MONTANA STATE UNIVERSITY

Mountains & Minds

The Graduate School Annual Report Academic Year 2013-2014

About The Graduate School

Vision: The Graduate School strives to foster an environment that produces outstanding graduate scholars who contribute new ideas and knowledge using creative and innovative approaches to solve challenges in an evolving world.

Mission: The Graduate School enriches the graduate student experience by providing excellent service, timely oversight, and relentless advocacy for student success.

Montana State University Quick Facts

Founded: 1893

Affiliation: Public unit of the Montana University System
Montana's Land-Grant Institution

Carnegie Classification: RU/VH
Research University/Very High

Accreditation: Regionally accredited by Northwest Commission on Colleges and Universities

Fall 2013 Enrollment: 15,294 students total (2,030 graduate students)

Research Expenditures: MSU's expenditures from competitive sponsored research programs reached $90.5 million in fiscal year 2014.

Did you know...
MSU currently holds 88 patents for innovations and processes developed through faculty research, 39 additional patents pending, and has 208 license and option agreements with private firms.

Master of Fine Arts is a project based, non-media specific curriculum that focuses on artistic development and creative leadership.

Greetings from the Dean

As Dean of The Graduate School, I am pleased to present the 2013-2014 annual report. We have much to celebrate this year, and this report highlights progress made towards our goal of providing quality graduate education and producing high-caliber research.

When I joined The Graduate School and the MSU family in January, I found quite a contrast to the large urban campus I came from in Texas. After the shock of below zero temperatures and biting winds wore off, I began to realize that I was now part of a very special community. The Carnegie Foundation has designated MSU one of 108 universities with "very high research activity." This top tier classification coupled with a vibrant western town in a spectacular setting make MSU home to some of the most talented faculty and students I've ever met.

I am pleased to report that total graduate school applications were up for the academic year and graduate enrollment rose from 1,888 to 2,030 students in fall 2013. With exciting new programs, such as a doctor of nursing practice and a collaborative Ph.D. program in materials science, we are on track for continued growth in graduate enrollment.

MSU strives to become one of the most well-regarded land-grant research universities in the nation. We take the land-grant mission seriously at The Graduate School and have pride in knowing that our research extends beyond the classroom out into the state, the nation, and beyond. MSU graduate students are doing everything from building components for NASA satellites and producing films for National Geographic, to growing sustainable foods and working on advances in health care and education right here in Montana. New and expanded fellowship opportunities will help attract a diversity of talented and motivated students thus enabling them to continue to produce transformative research.

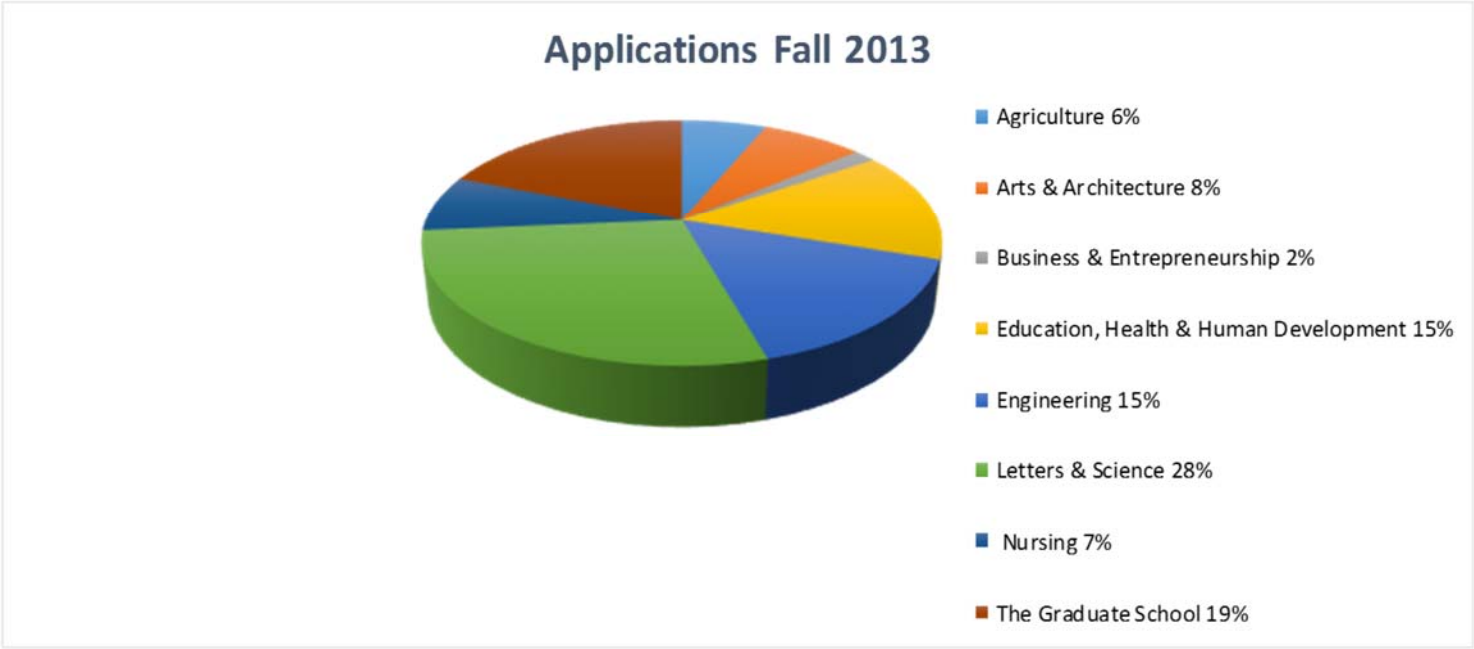
Please join me in celebrating what The Graduate School has accomplished during this past academic year. I look forward to what the future holds for graduate education at Montana State University and am honored to lead this extraordinary team of students, faculty, and staff.

Sincerely,

Karlene A. Hoo

Karlene Hoo
Dean, The Graduate School

Applications By College



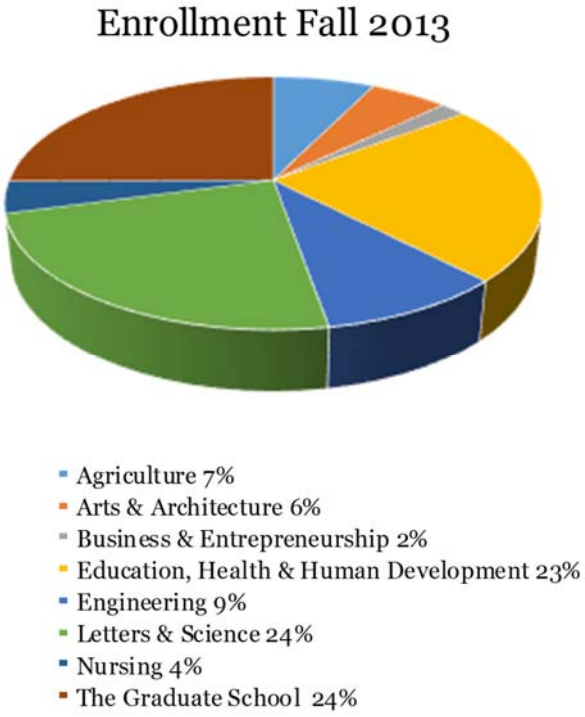
Total applications for fall 2013 were up 2% from fall 2012. The biggest increases in applications included the College of Nursing , the WWAMI* Medical Education Program, and professional development students.

The Graduate School Office of Admissions is in the process of switching to CollegeNet, an admissions processing software. This will allow The Graduate School to rely less on paper applications and will help streamline the application process. With this new software, the entire application process is online including a user-friendly student portal.

*Washington, Wyoming, Alaska, Montana, Idaho

Nestled in the Gallatin Valley, MSU offers a unique balance of academic excellence and outdoor adventure.

Enrollment By College



	Fall 2012	Fall 2013
Agriculture	148	148
Arts & Architecture	113	113
Business & Entrepreneurship	46	38
Education, Health & Human Development	367	468
Engineering	187	192
Letters & Science	485	478
Nursing	83	82
The Graduate School	459	511
Total Enrollment	**1,888**	**2,030**

MSU Strategic Plan Sets Goals for The Graduate School

The strategic plan aims to increase the number of graduate students to 2,350 by 2019. The Graduate School will work towards this goal by offering unique degree and certificate programs in established and multidisciplinary areas, such as engineering, business, science and the arts.

As the foundation of MSU's land-grant mission, graduate students in the College of Agriculture conduct research on old and new challenges in Montana's agricultural community.

Enrollment by Degree Type

MSU offers 54 master's degree options, 35 doctoral degree options, 18 certificate options and one specialization program.

	Fall 2012	Fall 2013
Certificate	64	92
Doctoral		
Education (Ed.D.)	71	92
Nursing Practice (DNP)	NA	23
Philosophy (Ph.D.)	349	366
Education Specialist (Ed.S.)	0	2
Master		
Professional Masters	140	132
Arts (M.A.)	56	54
Education (M.Ed.)	168	231
Engineering (M.E.)	2	6
Fine Arts (MFA)	50	48
Nursing (M.N.)	83	59
Science (M.S.)	689	665
Professional Development	176	205
Teacher Certification	26	25
WWAMI	14	30
TOTALS	**1,888**	**2,030**

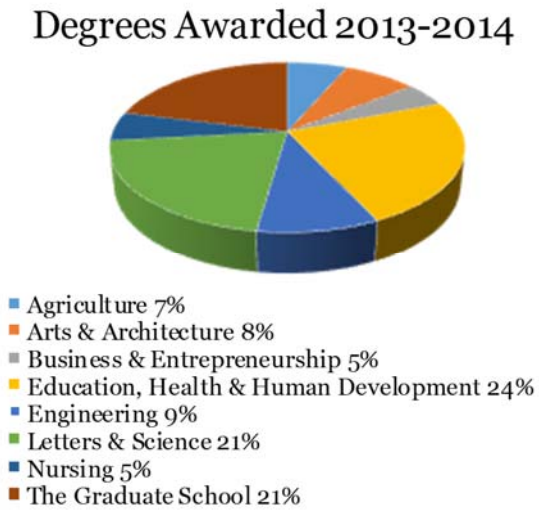
Blackstone LaunchPad Encourages Entrepreneurship

MSU Blackstone LaunchPad, opened in 2013, was designed to foster connections between the university and the business community. The program pairs students with coaches and entrepreneurs to help bring their business concepts to life.

New graduate students meet one another and become acquainted with MSU during orientation.

"Nursing in general opens up a ton of different avenues, and the DNP program opens up even more."
Terryn Martin, DNP student

Degrees Awarded By College



	2012-2013	2013-2014
Certificates	22	23
Doctorate		
Education	6	6
Philosophy	43	50
Education Specialist	0	1
Master		
Professional	91	84
Arts	19	13
Education	86	83
Engineering	1	1
Fine Arts	15	5
Nursing	26	31
Science	269	269
Total Degrees Awarded	**578**	**566**

Element Film Festival Features the Work of Graduate Students

A project of MFA students in the Science and Natural History Filmmaking program, the Element Film Festival takes place in Bozeman each fall. It began as a way for students to showcase their work and has grown to include student filmmakers from around the world.

The Science and Natural History Filmmaking MFA program trains students with education and experience in science, engineering, and technology to become professional filmmakers. It seeks to educate generations of filmmakers who have the knowledge needed to create accurate, innovative, and memorable media that advance the public understanding of science.

ELEMENT FILM FESTIVAL

New Degree Program Highlights

Materials Science Ph.D.
The new Montana Collaborative Materials Science Program is a joint Ph.D. program which brings together the departments, faculty, courses, and research infrastructure of MSU, the University of Montana, and Montana Tech. The program is an exceptional opportunity for students to engage in highly interdisciplinary and rigorous research in a broad range of materials applications while gaining a diverse education that will prepare them for careers in research, academia, industry, and service.

Doctor of Nursing Practice
In the fall of 2013, 24 students began coursework in the College of Nursing's new doctor of nursing practice (DNP) degree program. The program is primarily online, allowing students to stay in their hometowns and share their newfound knowledge with their community. The degree requires students to complete 1,125 hours in clinical settings and offers focus areas in family and individual health and psychiatric/mental health.

Veterinary Medical Education Program
In partnership with Washington State University, the Washington-Idaho-Montana-Utah (WIMU) Regional Program in Veterinary Medicine serves students interested in the veterinary profession and prepares graduates for entry into many dimensions of veterinary medicine. MSU faculty will teach the first year curriculum with classroom and clinical study continuing on WSU's Pullman campus during the second and third years. The program concludes with a clinical placement during the fourth year. Ten Montana students will be selected annually for the program with the first cohort beginning in fall 2014.

Meet a Research Team: Materials Science

Dr. Erik Grumstrup, assistant professor in the new materials science program, leads a research team seeking to understand materials relevant to electronics and solar cells at the nanoscale. By using femtosecond (~10^{-15} s) laser pulses that are focused using a microscope, the group watches electrons as they move and relax. The high spatial resolution enabled by a microscope combined with high temporal resolution of the laser allows them to understand longstanding fundamental problems of material functionality. For example, a promising new type of solar cell is made from two types of organic polymers. When these polymers absorb light, they produce electrons with excess energy, which are ultimately used to produce electricity. While these materials have been studied for years, it wasn't exactly understood how they work or what limits their efficiency. The team is seeking to uncover the answers to questions like these by developing and utilizing new methods for correlating the microscopic structure of materials to their electronic properties, and ultimately to their functionality in devices that are used every day.

Featured Programs & Partnerships

Center for Biofilm Engineering

MSU's Center for Biofilm Engineering (CBE) offers an ideal setting for interdisciplinary, collaborative research in the field of biofilms. Graduate students work under the guidance of the CBE's multidisciplinary faculty to solve problems associated with biofilms in medical, industrial, and environmental contexts. Students pursue their degree in a discipline offered through one of the various departments at MSU and conduct their research in CBE laboratories. Over 200 masters and doctoral students have earned their degrees in the CBE's program since it was founded in 1990. During the 2013–2014 academic year, 55 students from eight departments were enrolled in the CBE graduate program: 36 doctoral candidates and 19 master's candidates.

Institute on Ecosystems

The Institute on Ecosystems (IoE) is a Montana community of scholars and partners with a shared vision to advance integrated environmental sciences and related fields. IoE draws on the extraordinary landscapes in Montana and beyond to understand complex ecosystems, including the interconnectedness of people and nature. IoE Graduate Fellows are graduate students working on interdisciplinary topics and receive support to complete their education and research. The institute works with Graduate Fellows to engage them with the IoE community of scholars, to provide them opportunities for skills training, and to foster the development of an outreach activity bringing science to a targeted audience.

Montana Dietetic Internship

The College of Education, Health and Human Development offers a non-degree graduate dietetic internship. The Montana Dietetic Internship (MDI) Program integrates experiences in clinical and community nutrition, foodservice management, and sustainable food systems to provide a unique and progressive supervised dietetic practice experience to future registered dietitians. MDI meets the Accreditation Council for Education in Nutrition and Dietetics Competencies for preparing knowledgeable professionals in the practice of dietetics. Program activities include 1,295 hours of supervised practice in various clinical and non-clinical settings, a 28 week online didactic course to support supervised practice learning, and 12 non-degree graduate credits. In addition to completing practice experiences at MSU, interns are assigned to one of five geographic areas in Montana to fulfill the majority of their required supervised practice hours.

Montana INBRE

Montana is one of 23 states participating in the IDeA Networks of Biomedical Research Excellence (INBRE) program through the National Institute of General Medical Sciences. INBRE is a collaborative network of institutions focusing on increasing the biomedical research capacity in Montana by building research infrastructure, supporting faculty and student research, and fostering a state-wide collaborative network. Graduate students have opportunities for enhanced biomedical education and research experience through internships, travel awards, and fellowships in collaboration with the MSU's Molecular Bioscience Program.

Celebrating Faculty Excellence

Anne Camper, an international expert on water and biofilms, is the first woman at MSU and the first College of Engineering faculty member to be selected as Regents Professor.

John Priscu, Ecology professor, is chief scientist for the Whillans Ice Stream Subglacial Access Research Drilling project in Antarctica. *Discover* magazine ranked this the 12th most important story of 2013.

Faculty award highlights from spring convocation

These awards honor achievement in research, teaching, outreach and creative projects. A complete list of honorees can be found here: http://www.montana.edu/news/12351/msu-honors-top-faculty-and-staff

Robert Mokwa, Civil Engineering, President's Excellence in Teaching Award

Joan Broderick, Chemistry and Biochemistry professor, was honored with MSU's first Woman in Science Distinguished Professor Award.

Justin Runyon, MSU entomologist, received the Presidential Early Career Award for Scientists and Engineers (PECASE).

Brent Peyton, Chemical & Biological Engineering, Vice President for Research's Meritorious Technology/Science Award

Sandy Bailey, Family & Consumer Sciences, Provost's Excellence in Outreach Award

Celebrating Student Excellence

MSU students organize second annual Graduate Summit

The day-long event aimed to expose graduate students to career paths in and outside of academia and offered professional development tools in pursuing these careers. An excellent line-up of speakers and panel members from diverse careers and backgrounds offered students insight on life beyond graduate school. A highlight was the keynote address by Dr. Joe Palca, host of National Public Radio's Science Friday.

Graduate student wins major award from the U.S. Department of Defense

Vanessa Murray, a Ph.D. student in chemistry, received a National Defense Science and Engineering Graduate Fellowship. The highly competitive fellowship, going to only five or six applicants each year, will fund Murray's studies for three years. Murray is researching the chemical reactions that occur when rockets return to Earth.

Vanessa Murray in her lab at MSU

Three graduate students received NSF Graduate Research Fellowships

This prestigious award gives recipients three years of funding to attend graduate school and conduct their research. The students are:

Catherine Kirkland, Ph.D. student in environmental engineering, assists in the Magnetic Resonance Lab developing instrumentation to monitor biofilm and biogeochemical processes in the subsurface.

Tiphani Lynn, Ph.D. student in neuroscience, focuses her research on the mechanisms of visual perception.

Kaysha Young, M.S. student in industrial engineering, works at the Western Transportation Institute on transportation research and improving the safety of roadway systems.

Meet a Sloan Scholar: Ron Lodgepole

Alfred P. Sloan Indigenous Graduate Partnership helps American Indian and Alaska Native students succeed in graduate study in the sciences, technology, engineering and mathematics.

"*With an M.S. in land resources and environmental sciences, I will be one of the few people who can interpret and apply environmental science within cultural contexts and practices of Native Americans to assure that environmental science applications are effective in meeting the environmental and health needs of Native Americans. All my efforts thus far have been to not only benefit my family, and myself but also to further honor the words of my grandfathers and take good care of the land. Those powerful words were inspirational and continue to inspire the direction I live my life.*" Ron Lodgepole, Sloan Scholar & M.S. student in land resources & environmental sciences

Celebrating Generosity

Norm Asbjornson is interviewed by local media as MSU President Waded Cruzado and Montana Regent and Bozeman Mayor Jeff Krauss look on.

MSU alumni pledges $50 million to College of Engineering

Norm Asbjornson, a 1960 MSU mechanical engineering graduate, pledged $50 million to MSU's College of Engineering. The largest private gift in the history of the state, Asbjornson's gift will fund construction of much needed laboratory and classroom facilities for the growing college. The building will offer state-of-the art facilities and will enable collaborative, hands-on learning. The university expects to break ground no later than spring 2016.

New College of Business building on track for fall 2015 opening

The past academic year saw significant progress on the new Jake Jabs College of Business & Entrepreneurship building. The project was funded through a $25 million gift from MSU alumni Jake Jabs. In addition to the building, the gift will help to fund scholarships, support programs in entrepreneurship, and foster cooperative work between business students and students in other disciplines.

Dennis & Phyllis Washington Foundation's Native American Graduate Fellowship supports outstanding students

The fund upholds Dennis Washington's vision of promoting the betterment of society and the development of a highly diverse workforce through education. One scholarship will be awarded annually to an MSU graduate student who is an enrolled member of a Montana Native American Tribe.

Make a Donation to The Graduate School

When you donate to The Graduate School at Montana State University, you support students like those featured in this annual report. Your generosity will allow them, and many others to follow, to produce transformative research, create new ideas, and make scholarly contributions to our body of knowledge.

The Carnegie Foundation recognizes MSU as one of 108 research universities with "very high research activity." This ranking confirms excellence and helps MSU attract a diversity of talented and motivated graduate students. By partnering with generous individuals like you, we can continue this legacy by helping graduate education thrive at Montana State University.

Your Gift to The Graduate School is an Investment in the Future!

Graduate students contribute new ideas and knowledge using creative and innovative approaches to solve challenges in an evolving world.

Your thoughtfulness today will have an impact on the world of tomorrow.

To find out more about making a gift, contact The Graduate School:
406-994-4145; 800-255-7962

Donate on-line at: http://msuaf.org/give

Jake Jabs inspires business students during a campus visit.

More About The Graduate School

Montana State University awarded its first masters degree in 1902 and its first doctoral degree in 1956. The Graduate Division was created in 1948 and the name was changed to The Graduate School in 2013.

The Graduate School staff is comprised of the Dean and nine professional staff members. Karlene Hoo, Ph.D. in chemical engineering professor, joined The Graduate School as Dean in January 2014. Dr. Hoo has extensive experience in research, teaching, and administration. Dr. Hoo recently served as a National Science Foundation program director in the Engineering Directorate.

The Graduate Council, a key component to The Graduate School, serves to advise the Dean on matters of policy. Its key activities are to make recommendations to the Dean about graduate programs and curricula and to promote all aspects of graduate education and the success of graduate students.

MSU's Graduate School is a member of the Western Association of Graduate Schools.

Graduate School Staff are:

Office of Fiscal Management
Maya Bronston, Assistant to the Dean

Office of Admissions
Melis Edwards
Amanda Round

Office of Student Services
Donna Negaard

Office of Degree Programs & Certificates
Amanda Brown
Lauren Cerretti

Office of Analytics & Systems Management
Laura Collins
Jennifer Miller
Ann Vinciguerra

Photo courtesy of Bozeman Daily Chronicle

The Graduate School makes its home in Montana Hall, the second oldest building on campus. Over the summer, four great horned owls took up residence there providing evidence of a robust campus ecosystem.

MONTANA STATE UNIVERSITY

THE GRADUATE SCHOOL

P.O. Box 172580
Bozeman, MT 59717-2580

406-994-4145
800-255-7962

Visit us at:
www.montana.edu/gradschool

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