

MY TEACHING PHILOSOPHY

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If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea. –Antoine de Saint-Exupry

My passion for learning about the world around me has been cultivated by a long line of teachers, starting with my farming grandparents and extending to my mentors in graduate school. These teachers not only passed on factual knowledge, but also gave me the tools to learn on my own, the curiosity to push through obstacles, and the desire to become a teacher for others. Through my experience both as a student and a teacher, I believe that the best teachers are not only engaging, challenging, and knowledgeable, but they also understand that enthusiasm fosters motivation for lifelong learning.

Passion, enthusiasm, and curiosity about a topic not only makes learning easier, but it also can motivate students to then learn for themselves and push through challenges. I have incorporated this in my classroom by being transparent about my own enthusiasm and by building in room for content modification based on student interests. For instance, while instructing Tree Physiology at Auburn and teaching about how dendrochronology depends on seasonal fluctuations; a student asked me how equatorial forest trees are aged if they do not have seasonal rings. After admitting that I did not know the answer at that moment, I developed a lecture component for the next class period to explore this question with a high level of student engagement. Adaptive lecturing such as this stimulates interest and supports learning by scaffolding new course content with students' personal experiences.

Active learning has a rich body of evidence to support its effectiveness, but my personal motivation for active learning in the classroom is to provide a sense of discovery and accomplishment absent in a formal lecture setting. In particular, enthusiasm is nurtured through self discovery, as students work on challenging problems in a supportive environment and then reflect upon their accomplishments. This transformative learning experience can be established through in-class exercises. One of my most successful experiences with this occurred when peer teaching statistics in a graduate level meta-analysis class at Auburn. I developed a spreadsheet handout that guided students step-by-step through the calculations of two common meta-analysis models. Evidence of the effectiveness of this exercise was provided when the students successfully answered questions about the models' assumptions and accurately predicted outcomes not directly taught in the introductory lecture.

Peter F. Drucker, a notable educator and writer, is famous for saying: “No one learns as much about a subject as one who is forced to teach it.” I believe that active learning situations are strengthened with peer instruction, which can be implemented with formal activities such as student lectures and presentations or integrated into everyday classroom discussion. Being able to teach and explain content to others requires a higher-order level of

cognition beyond memorization and it further provides a chance to stimulate creativity, which is difficult to teach directly but imperative for scientific inquiry. One of the simplest ways to encourage peer instruction is to allow for full student-to-student discussion when a question is raised during lecture, rather than just answering the question directly. Furthermore, I plan to incorporate peer teaching opportunities for my students by assigning discussion leaders for large- or small-group journal discussions, particularly in advanced courses. As students adjust to reading research articles and scientific writing, it is beneficial for one or two student leaders to become experts on the paper. They can then explain its details, provide relevant background information, and guide the discussion.

Another way to facilitate peer-to-peer learning is through peer-assessment. As an co-instructor for Statistical Modeling of Ecological Data using R and WinBugs/JAGS (University of Minnesota), we developed a two-part peer-assessment technique for grading homework assignments. Students first individually assessed one of their peer's assignments using a calibrated rubric with examples for each criterion and associated point level. Then, groups of 3 or 4 students conferred with each other to compare assignments and finalize grades. Finally, students reflected on their own assignments in comparison with others that they had reviewed. Based on student survey responses, we found that the peer-assessment process increased student exposure to alternate ways to approach the assignments and some students considered it a highlight of the class. For example, one student said "I really like seeing how other students solved the problems. It is definitely one of the aspects of the class that helps me learn the most . . ." We report more on our approach to using peer-review for summative assessment in a forthcoming publication (ArchMiller et al. In Review).

Finally, I believe that enthusiasm for learning is supported by direct student-teacher interaction; student learning does not all happen within the classroom and neither should teaching. Based on a humanist perspective of student learning, trust and security are fundamental prerequisites for classroom learning and motivation. Thus, building rapport between students and faculty is important before learning will take place. As a teacher, I prioritized a few small actions that nurtured trust, including quickly learning and using students' names, arriving to class early and staying late to talk with students and answer questions, and sharing personal anecdotes and experiences with the class. As a future faculty member, I will develop relationships with students outside the classroom; such as by participating in campus events and as a mentor for student organizations. Finally, undergraduate research in my lab will not only provide an opportunity for students to learn through authentic problem-solving, but it will also help develop a close, collaborative relationship between my students and myself.

In conclusion, my teaching philosophy is evolving through early career experiences; exposure to pedagogy (e.g., Preparing Future Faculty Program, Seminar on College Teaching, professional development seminars); and by observing many excellent teachers from the student's perspective. I believe that my responsibility is to provide the best learning environment that I can, and I hope to continually strengthen my teaching strategies with more direct experiences, through collaboration with other faculty, and with the flexibility to change when I have failed to meet my students'—or my own—expectations.