

Teaching Philosophy

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When I first started studying environmental engineering in college, I knew very little about all the challenges that engineers face in the real world. Many times, the classroom seemed rather disconnected from the complex and dynamic environment where I could picture myself as a professional. However, some of the great instructors I had were able to transform that formal classroom setup into an exciting and realistic learning experience, and they made me realize the importance of those subjects to the development of skills that were critical to my profession. Ever since I decided to pursue an academic career, I have pondered how I might evoke in my students the same enthusiasm I felt many years ago. This question may not have a simple answer, but on my journey to understand what can inspire students to learn, I discovered several strategies that I incorporated into my teaching philosophy.

To gain knowledge on the scholarship of teaching and learning, I completed a College Teaching Certificate program during my PhD. Understanding how students learn and retain information has helped me design instructional and assessment activities that are more effective and valuable to long-term learning and design methods for feedback that can promote a growth mindset. When I design new courses, I implement backward design, a learner-centered framework that consists of defining the learning outcomes, planning assessments that provide evidence of mastery of the outcomes, and finally, planning learning activities that will help students achieve the outcomes. The results of this approach are well-aligned course elements that will create an intentional learning experience for the students.

In my lectures, I want my students to have a taste of the real-world experience, and my courses should serve as a bridge over which students will cross from a student-oriented experience to a professional engineering experience. My courses involve work performed in teams. Due to the complexity of real environmental problems, a satisfactory result can only be achieved through the input and collaboration of all the team members. I strongly believe that collaborative learning can positively impact how much students can learn and retain due to the possibility of discussion with their peers. In addition, students can help each other to learn by explaining things from different perspectives while improving their critical thinking skills and achieving a higher level of comprehension and problem-solving. In my courses, students use the knowledge acquired in their previous classes combined with new concepts to interpret a problem, propose different solutions, analyze alternative ways to solve the problem, compile the results, and lastly, evaluate the alternatives to make a final recommendation to solve environmental problems. Different assessment methods are used in my courses to acknowledge the variety of skills that a student may have. Students will be evaluated based on their performance on exams, homework, and teamwork including reports and design problems.

I strive to create a space that is accessible and that can be adapted according to specific students' needs. For that, I am constantly participating in professional development activities to learn how to implement new tools and strategies that enhance the learning environment in my classes. To ensure that students are developing skills that are relevant to the environmental challenges in our community, I consult with professionals in the field to improve the learning outcomes for my courses. Ultimately, my goal as an educator is to inspire students to use their skills to benefit their communities and become lifelong learners.