

## Statement of Teaching Philosophy

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For each teacher, the methods behind their teaching have deeply personal roots. Every teacher has been a student, and we've all thought at one point that we could teach a topic in another, more interesting way. My goal as a teacher is to not only facilitate the rote memorization of facts, but to develop my students' ability for critical analysis and practical application of their knowledge. Facts are nothing more than facts. The next generation of geoscientists needs to become active participants in the field, the sooner they are, the more successful they will become.

As a student I was given the gift of great teachers. Whether in high school or college, a majority of my classroom experiences were positive. It was in college that I realized the importance of a student's learning style. In the early years of my education in geosciences at SUNY Geneseo I was given the opportunity to teach Physical Geology Labs (which I myself had only taken the previous year). It was here that it became clear not every student learned in the same way. At approximately the same time I was taking a course entitled "Dimensions of Teaching." It was here that I was introduced Howard Gardner's concept of multiple intelligences. The varied ways in which the mind develops can lead to a variety of learners. In my own teaching I have tried to incorporate methods that were not strictly lecture or lab. Instead I would foster discussions in student lab groups and provide additional visual aids to those presented in the text. To this day, my teaching of brittle and ductile stress responses must be taught with silly putty and wooden dowels. My recognition of multiple intelligences allowed me to grow as a teacher and a student.

Perhaps one of the most important learning experiences in my undergraduate education was my involvement in my advisor's research. Completing field work, processing samples, photographing specimens on an SEM, and writing papers based on my own research instilled in me a desire to continue with my graduate education. It has also created in me a desire to share the same experiences with undergraduate students. My commitment to undergraduate education has led to bringing an undergraduate in the field for training and experience during my own field work.

As a teacher I have constantly tried to develop new methods to reach my students on difficult subjects. The first time I lectured on Global Warming my students were tuned out and did not learn any new material. I was determined that my students would learn about global warming the next time. I had the students survey 5 students in their dorm about the definition, causes, effects, and solutions to global warming. The students then wrote up a brief report explaining their findings and comparing it to the material presented in several textbooks. Not surprisingly, most students found that public opinion on global warming was political. When it came time to lecture on the topic we first deconstructed the political ideas surrounding global warming and then built it up on a foundation of science. The student response was positive, and their understanding of the topic showed well on their final exam and course evaluation.

I have also found an open line of communication with my students to be very valuable. In my large lecture course I use WebCT to provide my students with resources. The best use of WebCT has been the discussion forums. Here I have an

anonymous Q&A forum where students can pose questions about the material without the fear of seeming stupid to the other students, and I can reply in a place that all students can benefit from both the question and the answer. WebCT has allowed me to expand the educational process beyond the classroom, and beyond the class time.

Each course I teach is self-evaluated for effectiveness. I think of learning at three simple levels (an abbreviated version of Bloom's Taxonomy). The first level of learning is the building of a knowledge base. The second level of learning is developing the ability to draw connections between different topics. The third level of learning is application of knowledge through inquiry or practice. In teaching a 180 student introductory lecture it is all too easy to be satisfied with developing a knowledge base. Those that do this are underestimating the ability of their students to learn. Typically I try to get the students to at least begin building connections. Those students who show abilities beyond connection building in an introductory course I try to foster with detailed extra credit activities. This is the group of students I have had the most success in converting to the sciences or geoscience.

When assessing a course I go beyond the simple "Would you recommend this teacher?" At the end of each semester students take a post examination covering the expected learning outcomes on the syllabus. These are open ended, short answer questions. Their performance here speaks to the amount of knowledge they have gained and their ability to apply it. This allows me to see how well the course has worked beyond simple multiple choice exams and college administration evaluations.

I am not teaching geosciences simply because it is my study area and it pays the bills. I am teaching geosciences because it has the potential to be a gateway into the sciences for a student still shopping around for something to do in college. Science is all too often thought of as the pinnacle of intelligence, unachievable for the everyday American. While I believe it is true that some people will experience great difficulties in learning science, most everyone can be successful at least at the introductory level. Geoscience is a broad field that involves the basic understanding of chemistry, biology, physics, astronomy, and mathematics. A successful introductory course may show a student a pathway they never thought they could follow, or even show a student that they are more interested than they realize in the world around us.

Teaching geosciences is not a job for just anyone. The successful teacher in geosciences will utilize their passion for the subject and material as the primary tool to interest the students. Once you have the students' interests using lecture, lab, and critical thinking activities will entice the students to learn more about the Earth they are so effectively bound to. The great questions of life can all be boiled down to our existence on this earth, and the teacher who doesn't use this to reach their students is the teacher who never reaches their students. When you get a student to realize that there has always been a world of wonder at their fingertips it is the best feeling in the world. What drives me to teach can be summed up in one line in an e-mail from an ex-student who e-mailed me at 1:35 in the morning after seeing the Geminid meteor shower during finals week. "Words like 'incredible' or 'fantastic' don't even begin to do it justice...I just wanted to let you know how excited I was about it (e-mail from Logan Carver in December, 2004)."