

Preparing Students for Careers in Geology at NWMSU

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PREPARING Geology students at Northwest

The processes that we use to prepare students at Northwest for careers in geology and related fields are embedded in the coursework and field experiences from freshman level up through their final term. In our general education courses, Earth Science and General Geology, we build a solid foundation for scientific inquiry by engaging students in the classroom with compelling examples while presenting content with relevancy to our students and the world in which they live. This engagement needs to come from a certain level of expertise and credibility, as established by the instructor and reinforced by the instructor's actions and the verification by other faculty and students. The expertise and credibility comes at both the group level and with individual interaction. At the group level, or in a classroom setting, our faculty members share their own experiences, but even more importantly, the scientific experiences of students that have worked with them.

As our program has grown over the past 5-6 years we continue to build on a model of cyclical learning. This cyclical model starts with some knowledge in the classroom setting. That knowledge is then applied and expanded in a laboratory setting. The next step expands those experiences and draws on that knowledge in the field setting where the bigger picture becomes clearer and new pieces of information arise. That additional information is then taken back into the classroom, but now, the students are able to link a personal experience to the knowledge and that promotes a sense of relevancy. Not only does this new knowledge come back with the students but it gets added to the course through the use of photos or samples to improve the course the following year.

In addition to the geology courses, many of our students assist with introductory labs either as a teaching practicum or as a paid teaching assistant. Students may take on this increased level of responsibility as early as their sophomore year where they are guided through helping others to learn the Earth science content in an interactive setting.

After asking our current students, we found that there are some key factors that play into their success that do not take place in the classroom. One of those things is the investment of time and interest. For example, taking a few minutes to stop and talk with students in the hallway. Those short (or occasionally long) discussions build a support system and "family" atmosphere where you know you are welcome and valued for your input. It is also a degree of accountability so that students have some personal reminders of the high expectations we have for them. This "family" atmosphere is further strengthened with field trips. We have field trip opportunities ranging from a 4-day fall field trip, to a single day course field trip, to a 17-day study abroad field trip. The number of students attending these field trips has ranged from 10 to 25 and usually consists of a mixture of upper level and lower level students. It

is on those excursions, that the value of the program is shared between students at different levels.

The following quotes are from a current student and an alumnus

Cody Nichols, Senior Geology and Chemistry Major

"I love that geology immerses you in your field of study through hands-on and field experiences."

Nathan Schmitz, Mining Geologist

"I graduated from Northwest Missouri State University, and I consider higher education the key to not only the future of Missouri, but the future of our nation. Northwest has always been at the forefront of innovation, with going green, alternative energy power plant, laptops for students, and textbook rentals. I can speak for the geology program from which I graduated in 2011. I can say without a doubt that some of the best educators and people I have ever met are within the walls of Garrett-Strong science building, teaching students to the best of their ability, right now."

PLACEMENT and EMPLOYMENT

Our undergraduate placement rate, in jobs in the field or in graduate school, within 6 months of graduation is annually at 100% among those graduates actively seeking employment. On average 30% of our graduates attend graduate school. Most of those attending graduate school in the last 10 years have done so at minimal cost receiving both tuition waivers and teaching or research assistantships.

Employers that have hired Geology graduates from Northwest Missouri State University:

- Terracon
- Burns and McDonnell
- Black and Veatch
- Resolution Copper Mining
- Freeport McMoran Copper and Gold
- Iowa Department of Natural Resources
- U.S. Geological Survey
- National Park Service
- EPA
- Alpha Natural Resources
- Baker Hughes Inteq
- URS Corporation
- Rio Tinto
- EOG Resources
- Numerous Environmental Consulting Companies