

Statement of Teaching Philosophy

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The link between the theory taught in the classroom and the application of a field-based or lab exercise that illuminates that theory is one of the great benefits to undergraduates studying geology. During my own undergraduate career at Middlebury College, courses were designed with field-based labs once a week that presented a real-world example of the theory we had learned that week in lecture. The labs gave students a chance to understand the difference between the ideal examples presented in lecture and what geologists are likely to encounter in reality. Since the University of Iowa does not have hard-rock outcrops within an easy drive, for petrology labs the students are given a variety of rock samples and a map with the sample locations, on which they are expected to draw geological contacts based on the lithologies and locations. Based on these maps and material from lectures, the students then derive a geological history for the region. Students are strongly encouraged to participate in winter and spring break field trips to gain field experience, but the labs provide a valuable stepping-stone between the theoretical knowledge gained in lecture and the reality of geologic research.

As part of the process of relating the theoretical to the practical, I believe in small research projects either with the entire class or small groups in upper division classes. Original research projects give students a chance to perform “real science,” which provide the students not only with a better understanding of what it means to be a geologist, but also a sense that they have contributed to our further understanding of how the planet works. The students learn how to formulate a problem, decide on how to gather data, process the data and draw conclusions in contained environment that they can then apply to senior capstone projects or graduate work, should they chose to continue on. In-class projects can also be stepping stone for students in encouraging them to choose to do further independent research projects.

At the introductory level, I use an overarching theme -- how different geological phenomena would impact a choice of where to build a house or what kinds of farming would be successful in a given area to link the diverse sections of the semester together. When I taught Physical Geology at Western Kentucky University, the students were a mixture of civil engineering, science teacher education, geology and geography students from a variety of educational backgrounds, but almost all of the students had lived in a rural area and could relate to where to build a house and what to plant. The goal was not to convert all the students to geology majors, but to provide the students with a basis in science literacy that they could apply to the world around them.

My teaching goal is to construct a link between the theoretical knowledge students gain in the classroom and its applications to the broad field of geology for majors and to daily life for non-majors.