) offers a rich cultural opportunity to learn about global history as Montana globalizes,” Dunlop said. She said the experience will help her better teach Montana students to understand and connect with other cultures.

Dunlop’s fellowship began in September and she will be on sabbatical for the balance of the academic year to work on the book. Dunlop’s earlier book, Cartophilia: Maps and the Search for Identity in the French-German Borderland, was published in 2015 by the University of Chicago Press.

The Camargo Foundation was endowed by American artist and philanthropist Jerome Hill, the grandson of railroad builder James Jerome Hill. The fellowship provides 18 residencies supporting the visionary work of scholars, artists and thought leaders in the arts and humanities.

Dunlop came to MSU after graduating in 2010 with a doctorate in European history from Yale, where she earned the Hans Gatzke Prize for Outstanding Dissertation in European History. She holds a bachelor’s degree in history from Stanford.

Excerpted from Carol Schmidt for the MSU News Service

Want to know more? www.montana.edu/news/16660
MSU RESEARCHER WINS MAJOR AWARD TO DEVELOP TOOLS FOR EXPLORING TINY WORLD

In 2017, Erik Grumstrup, an assistant professor in the Department of Chemistry and Biochemistry, was one of only eight people in the nation to receive a 2017 Young Investigator Award from the Arnold O. and Mabel Beckman Foundation. The award gives him $750,000 over four years to develop new tools to investigate what happens in nanomaterials in less than a millionth of a billionth of a second, including the development a new instrument for examining nanomaterials in new ways. His work has applications for improving the efficiency of products such as cell phones, solar cells and computers.

“An interesting thing about the Beckman award is that it tends to fund projects that are risky and have real potential to transform chemistry, biochemistry and biomedical fields,” Grumstrup said.

More than 300 people applied for the Young Investigator Award, which supports the most promising young faculty members in the early stages of their academic careers in the chemical and life sciences. The recipients, in addition to Grumstrup, work at Stanford University, Cornell University, UCLA, the University of New Mexico, Georgia Institute of Technology and the University of Washington.

Grumstrup earned his Ph.D. in 2011 from the University of Colorado Boulder and came to MSU in 2014. He was the first hire for the Materials Science Graduate Program, which is a Montana University System collaboration involving MSU, Montana Tech and the University of Montana. During his first year at MSU, he won an early career award from the U.S. Department of Energy, giving him $750,000 over five years to understand materials that might reduce the cost of solar cells and make them more efficient.

MSU BIOCHEMIST NAMED NASA EARLY CAREER FELLOW FOR RESEARCH ON “MAGNETIC” BACTERIA

Roland Hatzenpichler, an assistant professor in the Department of Chemistry and Biochemistry, was named a 2017 NASA Early Career Fellow. He’ll use the fellowship to study a group of salt-loving bacteria with “magnetic” powers to understand the origin, evolution and organization of multicellular organisms.

“One of the biggest problems in evolutionary biology is how the transition from comparatively simple forms of life to something as complex as us occurs,” Hatzenpichler said. “It’s not really understood how that transition to organized, complex life happens. The only thing clear is that it happened very often in evolution.”

These unusual bacteria, called multicellular magnetotactic bacteria, or MMB, live in the sediments below certain salt marshes and tidal pools on both coasts of the United States. The bacteria contain tiny magnetic crystals that allow the cell clumps to orient themselves in Earth’s magnetic field. This leads the bacteria—moving about as fast as a cheetah—down into the sediments where they find nutrients needed for their survival. MMB are the only known bacteria that don’t have a stage where it exists as a single cell.

Hatzenpichler said scientists have long tried to find organisms that were in the process of transitioning from single cells to multicellular organisms. They knew such transitions occurred. They had seen evidence in 25 separate lineages of life.

Hatzenpichler is a native of Austria and was the first in his family to attend college. He earned his doctorate in microbial ecology at the University of Vienna in 2011 and came to the United States to conduct postdoctoral research at the California Institute of Technology. He joined the faculty at MSU in 2016.

Excerpted from Evelyn Boswell for the MSU News Service

Want to know more? www.montana.edu/news/17070
THE FINDINGS ARE NOT ONLY RELEVANT BECAUSE THEY CHALLENGE THIS POPULAR NARRATIVE ABOUT THE STUDENT DEBT CRISIS AND 'BOOMERANGING,' SAID WARNER. "WE FIND THAT, AMONG COLLEGE-GOERS, NON-COMPLETION IS A MUCH BIGGER RISK FACTOR FOR RETURNING HOME. BUT GIVEN THAT DEBT BURDENS FALL DISPROPORTIONATELY ON RACIAL MINORITIES, OUR FINDINGS ALSO POINT TO LARGER CONCERNS ABOUT THE BENEFITS AND HAZARDS OF TAKING ON DEBT ACROSS RACIAL LINES."

Within just a week of the paper’s publication on January 5, 2017, the study findings were featured in stories from Inside Higher Ed, Market Watch, Psych Central and Time, among others. An Associated Press story, “Study Explores Link Between College Debt, ‘Boomerang’ Effect,” resulted in hundreds of articles nationwide, in print and online, when it was picked up by media outlets of all sizes, including the Washington Post.

WARNER’S OTHER RESEARCH FOCUSES ON THE CAUSES AND CONSEQUENCES OF MASS INCARCERATION IN THE UNITED STATES. IN PARTICULAR, HE HAS PUBLISHED NUMEROUS STUDIES EXAMINING HOW INCARCERATION IMPACTS RESIDENTIAL MOBILITY AS WELL AS THE TYPES OF NEIGHBORHOODS THAT INDIVIDUALS MOVE TO AND FROM. HE ALSO WORKS WITH THE MONTANA DEPARTMENT OF CORRECTIONS TO EXAMINE THE DRIVERS OF RECIDIVISM IN MONTANA. THIS PROJECT, FUNDED IN PART BY THE CENTER FOR AMERICAN INDIAN AND RURAL HEALTH EQUITY AT MSU, IS ESPECIALLY CONCERNED WITH INDIVIDUALS WHO LEAVE PRISON AND RETURN TO RURAL AREAS, AND THE EXPERIENCES OF FORMERLY INCARCERATED NATIVE AMERICANS IN MONTANA.

EXCERPTED WITH PERMISSION FROM THE CENTER FOR AMERICAN INDIAN AND RURAL HEALTH EQUITY AT MSU.
James Meyer, an associate professor in the Department of History and Philosophy, recently returned to Montana after spending the last academic year in Turkey, Russia and the Netherlands researching the life of the expatriate Turkish poet Nazım Hikmet.

Meyer’s research is the basis for a scholarly book he is writing about Hikmet. The poet and writer was born in the Ottoman Empire in 1902 and died in Cold War-era Moscow in 1963. He spent much of his life transitioning between the two countries and was imprisoned or exiled several times for his revolutionary, pro-Communist political beliefs.

Meyer called the year abroad “a dream come true.” A Fulbright research fellowship funded nine months in Russia, while an MSU Scholarship and Creativity grant funded the balance of the trip.

Meyer said his interest in the historic intersections of Turkey and Russia began while he was teaching English in Istanbul for seven years. There he became fascinated by the historic role of the Turkic people in the rough geographical area of the former U.S.S.R. The son of a University of Michigan engineering professor, Meyer said he became so absorbed in the topic that he returned to the U.S. to earn a master’s in Near Eastern studies from Princeton and then a doctorate in Middle Eastern and Russian history from Brown. He published his first book, *Turks Across Empires: Marketing Muslim Identity in the Russian-Ottoman Borderlands*, in 2014. At MSU, he teaches Islamic world history.

Over the years, Meyer said he became increasingly fascinated with Hikmet, a well-known poet who spent most of his life as an outsider. Hikmet was imprisoned for 15 years in Turkey, during which time he received vocal support from the international art community.

“He was the best-known defender of the U.S.S.R. in Turkey and, in the final years of his life, was the most famous Turk in the Soviet Union,” Meyer said.

While in Russia during his Fulbright year, Meyer spent time at two archives: the party archive, where he found thousands of pages relating to the activities of Hikmet and other Turkish communists of the time, and the literature archive. Meyer said that in order to research Hikmet’s private papers at the literature archive, he needed the permission of Hikmet’s stepdaughter, with whom Meyer was also able to meet and discuss Hikmet’s life over dinner. He also spent two months of his time in Russia in St. Petersburg.

Meyer said in Istanbul and Amsterdam, he worked in the Ottoman and Turkish Republican archives, as well as with smaller holdings related to Hikmet and his friends in the Turkish Communist Party.

“I was able to find material that doesn’t exist anywhere else,” he said.

Meyer said his experiences not only deepened his research but will also enrich his teaching of MSU students.

“My students, I’ve found, have a great interest in the world,” he said. “I’m able to tell the story of these countries as a scholar and as someone who has lived there. I’m able (to) teach students from a new perspective and help students become more familiar about this world and how ideas from these countries are formed.”

This fall he is teaching courses about Russian and Turkish history with fresh insights from the trip. He said he is writing the first draft of his manuscript, which he estimates will be about 500 pages.

Excerpted from Carol Schmidt, MSU News Service
Wildfire in the Bitterroot Mountains near Hamilton, Mont.
ECOLOGY PROFESSOR CO-AUTHORS STUDY DESCRIBING THE IMPACTS OF FIRE ON ECOSYSTEMS

Andrea Litt, associate professor in the Department of Ecology, contributed to a recently-published paper that describes how prescribed fires used as a land management tool can directly and indirectly change ecosystems. In the aftermath of yet another record-breaking wildfire season, and the devastating impacts on wildlife and wildlife habitat, the work of Litt and her colleagues is more relevant than ever.

The Wildlife Society published the paper, “Effects of Prescribed Fire on Wildlife and Wildlife Habitat in Selected Ecosystems of North America,” as part of its technical review series. The Wildlife Society’s technical reviews are scientific analyses related to prominent topics and issues in wildlife science, management, conservation and policy that are written by panels of experts and are often used in preparing position statements, according to the organization’s website.

The review describes the effects of prescribed burning, which is widely used by land managers in North America to reduce fuel loads, enhance wildlife habitats, improve forage and watershed conditions, prepare seedbeds and control exotic weeds, among other reasons.

Regardless of why prescribed fires are used, Litt said, they change the ecosystem in many ways and can create a mosaic of conditions on the landscape that may benefit some species and be detrimental to others.

“Fire regimes have been altered greatly over time, through changes in the frequency, timing and intensity of fire,” she said. “These changes, along with introductions of non-native plants and other factors, create novel conditions where fires may no longer behave in predictable ways, resulting in challenges for management and restoration.”

For the review, the authors used a regional approach, focusing on selected vegetation types, including southeastern pine and mixed pine-oak forests, eastern coastal marshes, Midwestern Jack pine forests, sagebrush ecosystems of the interior West, mixed-severity forests of the northern Rocky Mountains, subalpine and montane forests of the Canadian Rockies, southwestern ponderosa pine forests, desert grasslands and shortgrass steppe ecosystems.

Litt, whose research at MSU focuses on the effects of human activities on wildlife populations and communities, authored the section on desert grasslands by bringing together existing research, including her own.

In the section, Litt refers to the semi-desert grasslands that are distributed among 13 states in Mexico and reach into Arizona, New Mexico and Texas. Using the compiled research, she discusses the historical and current use of fire, pointing out that Native Americans used fire for hunting and to improve pasture conditions. She also discusses the effects fire has on the wildlife in this region, including the ways some species avoid and respond to fire. She notes that some populations of species, such as raptors, may increase after fire because prey populations are more exposed. Some small grain-eating species of mammals and birds also benefit from fire by way of new growth of grasses and forbs.

“In general, species that prefer high cover and vertical structure decrease in presence and abundance following fire and species that prefer more open environments and foods that are stimulated by burning, (such as) seeds, increase in presence and abundance,” Litt wrote.

The section concludes with challenges that fire presents to the desert grassland ecosystem.

“One of the largest challenges in managing semi-desert grasslands currently is that the interactive effects of fire, non-native plants and other landscape changes on grassland plants and animals are largely unknown,” Litt wrote.

Litt, who is originally from Wisconsin, joined the Department of Ecology in 2011, where she teaches courses in mammalogy, wildlife-habitat relationships and a capstone course in fish and wildlife.

Prior to joining MSU, she was an assistant professor at the Caesar Kleberg Wildlife Research Institute in Kingsville, Texas. She earned her bachelor’s degree in zoology from the University of Wisconsin, her master’s degree in wildlife ecology and conservation from the University of Florida and her doctorate in wildlife and fisheries science with a minor in statistics from the University of Arizona.

Litt’s research has also been published in a number of journals and publications including *Ecosphere, Conservation Biology, The Journal of Wildlife Management, Yellowstone Science* and the *Wildlife Society Bulletin.*

Litt says she hopes this latest publication will provide land managers and researchers with the current state of knowledge regarding the effects of prescribed fire on diverse species.

“T also hope the review will provide perspectives on the information gaps and challenges to guide future research and monitoring,” she said. “The regional approach also allows for insights about the parallels and differences between ecosystems.”

Excerpted from Denise Hoepfner, MSU News Service
CHEMISTRY DOCTORAL STUDENT SEEKING A CURE FOR HER SON’S RARE DISORDER

Elizabeth “Tess” Corbin, a doctoral student in the Department of Chemistry and Biochemistry, won a Ford Foundation Dissertation Fellowship that will support her work to find a cure for her son’s rare genetic disorder. The fellowship will provide $25,000 over nine months and connect her with a network of other Ford Fellows and mentors. Corbin is one of 38 recipients of the fellowship, which supports the final year of dissertation writing and defense for individuals working toward a doctorate in science or philosophy.

Corbin said the fellowship came at a time when she didn’t think she would be able to swing the money needed to complete her dissertation. The award, in addition to a tuition waiver from the MSU Graduate School, has also made it possible for her to quit the paper route that provided some financial relief but left her exhausted by midday.

“Getting up at four in the morning, six days a week, was hard, but I did it gratefully knowing it was what I had to do,” said the single mother of two boys, ages 17 and 13. “But, to write and defend my dissertation I need to be able to focus.”

Corbin earned her bachelor’s degree in chemistry from MSU in 2009, but because her older son, Sean, has a rare genetic disorder called homocystinuria, she decided to pursue her doctorate in biochemistry and delve into stem cell research, despite having little academic background in either.

Homocystinuria affects one in 335,000 people, and is so rare because each parent has to carry the genetic mutation for it to occur, according to the National Institutes of Health. People with the disorder are unable to properly process methionine, one of 20 essential amino acids—the small molecules that make up proteins—which leads to the buildup of toxic products in the body and causes serious health problems.

Not finding any effective treatments for the disorder because of its rarity, Corbin decided to work on the problem herself after she determined stem cell research was the most promising avenue to a cure.

“I went back to school and I’ve concentrated on this because of Sean’s problem,” she said. “There wasn’t any help for it, so what’s a mom to do?”

Corbin conducts her research under the guidance of Edward Dratz, professor of biochemistry. In the Dratz Lab, she is working to produce fatty acid supplements that can be added to the media that is used to grow stem cells. She hopes to develop two supplements—one for stem cell maintenance and another that can be used to aid in reprogramming the stem cells.

“The goal, Corbin said, is to make stem cells a more reliable testing agent for research, which could potentially lead to a cure for homocystinuria and other enzyme disorders by way of taking a person’s own stem cells and genetically correcting them to produce the right enzymes.

“Personalized medicine is the future, and induced stem cell production and culture is the bedrock it is going to stand on,” Corbin said. “This is right round the corner—being able to take a person’s blood and reprogram their own blood cells into stem cells so there won’t be any allergy issues and they won’t be rejected. They can then be genetically corrected to produce the correct enzyme and be reintroduced into the body. If you can do that a couple of times on somebody, it’s personalized medicine.”

Corbin has worked on this project for the past six years—the first two were spent on coursework—but it wasn’t until the arrival of Renee Reiio Pera, MSU’s Vice President of Research and Economic Development, that Corbin made significant strides. An internationally recognized stem cell scientist, Reiio Pera, along with geneticists Ninuo Xia and Benjamin Angulo, both researchers in Reiio Pera’s lab in the Department of Cell Biology and Neuroscience, were able to teach Corbin the molecular biology techniques she needed for her research so she could concentrate on her hypotheses and experiments.

As she spends the next nine months on her dissertation, Corbin is hopeful that her work will help to create better, more viable stem cells that can be used to develop therapies and cures for people who, like Sean, suffer from devastating disorders.

“I think that in the future I could be a part of making that happen and when the therapies are ready, I’ll know,” she said.

Excerpted from Denise Hoepfner, MSU News Service

Want to know more? www.montana.edu/news/17006

Renee Reiio Pera (right), MSU’s Vice President of Research and Economic Development, is an internationally recognized stem cell scientist who has taught Tess Corbin the molecular biology techniques needed for her research.
In July, the Carter County Museum in Ekalaka, Mont. held its fifth Annual Dino Shindig, an event with deep ties to Montana State University and its Museum of the Rockies. The weekend-long event has become an institution in this population-350 town tucked away in Montana’s southeast corner.

Inside the museum, visitors find a nearly complete hadrosaur skeleton, a triceratops skull and a replica T. rex crouching at eye-level. Down the road, inside a Lutheran church, an international lineup of paleontologists, among them John Scannella, Museum of the Rockies’ John R. Horner Curator of Paleontology, lectured on everything from triceratops to “Jurassic World” to prehistoric turtles.

“We can put this part of the state back on the map in the minds of everyone in Montana,” said Carter County Museum director Sabre Moore.

After last year’s go around—which featured a speaker lineup headed by Kirk Johnson, the director of the Smithsonian Museum of Natural History—state tourism officials named the Shindig their event of the year, picking it over juggernauts like the 4,000-participant Run to the Pub in Bozeman.

It’s easy to see why, looking around at the crowd of more than 400—with attendees from as far away as Oregon, Texas and Virginia. Beyond the festivities, though, is another story: how land-grant MSU, six hours away in Bozeman, helped lay the groundwork for this small-town success story.

The MSU link starts with Nate Carroll, 28, a ranch-raised Ekalaka native and the museum’s adjunct curator. Carroll, a fourth-generation Bobcat, earned his bachelor’s and master’s degrees from MSU’s paleontology program in the Department of Earth Sciences.

Ekalaka, which has seen its population decline by half since the 1960s, is a paleontology mecca of sorts, thanks to geology that makes its surroundings ideal for hunting fossils from the late Cretaceous. It’s also home to the Carter County Museum, the oldest county museum in the state. Spending a summer back home in 2012, Carroll said he started thinking about the possibilities for both academic research and boosting local tourism.

So, that fall, Carroll came back to MSU and started organizing volunteers to spend the next summer in Ekalaka revitalizing the museum. Moore, a Wright, Wyo. native then finishing up a history degree, was one of them.

“And,” she said, “I absolutely fell in love with Ekalaka.”

Moore, 26, who also minored in museum studies and Native American studies in the College of Letters and Science, has since completed a master’s in museum studies through an online program at Johns Hopkins University. After stints at museums in Wyoming, Washington, D.C. and Istanbul, Turkey, she was hired as the Carter County Museum’s full-time director last year.

They’ve kept it up, too. The museum has had teams of MSU students out to Ekalaka every summer since, cleaning dusty storage spaces, building new exhibits and giving the small town a dose of youthful energy. Carroll and Moore are now raising money for a $4 million expansion to the museum.

Some of their volunteers, whom they put up at a local hunting lodge, have come back for second or third summers. A couple, like Moore, moved to town full-time.

Carroll and Moore credit the Bozeman campus and Museum of the Rockies with helping them find passionate volunteers willing to work, in some cases, as many as 80 hours a week during their stints with the museum.

“There’s a great pipeline, basically, from MSU and MOR, of talent and resources,” Carroll said.

Excerpted from Eric Dietrich for the MSU News Service
MSU LEADS NATIONWIDE PROJECT TO LIVESTREAM HISTORIC SOLAR ECLIPSE

MSU led a nationwide network of students who monitored the August 21, 2017 total solar eclipse by sending weather balloons to the upper edge of the Earth’s atmosphere. The Eclipse Ballooning Project consisted of 55 teams of college and high school students from across the country who launched more than 75 high-altitude balloons equipped with cameras to provide a unique perspective of the eclipse.

The central purpose of the project was to livestream aerial video footage of the eclipse, which crossed North America on a path stretching from Oregon to South Carolina. An additional 12 teams used smaller weather balloons to gather data about the atmospheric effects of the eclipse. The high-altitude balloons, which reached altitudes of 80,000 feet or more, also provided a platform for myriad other student-led science projects related to the eclipse. MSU hosted workshops in 2016 to distribute the ballooning equipment and train teams in its use.

The project was organized primarily through NASA’s Space Grant program, which funds education, research and public engagement projects through consortia of colleges and universities in each state.

The project was proposed and directed by Angela Des Jardins, an assistant research professor in the Department of Physics and director of the Montana Space Grant Consortium at MSU, along with Randy Larimer, deputy director of the Montana Space Grant Consortium and Berk Knighton, an associate research professor in the Department of Chemistry and Biochemistry. During the three years preceding the eclipse, dozens of MSU students were involved in designing, constructing and implementing the high-altitude balloon system, and 15 students were part of the team that launched the MSU balloon on August 21.

Des Jardins was recently awarded the National Space Grant’s Special Service Award in recognition of her leadership role in this unprecedented outreach project.

To learn more and see video footage from the balloons, please visit: www.coe.montana.edu/eclipse/.
COLLEGE NEWS

SCIENTISTS IN COLLEGE OF LETTERS AND SCIENCE NAMED NEWEST REGENTS PROFESSORS

In November, the Montana Board of Regents named two scientists in the College of Letters and Science, Patrik Callis and Mark Jutila, as the newest Montana University System Regents Professors, the most prestigious designation to be attained by a professor in the system.

Callis is a professor in the Department of Chemistry and Biochemistry and an internationally known physical chemist who studies the electronic structure of dyes and biological chromophores. He has been a faculty member at MSU for 49 years.

Jutila is a professor and current department head in the Department of Microbiology and Immunology. He is a world-renowned researcher who studies gamma-delta T-cells and the role they play in both the body’s adaptive immune response and its innate immunity.

Callis and Jutila are MSU’s tenth and eleventh Regents Professors. Nine out of the eleven Regents Professors at MSU have been faculty in the College of Letters and Science, including Gordon Brittan, philosophy; John Carlsten, physics; Trevor Douglas, chemistry and biochemistry; Paul Grieco, chemistry and biochemistry; Jack Horner, paleontology; Michael Sexson, English; and Brett Walker, history.

Want to know more? www.montana.edu/news/17280/

WESTERN PROGRAMS AT MSU ELEVATED TO CENTER FOR WESTERN LANDS AND PEOPLES

In April, the Montana Board of Regents granted center status to the Center for Western Lands and Peoples. Primarily based in the College of Letters and Science, the new center includes interdisciplinary research and work from faculty in ecology, earth sciences, English, history and philosophy, Native American studies and film. Formed in 2013 as an initiative to emphasize MSU programs centered on the West, the center has particular emphasis in three areas: the history, literature and culture of the West; ecological studies of issues affecting wildlife and fisheries of the region; and studies on the West’s geography, geology and resources.

The board’s action signals the importance of the work done at the new center to the state, region and nation, according to Nicol Rae, dean of the college.

“The Board of Regents’ action reaffirms the significance of the work we are doing on the West in our college and university,” Rae said. “This is the ideal place for such a center. As a public, land-grant institution our charter is to serve and educate all citizens in the State of Montana, and this center will certainly do that.”

Rae said the Center for Western Lands and Peoples is the college’s 12th center. Susan Kollin, professor of English who specializes in Western American literature and environmental humanities, is the director of the center. Co-directors are Mary Murphy and Robert Rydell, both professors of history whose research focuses on Montana and the West.

For more information on the Center for Western Lands and Peoples, please visit the center’s website at www.montana.edu/west/.
DEPARTMENT HIGHLIGHTS

AGRICULTURAL ECONOMICS & ECONOMICS

By all accounts, Vincent Smith, a professor in the Department of Agricultural Economics and Economics, has had a tremendous past couple of years.

In December 2015, his most recent book, *The Economic Welfare and Trade Relations Implications of the 2014 Farm Bill*, was published. The book is an edited volume of essays that examines the major areas of U.S. farm programs and assesses the economic welfare impacts of the programs in those areas.

In 2016, along with economics professor Wendy Stock, Smith received a $5.76 million grant from the Charles Koch Foundation to expand their research on the impact regulation and policy have on societal well-being, particularly in the areas of regulatory economics as applied to agriculture, healthcare, technology, finance, natural resources, education and other sectors.

Also in 2016, Smith was honored with an Outstanding Alumni Award from his alma mater, the College of Agriculture and Life Sciences at North Carolina State University, where he earned his Ph.D. in economics. Each year, the college recognizes distinguished and outstanding alumni for their achievements.

Most recently, in 2017, Smith was selected to deliver a lecture as part of the Provost’s Distinguished Lecturer Series, one of the most significant honors for faculty at MSU. Now in its fifth year, the program recognizes outstanding MSU faculty for their creative scholarship and leadership. In his invitation letter, the provost wrote, “You were selected because of your outstanding accomplishments as a scholar, teacher and engaged citizen. Simply stated, you are a star and we want to recognize and celebrate with the community your accomplishments and achievements.”

Smith has been a faculty member at MSU since 1988. His research is focused in the areas of microeconomics, agricultural policy analysis and international trade. His is the author of ten books, monographs and edited volumes, 14 book chapters and more than 150 refereed journal articles, outreach and other publications.

CELL BIOLOGY & NEUROSCIENCE

Two researchers in the Department of Cell Biology and Neuroscience are among a team of 14 neuroscientists from across the nation that received a $6 million grant from the National Science Foundation (NSF) to develop a greater understanding of how the brain helps us pay attention to the right things when we execute complex behaviors.

Professor Charles Gray is a co-principal investigator of the project, and associate professor James Mazer is a collaborator. Gray said the research is important because people perform tasks every day that require attention, memory and eye movement, whether it’s driving a car, performing brain surgery or making dinner. This focused attention—or lack of it—impacts society in many ways, including through worker productivity, driver safety and national security.

MSU researchers, in particular, will focus on the specific relationships between attention and memory, attention and eye movement, and the pharmacology of visual attention.

This complex relationship between attention, memory and eye movement is disrupted in several common clinical conditions, including attention deficit hyperactivity disorder, commonly known as ADHD, autism spectrum disorders and even schizophrenia. Mazer said this NSF-funded basic research will provide new insights that will help drive future research into therapies and other treatments for these clinical conditions.

The $6 million grant was one of 11 grants totaling $55 million recently awarded through the NSF’s Experimental Program to Stimulate Competitive Research (EPScR) Research Infrastructure Improvement Track-2 program.
CHEMISTRY & BIOCHEMISTRY

Casey Kennedy, a graduate student in the Department of Chemistry and Biochemistry, received a prestigious Graduate Research Fellowship from the National Science Foundation (NSF) that will provide $34,000 per year for three years to support her research on solar cell materials.

Kennedy works in the lab of Erik Grumstrup, an assistant professor in the Department of Chemistry, along with three other graduate students and three undergraduates investigating potential solar cell materials. In particular, the team is trying to find new materials that may reduce the cost of solar cells and make them more efficient. Kennedy’s research supports the overall goal of understanding semiconducting material called perovskites.

According to Grumstrup, his students can change the chemistry of the materials they are testing; by systematically swapping out atoms, they can determine how well the material would perform in solar cells. With pump-probe microscopy, Kennedy uses two different light beams to study perovskites. One beam excites the electrons in the semiconducting material. The other beam probes the material to see how it responds.

“I really like spectroscopy. I think it’s amazing how much you can learn from simply observing the way light interacts with matter,” Kennedy said. “It’s really fun and interesting.”

Kennedy is currently co-president of MSU’s Women in Science and Engineering (WISE) program. She also heads the university’s Chemistry and Biochemistry Graduate Student Association.

Grumstrup said, “She sort of embodies everything the NSF is looking for. Not only is she an excellent scientist producing great results in the lab, but she is actively engaged in outreach activities.”

EARTH SCIENCES

Jacob Gardner, a doctoral student in the Department of Earth Sciences, was awarded a prestigious fellowship from the National Science Foundation (NSF) that allowed him to spend summer 2017 in Beijing, China studying the evolution of dinosaur and mammal locomotion.

While in China, he was supervised by prominent Chinese paleontologist Xu Xing at the world-class Institute of Vertebrate Paleontology and Paleoanthropology. Xu is famous for naming more dinosaurs than any other living paleontologist and for his theories about feathered dinosaurs, among other achievements. Between 1999 and 2005 alone, researchers at the Beijing institute published 45 scientific articles in the prestigious journals *Nature* and *Science*.

The NSF fellowship program, called the East Asia and Pacific Summer Institutes, or EAPSI, introduces graduate students to East Asia and Pacific science and engineering in the context of a research setting to help students initiate scientific relationships that will better enable future collaboration with foreign counterparts.

For his research, Gardner is analyzing patterns of evolution and the rate at which different forms of locomotion evolved, considering questions such as whether walking on two legs or four legs impacts the rate and pattern of evolution. For example, quadrupedality, or walking on four legs, may constrain the rate of evolution in both of the limbs, he said. He will also factor in such things as the effects of geography and changing environments. Previous research has shown that locomotion is closely tied to the environment in which an animal resides in and a change in environment, therefore, may drive the evolution of new forms of locomotion.

Jacob Gardner.
ECOLOGY

Maureen Kessler, a Ph.D. student in the Department of Ecology who studies zoonotic disease, or disease that spreads between animals and people, won a Fulbright Fellowship to study Pteropus, a genus of bats commonly called flying foxes, and their role in the spread of Hendra virus in Australia. Although potentially deadly, the virus rarely infects humans, primarily infecting horses. However, Kessler said understanding the virus’ system may hold clues to understanding other contagions that do pose threats to humans, such as SARS, MERS and Ebola.

While in Australia, she will work on her dissertation, centering on the ecological factors that have resulted in a loss of the flying fox population in recent decades due to loss of native habitat. That loss also has disrupted the bats’ migration patterns, Kessler said, resulting in increased settlements in urban centers where there is more contact with humans and horses. Kessler will also study how urbanization increases risk of Hendra virus spillover from reservoir populations of the flying fox. While netting the large bats can be tricky because they have a wing span of up to four feet, Kessler has developed an affinity for them.

Kessler said that even though the bats and the diseases that she’ll study are specific to Australia, there are important applications to all humans as science examines how contagions develop and spread. And, she said there are other parallels to disease systems found in Montana mammals, such as elk migration patterns and the development of brucellosis.

Tony Chang, who earned his Ph.D. last spring in the Department of Ecology, was one of five recipients of a 2017 David H. Smith Conservation Research Fellowship, which will give him $55,000 a year for two years, plus $40,000 for research. With it, he will conduct an innovative research project on forest disturbances and how they affect water supplies across the West.

Chang will use state-of-the-art modeling to determine on a massive scale how disturbances in forests affect the availability of water. He will use satellite images and other sophisticated tools to count nearly every tree—dead or alive—in the West. He will then see how many trees are lost over a year to such things as insects and fire. Finally, he will analyze the data to see how those losses affect water availability for people.

Trees influence the speed that snow melts and runs down mountains. They also influence rates of evaporation from the ground surface and water transpired through their leaves. But Chang will take a much deeper look at the exact relationship between forests and water. He wants his research to benefit natural resource managers as they develop strategies for regional forests and water conservation.

“In the past 30 years, land management protocols, climate change and land use have substantially changed the frequency and magnitude of disturbance regimes within forest ecosystems,” Chang explained. “Landscape-scale disturbances such as drought, wildfires and insect outbreaks can radically change forest structure resulting in impacts on watersheds that may affect water quantity and quality for natural resource use.”
ENGLISH

In July of 2017, the Yellowstone Writing Project (YWP) held its first annual Youth Writing Camp on the MSU campus. Led by a team of five K-12 teachers from YWP and four interns, 60 young writers (grades 5-12) spent four days writing and building writing communities.

Each morning students “wrote into the day” as a large group before dividing into smaller writing groups to take field trips on and around campus and do their own writing. Writers created field journals combining images and written text about the natural world, and explored the Museum of the Rockies by writing and sharing their writing throughout exhibits. Each afternoon, writers reassembled as a large group for “Author’s Chair,” a YWP tradition that creates space and time for writers to share their writing and listen to other writers.

The Youth Writing Camp culminated with an evening showcase for family and friends highlighting writers’ work and celebrating their creativity. The writers displayed their writing for a gallery walk and several read their pieces to the gathered audience.

YWP will host its second annual Youth Writing Camp in summer 2018.

The YWP is housed in the Department of English and is directed by professor Kirk Branch and assistant professor Allison Wynhoff Olsen. Grounded in the beliefs that writing teachers write and student writers deserve encouragement and time to write, YWP offers positive, professional development led by practicing K-12 teachers across content areas.

HISTORY & PHILOSOPHY

Samm Vankirk, a senior majoring in history from Linden, Wash., and his research partner and fellow history major, Ezekiel Snoozy of Billings, Mont., re-created a life-sized World War I trench inside a dumpster for a class final project. The display was for a course on “Public History: Religion and War” that was taught by Amanda Hendrix-Komoto, an assistant professor of history in the Department of History and Philosophy.

Vankirk and Snoozy re-created the trench using materials and tools common during the first world war, including wood, sand and wire. Vankirk said he and Snoozy scavenged most of the supplies for the project, save for the nails used to construct the wooden walls. Photos of Montanans in World War I trenches, and explanations, were posted inside the trench.

Posters of other groups’ projects featuring Montanans during the wars were attached to the outside of the dumpster, including narratives of Montana Native Americans and Hutterites during the wars. Other posters were focused on the roles of prominent Montanans during the war, including Jeannette Rankin, Montana’s Congressional representative and noted pacifist during both world wars; Montana Senator Burton K. Wheeler; and the story of the death of Nelson Story IV during World War II and the resulting memorial at Big Sky’s Soldiers Chapel.

“I encouraged students to think outside the box, but I was thinking about a table in the library,” Hendrix-Komoto said, adding even she was wowed with the group’s creativity.

Vankirk said it took about two months to get approval to develop the dumpster museum project and 20 hours of work in the cold to build the museum. He said in all, about 11 volunteers helped him and Snoozy re-create the trench in biting Montana winter temperatures.
MATHEMATICAL SCIENCES

The mathematics education research group in the Department of Mathematical Sciences engages in teaching, research and outreach across the state of Montana.

They offer an M.S. in mathematics that is geared towards meeting the needs of high school and middle school mathematics teachers. The math education program at MSU was recently ranked as No. 2 in the nation in GradSource.com. Twelve students in the program graduated last summer, and six of those students were Montana residents. Seven of the ten students who will graduate in spring or summer 2018 are public school teachers in Montana.

“This master’s program is designed to reach teachers where they live and work,” said professor and department head Elizabeth Burroughs. “Equalizing access is important for MSU’s outreach mission and important for Montana, where distance traditionally has inhibited teachers in rural areas from pursuing advanced degrees.”

Research in the group is also focused on outreach. The National Council of Teachers of Mathematics gives three “research to practice” awards every year, and professor Jennifer Luebeck and assistant professor Megan Wickstrom won two of these awards for their work at the high school and elementary school levels, respectively.

Outreach by the group is evident in the Montana state-wide STREAM project, which connects rural teachers across Montana with each other in order to support their understanding of Montana’s math standards. Led by Luebeck, the project has been ongoing for three years. In addition, Wickstrom and assistant professor Mary Alice Carlson have just completed the three-year IMMERSION project, which supports Bozeman school district teachers as they engage elementary school students in the practice of mathematical modeling.

MICROBIOLOGY & IMMUNOLOGY

In 2017, Melody Lindsay, a doctoral student in the Department of Microbiology and Immunology, received the Doyle W. Stephens Scholarship Award from FRIENDS of Great Salt Lake, an organization that works to protect Utah’s Great Salt Lake ecosystem and increase public awareness and appreciation of the lake through education, research, advocacy and the arts.

Lindsay’s winning research proposal details how the changing salinity of the Great Salt Lake impacts the composition and productivity of the microbialites that cover about 20 percent of the lake floor, and how that in turn affects the life forms further up in the ecosystem’s food web, including the health of the nearly 5 million birds that pass through the ecosystem each year. Microbialites are carbonate-mineral structures that are built through the activity of microorganisms that obtain energy from light.

“These microbialites are a major source of food for brine flies and brine shrimp (also known colloquially as sea monkeys), which serve as the major food source for the millions of birds that visit the Great Salt Lake annually,” Lindsay said. “Moreover, a healthy brine shrimp population is economically important for the brine shrimp industry.”

This is the first time since its inception in 2003 that the scholarship has been awarded to someone outside of the state of Utah, according to the FRIENDS website. Lindsay will use the $1,000 award to cover her expenses related to travel to Utah and on lab supplies she needs to conduct her research.
MODERN LANGUAGES & LITERATURES

In 2017, Casianne Lund of Darien, Ill., traveled to Kuala Lumpur, Malaysia to teach English with a Fulbright English Teaching Assistantship. Lund, who graduated magna cum laude in May, was an honors student and earned dual degrees in French in the Department of Modern Languages and Literatures and psychology with a minor in women’s studies.

Lund said her interest in global travel began with a summer of study in Montpellier, France, at an MSU-linked program where she became fluent in the language.

Lund then traveled to Morocco on a spring break with French professor Ada Giusti to teach French and English and work in the community of remote Berber villages in the Atlas Mountains. There, she used French, the country’s official language, and also learned to speak a little Berber, Giusti said.

Lund wanted to return to Africa after the Morocco experience so Giusti worked with her to identify a relevant internship with a non-governmental organization in Senegal, where French is also spoken. There, she taught boys, many who escaped Koranic schools and were waiting to be reunited with their families. The work was “heartbreaking but fulfilling,” Lund said. Lund also volunteered to work on a farm in Senegal. Giusti believes that Lund is the only MSU student to study and work in that country.

Lund’s experience in Senegal led her to apply for a Fulbright in Malaysia, a part of the world she has not yet visited and which has another set of languages and customs.

“Casi is so courageous, so willing to ask what she can do to serve and so willing to grow,” Giusti said. “She is an extraordinary person.”

NATIVE AMERICAN STUDIES

Native American Studies’ new course, NASX 470/570, “Indigenous Planning,” is part of a larger effort called the Native Land Project, which seeks to develop partnerships with tribes around issues of land tenure and reservation economics, while also providing students with useful skills in areas of relevance to tribal governments and reservation communities.

The Native Land Project, which is housed in the Department of Native American Studies at MSU, is an applied research initiative that aims to document and generate research on Indigenous land and planning that is useful to planners and others working on issues in the interest of First Peoples in the Northern Rockies region.

Grounded in Native American Studies and the emerging field of Indigenous Planning, the project aims to engage active planning practitioners in Indian country, beginning with the Amskapi Pikuni (Blackfeet), to co-produce knowledge and document their work; help prepare the next generation of planners through training, service and professional projects; facilitate a network of Indigenous Planning Excellence across the region to share best practices; and share findings with professional planners and academics.

The new “Indigenous Planning” course is open to undergraduate or graduate students enrolled at MSU, as well professionals working in the field of community planning. It focuses on contemporary strategic planning, and Indigenous community and economic development, including political perspectives, legal and cultural protocols, values, social structure, development economics and traditional knowledge of American Indian, Alaska Native and Pacific Islander peoples. The course provides a substantive introduction to the field of strategic planning and offers both professional skills and a completed portfolio project. It is offered for the first time as an online course during fall 2017 and again as a blended course (online and in person) during spring 2018.

The instructor is Christopher Carter, a regional planner who works with indigenous governments, cities, counties and non-governmental organizations on land use, water, flood risk, economic development, climate adaptation and environmental planning.
DEPARTMENT HIGHLIGHTS

PHYSICS

Laura Sampson, who earned her doctorate in 2014 from the Department of Physics, was named a Women in Science Fellow by the L’Oréal USA For Women in Science fellowship program. Sampson’s doctoral work at MSU contributed to the groundbreaking first detection of gravitational waves in 2016.

The award provides Sampson with $60,000 to advance her postdoctoral research and includes visits to the White House, National Academy of Sciences, a New Jersey public school and L’Oréal headquarters.

Sampson is one of five winners of the fellowship, which is awarded to women scientists based on evaluations of their intellectual merit, research potential, scientific excellence and commitment to supporting women and girls in science, according to a press release by the L’Oréal Foundation. Experienced scientists in the candidates’ respective fields reviewed the applications through a partnership with the American Association for the Advancement of Science, which manages the application process.

Sampson, of Boulder, Colo., is currently pursuing postdoctoral studies at Northwestern University’s Center for Interdisciplinary Exploration and Research in Astrophysics, or CIERA.

“Strong mentoring relationships have been shown to be important for both men and women, but are stronger predictors of women’s success than men’s,” Sampson said. “It has also been shown that developing these relationships is easier between people of the same gender, and so I see it as one of the most obvious things I can do to help young women in STEM.”

POLITICAL SCIENCE

Teams of students from the Model United Nations student club at Montana State University won top awards at the Model United Nations of the Far West (MUNFW) conference held in April in San Francisco.

Jenna Rhoads, a graduating senior in political science from Bozeman, was selected to speak in front of approximately 500 people at the opening plenary, or meeting attended by all MUNFW conference participants.

“This selection is the highest group honor awarded at the conference,” said Eric Raile, an assistant professor of political science and club adviser.

Rhoads said speaking in front of the plenary in San Francisco was particularly significant for her. It was the third and final time Rhoads had attended a Model Nations Conference, which helped her develop skills in public speaking, resolution writing, and coalition building and collaboration.

“I continue to believe that these experiences have been fundamental in developing my skills as a student, such as my ability to collaborate with diverse groups,” Rhoads said. “These experiences have also enhanced my critical thinking skills and have allowed me to practice public speaking and different kinds of writing.”

The conference drew representatives from universities throughout the U.S. Selection is based on the quality of written materials submitted prior to the conference, including policy statements, resolutions and country profiles. Representatives from four countries, or teams, out of 80 addressed the opening plenary.

“All three countries represented by MSU students won diplomacy awards at the MUNFW conference,” Raile said. MSU teams represented the countries of Ethiopia, Hungary and the Philippines. “This is the second consecutive year our students have achieved this impressive feat.”
DEPARTMENT HIGHLIGHTS

PSYCHOLOGY

In May, Mariana Olsen became MSU’s first-ever doctoral candidate in psychological science. Olsen successfully completed her comprehensive exam and has started work on her dissertation examining executive function in domestic dogs (*Canis lupus familiaris*). Olsen received her master’s degree in psychology from MSU in 2014. During her time in the master’s program, she received the award for “outstanding graduate student” both years.

Although her true passion has always been in understanding canine behavior, her master’s thesis was focused on human attention and peoples’ use of attentional control to overcome conflict between competing behavioral responses. In the Ph.D. program, she is studying canine cognition under the mentorship of her master’s adviser, professor Keith Hutchison, and also Sara Waller, associate professor of philosophy in the Department of History and Philosophy. This interdisciplinary training has already led to two peer-reviewed publications this past year. One on pre-cuing human attentional control in *Attention, Perception & Psychophysics* and one on classification of feral cat vocalizations in *Current Zoology*.

Upon finishing her dissertation, Olsen hopes to continue researching canine executive function, and find ways of translating findings from the canine cognition field to enhance the human-dog bond and general dog welfare.

SOCIOLOGY & ANTHROPOLOGY

Archaeological analysis is the ultimate hands-on activity for learning about the human past. Objects must be washed, catalogued and measured as part of the analytical process. Students taking classes that require close examination of stone tools, animal bones or the human skeleton—activities that are time intensive and require layout space—have previously done this in a small, cramped space on the first floor of Wilson Hall. Like many things in archaeology, this is all in the past.

As part of a larger project to rearrange space in Wilson Hall in order to improve student services and facilities, the archaeology lab now has a new home on the second floor of Wilson Hall. The renovation and move to a new space has yielded additional storage capacity, a sink for cleaning specimens, and tables and chairs for upwards of 20 students. The new archaeology lab will not only house many archaeological collections, but will contain ample space for students conducting archaeological analyses for independent study projects and class-based projects.

More importantly, for the first time the lab space will be sufficiently large enough for classroom instruction. With mobile tables and chairs, the room can rapidly be reconfigured to meet the needs of both classroom instruction and laboratory-based class activities. It is expected that this new space will better facilitate student-based, hands-on learning for MSU anthropology majors.
Fiona Grubin from Boulder, Colo., graduated in May 2017 with a degree in psychology. During her time at MSU, Grubin received three student travel grants from the College of Letters and Science that helped her travel to professional conferences and meetings to give poster presentations on her undergraduate research.

In fall 2015, Grubin received a $500 grant to travel to the annual convention of the Association for Behavioral and Cognitive Therapies in Chicago, Ill. to present her qualitative research findings on the causes of suicide in rural Alaska Native communities. Her poster presented the findings of her undergraduate research project entitled “Perceptions of Suicide Causes and Prevention Strategies Among Rural Alaska Natives.”

“This was my first conference and I realized what opportunities were available to me in an academic and research-focused setting,” Grubin said about the impact of the experience.

In fall 2016, she received a $350 grant that enabled her to travel to Pablo, Mont. to attend and present a poster at the annual meeting of the American Indigenous Research Association at Salish Kootenai College on the Flathead Reservation. She again presented her poster about the causes and prevention of suicide in Native communities in rural Alaska, and had the opportunity to learn about research focused on indigenous communities from around the world.

Most recently, in spring 2017, Grubin received a $400 travel grant to attend the Western Psychological Association convention in Sacramento, Calif. and present her research on how subtle racism impacts students’ health at MSU. The title of her presentation was, “Students of Color at Montana State University: Racial Microaggressions and Protective Factors.”

“This conference was attended by lots of other students and I was able to explore the other poster sessions and symposia at the conference where I learned a lot about other psychological research,” said Grubin. “I made lots of connections and got a lot of ideas for future research projects at this conference. I am so grateful for the support provided to me by this travel grant and the experience and knowledge I gained at the conference helped me further my own academic and career goals.”

“As an undergraduate student, this experience presenting at a conference is invaluable and has helped make [Fiona] an extremely attractive applicant for future graduate programs,” said Monica Skewes, assistant professor of psychology and Grubin’s adviser. “I’m excited to see how her career unfolds.”

Grubin intends to attend graduate school for a degree in public health and eventually work in global public health.

The College of Letters and Science’s student travel grant program provides critical support to undergraduate and graduate students, enabling them to present original research, papers or posters at professional and academic conferences. The program is partially funded with private donations to the college. If you would like to contribute to student travel grants, or other vital student support programs in the College of Letters and Science, please consider making a gift to the college by visiting www.msuaf.org/give-confluence.

For more information about giving to the

**COLLEGE OF LETTERS AND SCIENCE**

please contact Shannon Schumacher, Director of Development, at 406-994-4157 or shannon.schumacher@msuaf.org.
THE DEAN’S CIRCLE

The Dean’s Circle recognizes alumni and friends whose cumulative lifetime gifts to the College of Letters and Science total $10,000 or more. We are grateful to this growing group for its loyalty and tremendous support of the college.
PHILANTHROPY

ANNUAL GIVING

This report gratefully recognizes the generosity of the many alumni and friends who provide vital support to the College of Letters and Science.

The college, like the university, operates on a fiscal-year calendar. Gifts listed in the Annual Giving section were received between July 1, 2016 and June 30, 2017. If you believe we have made an error, please contact the college's director of development at 406-994-4157 so that we may recognize you appropriately and accurately in future publications.

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