

Teaching Philosophy

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Teaching and learning are reciprocal processes. Individual teaching excellence can be defined as a faculty member's ability to engage students while simultaneously learning from her students. This two-way street is an essential aspect of teaching and it is a critical component in an active, enriched learning environment. The relationship between student and teacher not only promotes academic excellence but also serves as the platform for the development of critical thinking and communication skills.

The process of learning chemistry is a multilayered building project. First, a foundation of fundamental principles must be built (such as atomic structure and rates of reaction) followed by the first layer of bricks that includes elements, their properties and basic bonding structures. We then work to construct our building upwards through an understanding of complex bonding and chemical reactions. Finally, the macromolecules including DNA, polymers and plastics can be understood. We now realize, as teachers and students, together we stand atop a tower of knowledge that allows us to see the world around us through a different lens. Our new view of the world stems from the little building blocks we began setting in our foundation. The ability of both teacher and student to participate in the building process creates and enhances the reciprocal relationship between the student and the faculty member. The way in which students and faculty learn enables us to communicate knowledge to each other in small blocks, one at a time, with each block building on the previous ones, just like in chemistry, one reaction at a time.

The student-teacher relationship defines the educational experience for both parties. The traditional classroom setting is the common building site for my classes; however, within that classroom I have developed different approaches and 'building' techniques to engage all student learning styles as we construct our chemical building. Traditional Socratic methods of teaching combined with interactive questions, modern POGIL (Peer Oriented Guided Inquiry Learning) and JiTT (Just in-Time Teaching) offer my students the opportunity to learn both from me directly and from each other in a cooperative learning community. Developing this community through these pedagogical methods in both my lower and upper level classes for both major and non-major courses is essential. In addition, I developed a curriculum to tailor the course materials to the interests of the individual group of students for the non-science majors' chemistry course. This curriculum allows me to incorporate student interests into my overall course goals. It creates an engaged learning community that prepares students to be active informed citizens of the world.

Though much teaching is done in a classroom, it is important for me to show students at all levels and abilities how chemistry works in practical situations. The laboratory setting offers an environment for students to experience chemistry and is an essential part of any chemistry curriculum. The integration provides students with a way to read, to listen to, and experience, the science that they are learning. The lab sparks intellectual curiosity. Laboratory experiences in combination with the in class material can be used to fuel students' interest in world and current

cutting edge experiments and research. Encouraging these observations and fostering this excitement is one of the reasons I truly enjoy teaching students and want to be more involved in training the next generation of scientists. In addition to opening students to the broader scientific community, I take the opportunity during the lab to learn what piques a student's interest and then I try to incorporate these features and learning styles into my teaching.

To teach is to mentor and to mentor is to teach. Faculty and students should participate in conversations outside the classroom. It is important to have time to discuss and encourage constructive arguments about questions on course material and laboratory results in order to provoke intellectual thoughts, critical thinking and communication skills. It is an important goal for students not only to learn and comprehend course material but also to learn to critically question these experiences and their applications to the world around us. Challenging scientific ideas is what makes learning exciting; students will leave my course with the skills necessary to question why chemistry works and how it affects us every day.

In summary, I believe the process of education is interactive and promotes a reciprocal relationship between the student and the teacher. I will learn more how to effectively teach chemistry by teaching my students the core building blocks of the science and encouraging them to question the science, while also listening to their feedback formally and informally. Together we will form a cooperative engaged learning community.