

## MU Geological Sciences Highlights

### Undergraduate Program:

- Our undergraduates get the rigorous quantitative training that employers look for, combined with flexibility to pursue whatever areas of geology interest them the most. Upper level classes are typically small, with personalized attention from experts who are actively conducting research in the subject area, from paleontology and life in extreme environments, to earthquakes, volcanoes and plate tectonics, to mineral, water and fuel resources.
- We have very strong alumni support, allowing us to disburse over \$25,000 per year to undergraduate majors with a GPA  $\geq 3.0$ , with individual scholarships ranging from \$200 to \$2,000 per semester, depending on GPA. Alumni support also allows us to provide up to \$3,000 per student in research expenses if they conduct senior thesis research with a faculty member. Research experience is an advantage when applying to graduate school (see projects below).
- The BS capstone is an award-winning 6-week summer field camp in western Wyoming, with a range of advanced projects to choose from. Elective classes include Study Abroad field trips that have visited China (2010), Chile (2014) and Spain (2016).
- Working as a professional geologist typically requires a graduate degree, so many of our students go on to top graduate schools around the US. Others go directly to jobs in industry (such as oil and gas, mineral exploration, environmental and geotechnical) or with state government (e.g. Department of Natural Resources, Department of Transportation).
- Our department is big enough to be comprehensive but small enough to be friendly, with about 70 majors, 30 grad students and 12 faculty. The MU Geology Club organizes regular outreach events, like the annual Youth night (attended by 200-300 kids), as well as caving trips and social activities.

Examples of current and recent undergraduate research projects:

- three-dimensional laser scanning and X-ray tomographic volume scanning of the type specimen of *Machaeropsopus andersoni*, a phytosaur from the department's collection
- extremely high resolution mapping of lava flows using an unmanned aerial vehicle (UAV)
- imaging the nature of mantle convection beneath very young mountains in Turkey using measurements of seismic anisotropy
- estimating the temperature change cross the Cretaceous-Tertiary boundary using isotopic analyses of fossil fish
- comparing field estimates of lava rheology with laboratory measurements at high temperature
- determining the effect of sulfate on the stable carbon isotopic composition of methane in freshwater lakes
- searching for magma chambers in central Turkey by looking at the speed and attenuation of seismic waves recorded by small earthquakes
- studying methane oxidation in man-made lakes
- analyzing the composition of tiny droplets of ancient groundwaters trapped in crystals to better understand how the giant lead-zinc deposits in southern Missouri formed
- measuring the thermal properties of metamorphic rocks to improve models for the temperature and strength of the Earth's lower crust