



Montana Research

AY 2020 Campus Highlights



A BIG Year for MT Research

1st

Montana leads the region in research, with 2019 expenditures passing North Dakota and rising to ~1.5X Idaho, ~2X South Dakota and ~3.5X Wyoming

+25%

Year-on-year increase at MSU and UM in R&D award volume, a key leading indicator of future research expenditures



90%

Growth in research expenditures at the University of Montana from 2014-2019

43

New startups commercializing MUS research, 2010-2020

121

Patents issued to MUS researchers, 2010-2020

Montana State University is the largest research university by R&D expenditures in the region, for the first time since 2010

1st



200,000+

COVID-19 tests conducted by MSU and UM in a partnership with the state to expand access to surveillance testing



Community Impact

The MSU-Billings Clinical Testing Laboratory, led by **Dr. David Butler** and assisted by Biology graduate **Cody Walters** (pictured), retooled to support COVID-19 surveillance testing of student athletes and symptomatic students using rapid antigen tests. **To date, the lab has conducted more than 950 tests.**



Economic Opportunity

The newly formed **Institute for Neurodiversity and Applied Behavioral Analysis** is in the process of hiring a Program Director and will hire a medical director over the course of the next year; these positions are funded through a multi-year grant from the M.J. Murdock Charitable Trust secured by the MSUB Foundation. **The Institute will provide an on-campus demonstration site for socially valid applied behavior analysis programs for children and adolescents with social and behavioral challenges**, serving as both a site for clinical internships and for providing direct services to children and families. The College of Education plans to begin offering services through the Institute in the fall 2021 semester.

Excellent Education



Research, Creativity & Community Involvement Celebration

The eighth annual MSUB Research, Creativity, and Community Involvement Celebration, encompassing the Spring Jazz Concert, Student Juried Art Exhibition, and Research and Creativity Symposium, was held in an online format to great success. **More than 50 students participated in the Symposium, with twenty presenting in the virtual live event to over 130 attendees.**

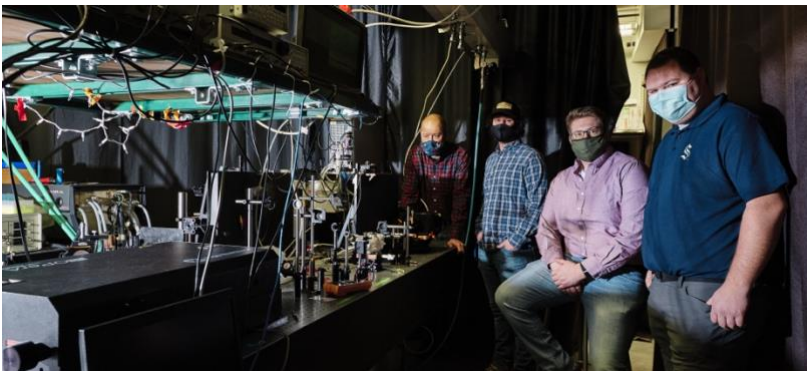


Community Impact

On July 22, 2020, at the request of Governor Bullock, MSU announced a partnership to expand COVID-19 testing for the state of Montana. **From August 2020 – March 2021, Montana State University processed over 191,000 COVID-19 tests.**



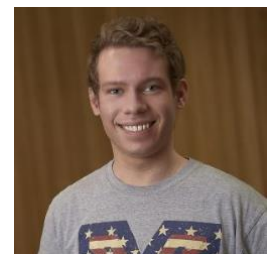
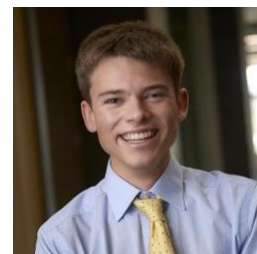
Economic Opportunity



MSU was recently awarded \$3.5 million from the Army Research Lab to develop a new generation of batteries that can hold more power and charge faster while also being safer. The project lead, **Dr. Lee Spangler**, and a large MSU research team will focus on development of solid-state lithium-ion batteries that incorporate novel ceramic materials.

Excellent Education

For the third straight year, four MSU students were named Goldwater Scholars, among the most prestigious honors recognizing undergraduates pursuing research careers in science, technology, engineering and math. **82 MSU students have received Goldwater scholarships**, placing MSU among top institutions in the country in terms of the number of scholarships awarded, ahead of schools like Johns Hopkins, Yale and Cornell.





Community Impact

MSU-Northern faculty **Dr. Terri Hillebrand** and Little River Institute Director **Erica McKeon-Hanson** received funding from Montana INBRE to study the effects of harmful algae growth on public health. Data collected to date provide new insights into the water chemistry of Havre area watersheds and inform ongoing work by Northern students to evaluate public knowledge of the algal bloom problem.



Economic Opportunity

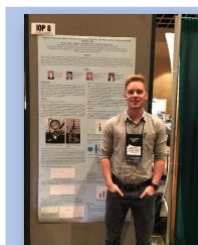


Montana State University - Northern Advanced Fuels Center

The Advanced Fuels Center (AFC) at Montana State University-Northern is focused on addressing the steady decline of manufacturing employment in Montana and slow deployment of sustainable liquid fuels derived from Montana-grown crops. The proposed solution is to build a local biorefinery that can utilize plant oils (e.g. camelina) and convert it to a "drop-in" fuel and fuel blend components. Leveraging MREDI funding, the center has demonstrated that it can produce camelina-derived aviation fuels and chemicals and has received \$500,000 in follow-on funding to develop fuel additives.

Excellent Education

MSU-Northern student **Chazley Hulett** won the Industrial Oil Products Student Poster Award at the American Chemists Society Annual Meeting for his work on aviation fuel research with Northern's Advanced Fuels Center.



Above: Chazley J. Hulett presenting his award-winning research on bio-based aviation gasoline at the 2017 American Chemists' Society Meeting in Orlando Florida.





MONTANA TECHNOLOGICAL UNIVERSITY

Community Impact

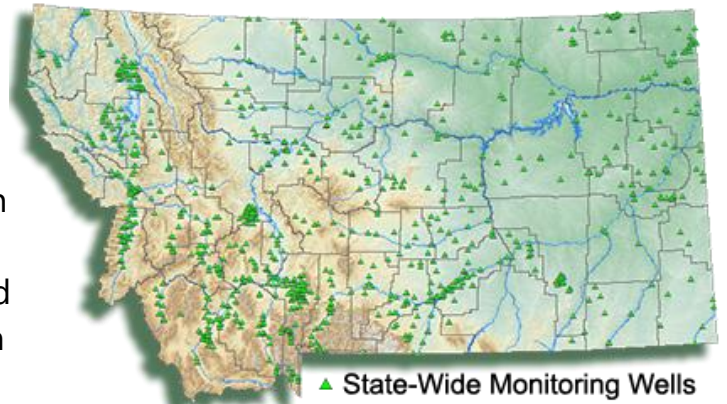


Clark Fork Watershed Education Program

The **Clark Fork Watershed Education Program** provided student outreach throughout Montana through both digital and in-person formats during AY 2020-21. **The program served 2,292 students in 17 communities throughout Montana**; including student summer research opportunity for high school students, extensive outreach for teachers, and hosting a community clean-up month with both Butte and Anaconda in order to bring awareness to Stormwater pollution reaching approximately 1,500 students.

Economic Opportunity

The **Montana Bureau of Mines and Geology**, housed at Montana Tech, provides vital information to the state and private sector on Montana's geology and water. This Spring, the Bureau received \$110,000 to install new groundwater monitoring on the Flathead and Blackfeet Reservations, and in the summit valley near Butte.



▲ State-Wide Monitoring Wells

Excellent Education



Montana Tech's 10th annual Techxpo was the first ever, all-virtual event. **With close to 60 projects on display and nearly 160 student participants, this event offered a first-hand look at the incredible research and design work being conducted by Tech students** across numerous disciplines. These projects were judged by a panel of 20 industry professionals.



Community Impact



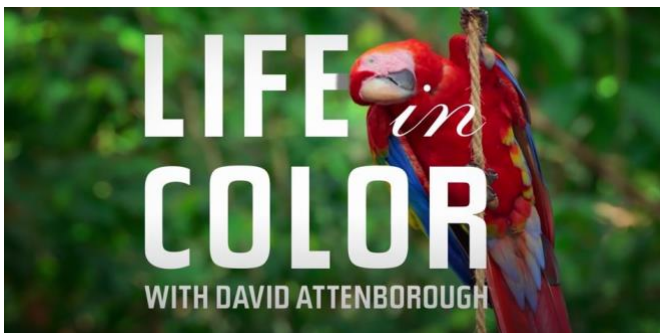
In March, UM announced the creation of the new L.S. Skaggs Institute for Health Innovation (SIHI). **The Institute will serve Montana as a statewide hub for health education, research and outreach to improve access to health care for all Montanans, particularly those living in underserved communities.** The Institute will specialize in pharmacogenetics –analyzing how genetic makeup affects response to medications – providing telehealth services statewide.

Economic Opportunity

The **UM Center for Translational Medicine** received a **\$33.4 million award, the largest in UM's history**, to develop and conduct clinical trials for an Opioid vaccine. **Inimmune**, a spin-out company commercializing technologies developed by the Center, raised \$22 million in Series A funding in June 2020.



Excellent Education



The research of **Dr. Scott Mills**, faculty member in Wildlife Biology at UM, is featured in two episodes of Sir David Attenborough's three-part "*Life in Color*" series just released on Netflix. **The "Hiding in Color" episode features the research of graduate student Marketa Zimova regarding the impact of climate change on ptarmigan in the Cairngorm mountains of Scotland.**

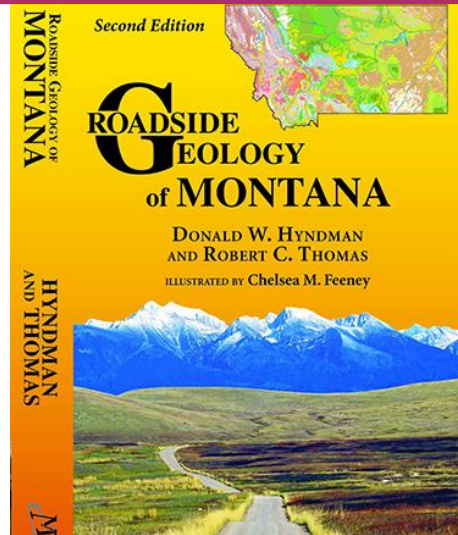




UNIVERSITY OF MONTANA WESTERN

Community Impact

Dr. Rob Thomas, a Professor of Geology in the Environmental Sciences Department, co-authored a long-anticipated update to the popular *Roadside Geology of Montana*. The book is a complete guide to the geological history of Montana and is designed to be used from the state's many roadways.



Economic Opportunity

Montana Western had an increase in grant-supported research during FY21. **Six faculty researchers were awarded more than \$200,000** from the National Science Foundation, U.S. Bureau of Land Management, Montana EPSCoR, and Montana INBRE to support research in climate science, environmental restoration, and microbiology. **A signature aspect of these efforts was the involvement of undergraduate student researchers.**



Excellent Education



Montana Western's Experience One, in which students take a single course at a time, enables faculty to incorporate authentic research experiences into the classroom. Recently, **Steve and Gretchen Burke provided a generous \$250,000 gift to the University of Montana Western in support of the Fund for Experience One**, which supports faculty in creating authentic curricular and co-curricular experiences for Western students.



