

CAMPUS REPORT

DATE: August 15, 2016
TO: Board of Regents
FROM: Donald M. Blackketter, Chancellor, Montana Tech
RE: Campus Report for the September 2016 Board of Regents' Meeting

- The Montana Tech Mining Engineering Department conducted its third annual What a Blast Mining Camp the week of June 19th, 2016. Designed to attract high school students entering their Junior or Senior year to study Mining Engineering, this year's camp included students from Montana, Colorado, Nevada, and Texas. Activities included tours of the World Museum of Mining, the GEM Mountain Sapphire Mine, the Imerys Yellowstone Talc Mine, the Stillwater Mining Company East Boulder Mine, and the Granite Mountain Mine Disaster Memorial. Students also spent a day learning how to drill a production round, load it with explosives, blast it, and muck it out. The students used equipment simulators and learned how to operate a dragline, a pan scraper, and a haul truck for a surface mining operation. Students conducted rock lab and ventilation lab experiments in Montana Tech's Mining Engineering facilities.
- Montana Tech hosted MINES (Making Innovations in Engineering and Sciences) – Summer Camp for Young Women for the third time this summer. Since its inception in 2014, Montana Tech has had 94 talented young women attend from all across Montana and the country. The young women who are selected to attend MINES enjoy field sessions that introduce them to many exciting career opportunities available to them in Science, Technology, Engineering and Math fields.
- MONTANA TECH'S ONLINE PROJECT MANAGEMENT DEGREE RANKED A BEST VALUE - OnlineU, the leader in affordable higher education publishing, has named Montana Tech to its list of 2016 Best Value Online Colleges for Project Management degrees. OnlineU named the 25 best value schools offering online project management degrees based on an academic strength score above 59% and annual tuitions under \$24,000. Montana Tech landed in the No. 4 spot behind Brandeis University, Mississippi State and University of Maryland – College Park. The schools in the ranking offer bachelor's, master's, doctoral, and certificate degrees, providing students with options for an academically rigorous and affordable project management degree at many levels.
- 16 high school students from across the state attended MedStart Camp at Montana Tech of the University of Montana on July 24th – 28th. The Butte camp is one of five MedStart camps hosted statewide by the Montana AHEC (Area Health Education Center) system. MedStart is a week-long program for high school students to explore a variety of healthcare careers. Students have the opportunity to participate in healthcare simulation activities with faculty, job shadow at local healthcare facilities, get a firsthand look at college life, attend college planning sessions, and explore a wide variety of healthcare opportunities.

STUDENT ACHIEVEMENT

- Summer Undergraduate Research: This summer, the campus Summer Undergraduate Research Fellowship (SURF) program involved 18 undergraduates performing 13 research projects mentored by 13 faculty members in eight departments. About 100 people attended the SURF poster symposium held August 2nd, including about 30 people from the community.
- The Montana Tech hockey team had thirteen players selected as 2015-16 Academic All-Americans for the American Collegiate Hockey Association Division 2. To be selected, players must be juniors or seniors with an overall grade point average of 3.20 or higher. The honored players in Petroleum Engineering are: Douglas Abbott Jr., Blaine Bokenfohr, Brett Campbell, Alex Caravaggio, Kyle Ceretzke, Joel Johnson, Myles Martin, Brendan McCaLpin, Colin Russell, Malcolm Smith and A. Brady Young. Kody Wickham from the General Engineering, Civil Option and Metals Fabrication student, Jake Sharon, were also honored.
- The Society for Mining, Metallurgy & Exploration, Inc (SME) and the SME Foundation announced the recipients of the 2016 Ph.D. Fellowship and Academic Career Development Grants. Montana Tech Materials Science doctoral candidate Richard M. LaDouceur is the recipient of a \$60,000 Ph.D. Fellowship grant. The program focuses on rebuilding the U.S. mining school faculty pipeline at universities offering degrees in mining engineering, mineral processing or extractive metallurgy. Richard graduated with a B.S. in General Engineering – Mechanical Option from Montana Tech in 2014 and

started pursuing his Ph.D. that summer in Materials Science. Richard is currently developing advanced models for the separation of rare earth minerals by froth flotation working under Dr. Courtney Young. He will be giving a presentation on his research at the International Mineral Processing Congress 2016 conference in Quebec City, Quebec in September. As part of the fellowship requirements, Mr. LaDouceur will also present at the SME Annual Meetings held in late February of every year until he completes his degree.

- Bridger Hurley, a Montana Tech Metallurgical and Materials Engineering senior from Umatilla, OR, has been honored with The Copper Club Scholarship for the 2016/2017 school year. Typically, five internationally competitive scholarships are awarded annually by The Copper Club, Inc. with the top award being as much as \$10,000. Established in 1994, The Copper Club makes contributions from accumulated excess funds to causes and educational programs associated with the copper industry. In this manner, they assist exceptional students preparing for careers in fields related to all facets of the copper industry including mining, geology, mineral processing and extractive metallurgy. The criterion for the scholarship is academic excellence and need of financial assistance. Since 1999, 12 Montana Tech students have won this prestigious award. Mr. Hurley will receive \$10,000.
- Four Montana Tech students have been named 2016 BP Scholars. The students are: Douglas M. Abbott, petroleum engineering from Butte, MT; Cole Carpenter, mechanical and petroleum engineering from Sidney, MT; Joshua Mirabdolbaghi, petroleum engineering from Butte, MT; and Christopher Smith, geophysical engineering from Missoula, MT. As a BP Scholar, the students will each receive a \$5,000 scholarship and a unique opportunity to visit and interact with BP. The students will be presented with the scholarship at the BP Scholars recognition event on August 4 & 5, 2016 in Houston, TX.
- Zak Kypfer, Sophomore in Petroleum Engineering, presented an important result from his Summer Undergraduate Research Fellowship (SURF) project at a meeting of an American Petroleum Institute (API) task group. The API SC13 TG10 task group is responsible for standards used in testing proppant for hydraulic fracture stimulation operations. Zak and Reid Nelson, Sophomore in Mechanical Engineering, developed the presentation using results from their SURF project, "*Applications of Ultrasonics for Processing and Testing of Proppants*." John Getty, Geophysical Engineering, was the faculty mentor.

FACULTY EFFORTS

- Dr. Glen Southergill's article, "Five Footnotes to 'Lec(ri)ture,'" was published in the first volume (Summer 2016) of *Textshop Experiments* (ISSN 2377-9039).
- Dr. Glen Southergill was selected to serve on the 2017 Technical and Scientific Communication Awards Committee for the Conference on College Composition and Communication.
- Professor Chris Gammons (Dept. of Geological Engineering) received an NSF grant (Petrology and Geochemistry Division) for \$115,905 to investigate: "The Solubility of Iron Oxides and Gold in Acidic Hydrothermal Brines: Applications to the Origin of Iron Oxide Copper-Gold Deposits".
- Professors Steve Parker (Chemistry), Chris Gammons (Geological Eng.) and several Montana Tech students published a paper entitled "Biogeochemical and microbial seasonal dynamics between water column and sediment processes in a productive mountain lake: Georgetown Lake, MT, USA" in the *Journal of Geophysical Research – Biogeosciences* [doi: 10.1002/2015JG003309].
- John Getty, Geophysical Engineering, has been selected to chair the ASTM work group D18.26.03, on Materials for Hydraulic Fracturing. He was asked to chair the group in July while attending the ASTM International D18, Rock and Soils committee week held in Chicago, IL.
- Gov. Steve Bullock gave the final OK for 5 small grants to go toward five small restoration projects in Butte. The Butte Natural Resource Damage Council, which oversees around \$32 million in restoration money, called for proposals last fall and recommended five projects for funding. Governor Bullock recently OK'd the projects, which will amount to \$232,979 in grant money. The money comes from the settlement the state reached with Atlantic Richfield Company in 2008. The proposals include one for Tech professor Grant Mitman — \$48,979 to identify hardy moss species from mine waste areas, grow them into propagation beds and then introduce them back into disturbed areas to initiate restoration. Tech graduate student Mark Mariano also received a grant of \$4,000 to create a GIS model to aid restoration work by calculating more precise locations and habitats for revegetation efforts on the Butte Hill. Details on the five small project proposals can be viewed at the Montana Department of Justice website under the BNRC page at the following link: <https://dojmt.gov/lands/butte-natural-resource-council/>.

- Dr. Courtney Young, Dept Head of Metallurgical & Materials Engineering, is hosting two faculty from sister universities. Dr. Greg Hope of Griffith University in Brisbane Queensland Australia is visiting for two months (July 1 – Sept 1) to work with MatSci PhD student, Simon Timbillah, on his Raman Spectroelectrochemistry of sulfide minerals and novel flotation collectors. Dr. Yasushi Takasaki from Akita University in Akita Japan is visiting for 3 weeks (Aug 11 - Sept 1) to attend the Fire Assay short course with 5 of his students and to observe 4 other classes.

HIGHLANDS COLLEGE INNOVATION

- Highlands College instructor, Dr. Elyse Lovell and Highlands College student, Natasha Gomez Shortnacy, published a refereed article in the academic journal Educational Gerontology entitled “*Negotiating Boundaries with Roots through the Lens of 103 Years: Ageism, Family Balance, and Time.*”
- Highlands College graduate of the Associate of Science Program, Robert Bruner, has been awarded an MUS 2 + 2 Honors Scholarship to attend MSU to study genetics.
- Highlands College student Gradeigh O’Keefe has applied to do a one-year “gap” semester by volunteering in the *Thinking Beyond Borders Program - South America* (Equador and Bolivia).
- Highlands College instructor, Dr. Elyse Lovell and Highlands College student, Katrina Newlon, published a refereed article in the academic journal Community College Journal of College Student Retention Research Theory and Practice entitled “*Community college student-researcher’s real life application: Stress, energy drinks and career choices.*”

MONTANA BUREAU OF MINES AND GEOLOGY ACTIVITY

- On May 25, 2016 Montana Bureau of Mines and Geology hydrogeologists Jon Reiten and Kevin Chandler provided technical interpretations and data to the Sheridan County Conservation District’s Groundwater Reservation’s Technical Advisory Committee. Committee members from the Department of Natural Resources and Conservation, the Sheridan County Planners office, the Fort Peck Tribes, and the Medicine Lake Wildlife considered and then approved two new groundwater appropriations for irrigation.
- Dr. Elizabeth Meredith and Simon Bierbach of the MBMG’s Billings Office presented a day-long workshop to students at Chief Dull Knife College on the Northern Cheyenne Reservation in Birney, Montana. Sixteen students and one instructor learned how to collect representative samples of ground and surface water, measure water levels in wells, and collect streamflow measurements. The workshop was June 13, 2016.
- The Director of the Montana Bureau of Mines and Geology and State Geologist Dr. John Metesh attended the annual meeting of the Association of American State Geologists (AASG) in Girdwood, Alaska, June 12-16, 2016. At the meeting Dr. Metesh was elected AASG Secretary.
- Research Division Chief Thomas Patton attended a Program Board meeting for the National Ground Water Monitoring Network (NGWMN), June 13-17, 2016, in Reston, Virginia. The program board evaluated and recommended funding for 18 proposals and set NGWMN goals for the next fiscal year.
- MBMG Geologist Dr. Kaleb Scarberry gave a public presentation at Lewis and Clark Caverns State Park on June 17, 2016. Dr. Scarberry talked about, *The Boulder Batholith and Elkhorn Mountains Volcanics: Remnants of the Mesozoic Arc.*
- On June 20, 2016 MBMG Hydrogeologists John Wheaton and Dr. Elizabeth Meredith lead a field trip to the Spring Creek Mine at Decker, Montana, for 45 students and 2 professors from the University of West Virginia. The trip included a MBMG-facilitated discussion between the students and a local rancher about water rights, energy production, and irrigation issues in the west.
- Dr. Elizabeth Meredith and John Wheaton spoke to the Lower Musselshell Conservation District Board in Roundup, Montana, on June 21, 2016 about underground coal mine hydrogeology and monitoring.
- On June 22, 2016 MBMG Director and State Geologist Dr. John Metesh accepted an invitation to represent the Association of American State Geologists on the National Water Quality Monitoring Council (NWQMC).
- On June 24, 2016 MBMG Hydrogeologist Alan English discussed, *The Geologic History and Rocks of the Lewis and Clark Caverns State Park* at a forum at Lewis and Clark Caverns State Park. About 20 people attended.
- On July 11, 2016 the Montana Bureau of Mines and Geology and the Montana Department of Natural Resources and Conservation jointly presented, *Montana’s Surface Water Assessment and Monitoring Program* to the Legislature’s Water Policy Interim Committee in Helena, Montana. State Geologist Dr.

John Metesh made the presentation for the MBMG. The database's online map interface offers streamflow measurements for almost 500 sites.

- MBMG Senior Hydrogeologist and Ground Water Investigations Program (GWIP) leader Ginette Abdo presented, *The GWIP nominating and ranking process* to the Legislature's Water Policy Interim Committee in Helena, Montana, on July 11, 2016. Ms. Abdo answered questions about how research projects brought forward by agencies and the public are ranked by the Ground Water Assessment Steering Committee.
- On July 15, 2016, MBMG Director Dr. John Metesh presented the MBMG's Geothermal Program to the Legislature's Energy and Telecommunications Interim Committee during its regular meeting in Helena, Montana.
- The Montana Bureau of Mines and Geology opened public access to its *Surface Water Assessment and Monitoring Program (SWAMP)* database on July 18, 2016. SWAMP was developed in cooperation with the Montana Department of Natural Resources and Conservation and offers access to discharge measurements at almost 500 sites on Montana streams. Contributing agencies include the Montana Department of Natural Resources and the Montana Bureau of Mines and Geology. SWAMP access includes links to streamflow data from about 200 sites monitored by the U.S. Geological Survey.
- On July 19, and August 2, 2016 Geologist Dr. Kaleb Scarberry and Hydrogeologist Alan English led all-day field trips for students attending STEM summer camps at the Montana Learning Center at Canyon Ferry Reservoir, Montana. About 50 students learned about igneous rocks and toured the Adel Mountains volcanic field near Craig, Montana.
- On July 21, 2016 MBMG Director Dr. John Metesh discussed the MBMG's Ground Water Assessment Program with the Legislature's Environmental Quality Council at its meeting in Helena, Montana.
- Montana Tech masters candidate Connie Thomson successfully defended her thesis: *Determining water sources and ages via isotope geochemistry in Big Sky, Montana*, on August 2, 2016. Connie's research was sponsored by the MBMG's Ground Water Investigations Program and her technical advisor was Hydrogeologist James Rose.
- MBMG Ground Water Investigations Program Hydrogeologists Ali Gebril and Andy Bobst attended a meeting of the Jefferson River Watershed Council on August 4, 2016. Gebril and Bobst spoke about how irrigation-practice changes will decrease groundwater flow to the Jefferson River in late summer, when the river near Waterloo, Montana, is often critically dewatered.
- MBMG Ground Water Investigations Program Hydrogeologist Thomas Michalek presented, *Gallatin Valley groundwater and surface water resources* to the Board of Directors of the Gallatin Valley Local Water Quality District in Bozeman, Montana, on August 7, 2016.
- Montana Tech masters candidate Jeremy Harwood successfully defended his thesis: *Investigation of the fate and transport of hexavalent chromium at the Moat Industries site* on August 9, 2016. Jeremy's research was supported by the MBMG and Senior Hydrogeologist Dr. Gary Icopini served on the advisory committee.
- The Montana Bureau of Mines and Geology released Open-File Report 677: *Survey of selected geothermal springs and wells in southwestern Montana*, by Garret Smith and Dr. Gary Icopini; Open-File Report 679: *2015 Annual coalbed methane regional groundwater monitoring report, Powder River Basin, Montana*, by Shawn Kuzara, Dr. Elizabeth Meredith, John Wheaton, Simon Bierbach, and Don Sasse; and Open-File Report 681: *Stratigraphic cross section of upper Mississippian through lower Cretaceous rocks, Judith Basin, Montana to Big Horn Basin, Wyoming*, by Lloyd Furer and Jay Gunderson.