

Teaching Philosophy

Earth science education reaches beyond the simple dissemination of knowledge; it sparks curiosity and empowers students to perceive, understand, and responsibly act within the natural world. Students learn best when they can incorporate subject matter into their own lives and cultures (Ladson-Billings, 1995). Thus, my primary goals as a teacher are to:

1. offer student-centered activities that foster creativity and critical thinking by highlighting personal stakes, and
2. provide students with the practical skills necessary to synthesize interdisciplinary concepts and tackle real-world, multifaceted problems.

Teaching Approach

While my primary goals remain constant, I continually learn from my students and update my approach to be more student-centered (Cornelius-White, 2007). I devote time in my first class session to discuss our background, interests, and expectations. I also have students self-assess their ability to perform the course-learning goals and define their personal goals for the course. I then tailor class activities to individual student needs and goals. For instance, to accommodate a student who is deaf, I incorporated more dynamic visuals and consciously used more hand motions when speaking in class. These small, but significant, adjustments ultimately benefitted all my students. I also support individual student goals by offering flexible activities. I often ask students to relate a scientific topic discussed in class to another field of their choice, such as policy or economics, through a variety of different mediums, such as a traditional science paper or a journalism piece. The students take responsibility for what and how they learn and hone skills they need in their unique life trajectory. Throughout the course, students revisit their self-assessments and personal goals to track their progress and redirect their learning strategies if needed.

My students are given ample opportunities to reflect on their own lives in class. When I led a class session on delta sedimentation, land subsidence, and human impacts, I structured the lesson as a historical story of the Mississippi River Delta. At the end of the lesson, students wrote and discussed questions that they would want answered before buying property on a delta. The students, who were predominantly non-science majors, visualized how sedimentary geology played into their own lives and demonstrated how they could utilize this new knowledge. Immediately after class and in the post-term evaluations, several students asked that future classes be led with this same inquiry-based style of instruction (Justice et al., 2006).

After taking my course, students will have learned and refined practical skills they need to act responsibly within the natural world. One way I work toward this goal is by leading students on local fieldtrips. On a trip to the Duwamish Waterway, a superfund site that has been partially restored, I share only a brief history of the region. I then ask the students to survey their surroundings and answer questions like “If you were restoring this site, what structures would you build to stabilize the river banks?” and “Do you see any evidence of other methods that reduce erosion?”. By following these guiding questions with peer discussion and a synthesized summary and explanation (Smith et al., 2011), students learn how to act responsibly within the

natural world by independently recognizing and synthesizing observations of geologic processes and human impacts.

Flexible assignments and group discussion allow me to qualitatively assess student comprehension. To assess individual students more robustly, I assign multiple quizzes and take-home problem sets. These assignments are not designed to test a student's rote knowledge. Instead, they evaluate a student's ability to evaluate and elaborate on topics covered in class. For example, students may be asked to look at an aerial image of a shoreline, use visual cues to assess processes that have been discussed in class, and then choose areas they think would be most at risk during a particular storm event.

Mentoring Experience

My first responsibility as an educator and mentor is to create an inclusive and supportive atmosphere both in and beyond the classroom. As the instructor of a graduate-level science-communication course, I began every session with an improv game. Enthusiasm and energy are contagious. These games allowed all of us to confidently take risks, experiment with presentation styles, and grow as a supportive team (Rossing and Hoffman-Longtin, 2016). After this course ended, I continued to support my students by facilitating a speaker series at Town Hall Seattle for them to execute the public-speaking skills they practiced in class.

In addition to course-related mentoring, I served as the senior-thesis adviser for one student and trained and mentored her in experimental design, data collection and analysis, and thesis writing. This collaboration culminated in her presenting at two research symposiums. I have also mentored three students in my research laboratory, teaching them laboratory methods, effective data management, and collaborative research skills. Partnering with undergraduate researchers with diverse backgrounds and goals has strongly benefited my own approach to research and teaching. I am committed to providing a professional, respectful, and supportive environment for all students who would like to conduct research under my mentorship.

Commitment to Improvement

After leaving my classroom, students should see themselves as scientists who can recognize environmental processes in their daily lives and actively respond as an educated citizen. As a scientist, an educator, and, above all, a lifelong learner, I emulate what I teach. In my classroom, I observe and recognize my students' interests, expectations, and achievements. Outside of my classroom, I educate myself on best teaching practices by participating in pedagogical workshops and seminars. I ultimately synthesize these observations and concepts to conquer my own multifaceted puzzle: how to continually become a more effective educator and mentor.

References

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