

When done correctly, teaching is one of the most dynamic professions. It requires teachers who are so well versed in an area of knowledge that he or she can facilitate the synthesis of concepts, continuously make connections across fields, and discuss the blurred lines between them all in a classroom setting. During instruction, teachers must not only focus on their phrasing and delivery of ideas, they must also predict how their students are interpreting and internalizing information. Particularly in the STEM classroom, I feel that it is important to 1) vary the methods of content delivery based on the level of the course, 2) set and uphold academically rigorous standards, 3) ensure students are aware of all available university resources: tutoring services, health services, counseling services, office hours, etc., and 4) advocate for your students when appropriate. It is my view that developing and maintaining a teaching philosophy based on these four broad statements will facilitate strong instruction both inside and outside of the classroom.

Varying the Methods of Content Delivery

Often, the range in skill among students is quite erratic in introductory courses. Courses such as “Physics I” or “Calculus I” are commonly offered as Advanced Placement course sequences in high school but students fail to score high enough on their AP exam, thus no credit for the course is given at their collegiate institution; these students tend to do quite well when retaking the course in a university setting due to their base of previous knowledge. On the other hand, students who begin college without adequate preparation will also be enrolled in the same courses; these students tend to struggle more frequently. For these reasons, I spend time compiling a list of online resources such as: websites that have detailed examples of concepts, online videos, “open courses” hosted by other institutions, etc. I organize these resources to follow the course chronologically and make them available to students in an online repository. I feel that instruction should involve supplementing lectures with images, short in-class videos, small intervals of allotted time for guided peer discussions among students, and (when possible) in-class demonstrations. Content delivery in multiple modalities provides students with additional information that can be used to make connections between concepts already learned; this process is useful in introductory survey courses as it provides students with several ways to understand and internalize the fundamental concepts that are crucial to further study in the field.

In upper division courses, the skill set among students is more uniform and requires less variation in content delivery. At this point in their education, students should have learned to adapt personal study techniques and fully utilize all academic resources (this includes office hours). It is often the case that senior and graduate level courses require so much abstraction that media may become ineffective at supplementing content.

Setting and Upholding Academically Rigorous Standards

It is the responsibility of the faculty member to protect the academic integrity of the course that he or she teaches. This requires a faculty member to define standards and expectations within the course syllabus and discuss them with students on the first day of class. All courses, no matter the level or skill of enrolled students, should be designed with the appropriate academic rigor in mind.

For this reason, I construct periodic problem sets that begin with single-concept tasks and conclude with a small number of applied tasks that require synthesis of some or all presented concepts. This may include content addressed on previous assignments or in previous lectures. When possible, my exams are also similarly constructed; Since these exams may contain one to two challenging items, I incorporate a method of exam corrections for more challenging exam items. Additionally, multiple extra credit opportunities are also provided which involve submitting reflections on various topics within the discipline. I have found that this format of assessment requires a certain amount of instructor-student transparency; students should be reminded throughout the semester that expectations on problem sets and exams are high, but an above average grade can be maintained throughout the course by completing exam corrections and extra credit assignments.

Setting high standards in the classroom must be done on the first day of the course. Being upfront and direct about what is expected from students is crucial but it must be accompanied by reassurance that adequate resources will be provided to facilitate success. I expect students to attend lecture (although I do not enforce attendance unless required by the department or institution), utilize my office hours, and attend available tutoring services as needed. Therefore, I often supplement required office hours with an additional “open door” policy: If my door is open during a time other than scheduled office hours, students may consider this time as open office hours. However, I ultimately reserve the right to turn away students during these times. In my time teaching, I have found that maintaining high standards will push more students to success in future courses.

Promoting All Resources Available to Students

It is easy to forget the complexities experienced by undergraduates as they become familiar with the academic setting, living more independently, and planning for the future. I ensure that all the available resources are listed in my syllabus and are also addressed during the first day of the course. These include my office hours (as well as my above policy), how to access the university’s counseling center and health services, and information about tutoring services offered by the department or university. I feel that it is important for students to understand that I am available for more than just answering questions about coursework; I can provide academic and career advice, help understand administrative departments within the university, and (sometimes) provide general advice about “life”.

I strive to maintain organic relationships with students in which they see me as professional and authoritative yet approachable; this requires dynamic interactions both inside and outside the classroom. Maintaining an open line of instructor-student communication is important for student success in both academics and in the overall student experience.

Advocate for Students

Lastly, I believe that it is incredibly important to act as an advocate for students when necessary (and appropriate). It is oftentimes easy to not aid students who are struggling with an academic or personal issue however, a simple act of outreach can make an impact. Aiding students does not have to be limited to only those who are struggling; Encouraging involvement in faculty-led

research is not something that should only be focused at graduate students. Many strong undergraduates are curious about their respective fields and are seeking ways to make an impact, but they are not aware of research groups that they can become a part of. Therefore, I try to highlight research being conducted by other faculty while emphasizing the fact that undergraduates can contribute as well.

Providing overall encouragement to all students can help facilitate a feeling of growth as well as bolster a positive professional relationship. Ensuring that students see you as their instructor who also is an “ear to listen” can provide students an avenue for dealing with a wide array of problems; Furthermore, this helps dispel the idea that university faculty are “aloof”, “stuffy”, or “boring”.

My Passion for the Classroom

University faculty have a unique position in that they get to not only work in their craft every day, but they also get to share it with the world through the classroom. I have greatly enjoyed my role as instructor in both high school and college courses; watching students grow personally and academically while studying in my area of expertise is especially exciting. Although it feels like a daunting task at times, being partially responsible for the growth of an individual (although for a brief amount of time) is quite the rewarding feeling.