TEACHING STATEMENT

Tracey Oellerich (toelleri@gmu.edu)

My teaching career started at my undergraduate university where I worked as a teaching assistant for beginning physics labs and obtained a minor in secondary education. With the skills I gained there, becoming a graduate teaching assistant (GTA) was an easy transition. As a GTA, I instructed complimentary recitations for Calculus (I, II, and III) courses. Following this, I proceeded to teach as instructor of record for courses ranging from Linear Math Modelling to Introductory Business Calculus to an advanced Numerical Analysis course. All of these experiences have been vastly different and required different skills, they all provided valuable experience that has shaped my teaching philosophy. I believe student success is rooted in student motivation, providing opportunities to succeed, and adaptation in teaching style. As a teacher, I am not exempt from learning myself; it is important to continue learning about new teaching practices and responding to student feedback.

Student Motivation

I act as a guide and resource for students but I cannot make them learn the material, they must choose to. Hence, it is imperative that students are properly motivated. The motivation to learn the material varies by learner but the most common motivation, especially in lower-level courses required for most majors, is a passing grade. In order for most students to excel, they need practice beyond what can be graded in a typical class style. Finding the will to do this work with no reward is a struggle most students face, so I incorporate these optional assignments into my classes to make them worthwhile. In classes I have taught, I construct study guides featuring examples of problems I could ask on exams. On the first exam I asked several problems which contained a similar structure as those on the review. When students saw the benefit of practicing on these problems, I saw an increase in the second exams scores as more students spent longer practicing, even if I did not include any problems from the review.

Opportunities to succeed

Not every student will grasp the material in their first attempt, nor will they have an infinite amount of time to dedicate to learning the material before being tested. Providing multiple opportunities for students to succeed can help improve their overall grade while not becoming a large burden on their time. This can be done in a variety of ways. For more technical courses such as Linear Math Modeling and Numerical Analysis, I have given students the opportunity to correct mistakes (on both projects and exams) for partial credit back in order to learn from their mistakes. Furthermore, by allowing students the option to attempt the problems again, I gained insight into what students' struggled with without a time constraint. Similarly, for most assignments, especially in classes such as Business Calculus, allowing late submissions with a predetermined penalty encourages students to complete the assignments, even if they are not on time. I have also noticed in the past few years that a lot of students struggle with time management on timed exams. To combat this, I have either created an exam with a take home portion for the more technical modelling courser or at home bonus assignments which students can complete to earn back points. Student response to both has been positive and allowed me to see the students ability when not pressured by a time limit.

Adaptation in Teaching Style

Everyone learns differently and has their own struggles in a course. I strive to adapt my style of teaching to reach as many students as possible. Some students learn better through lectures, others by working examples. There are visual learners who learn better with pictures while others are auditory learners who prefer to have discussions. In my class, I start with lecturing and group work and adapt the style of teaching depending on student feedback, usually collected via a midterm evaluation or before and after class. This could mean switching to a more interactive approach with open question and student

responses, or allowing more time for active learning through group work. Since I cannot accommodate every learning style in the time I have in class, I also work to create a variety of materials and resources available to my students on the course web-page. This can include things such as: additional problem sets and solutions, practice quizzes and exams, additional notes on a topic, and additional online video lectures. I also encourage the students to inform me if there is anything else which may aid in there learning and if it is within my power, I will strive to include it.

For the past few semesters, I have had the opportunity to teach Business Calculus to multilingual/multicultural students through INTO Mason. This experience has taught me so much about teaching to a diverse audience and adapting my techniques to reach a variety of students. In some cases, the students were more comfortable having a more lecture based discussion with open examples scattered throughout. Similarly, I had another section which preferred a more active learning approach. One struggle I have seen regardless of the approach is the student comprehension of English. I modified my lessons to incorporate more common phrasing (or provided a similar phrase if it was somewhat ambiguous) and made sure to track similar terminology from the students' native language. Things such as mentioning that the modulus function in one culture was the same as the absolute value function in my class helped quite a few students with their understanding.

Similarly, for all my courses, I maintain a record of what types of problems students struggled with, both on exams and in class. From these results, I reformat the lectures (for future iterations) or problems related to that topic to try to make the material easier to understand. This data collection resulted in increased performance on exams which contained similar material. In the same semester, I saw several students who struggled with understanding certain questions on the first exam do well on a similar reworded question on the final.

Learning for the Future

Every time I teach a course, whether it is new or one I have taught multiple times before, I find I learn more about teaching and ways to improve student learning. As such, I strive to learn more about new techniques and ways to improve my teaching. Student comments, both during the semester and at the end, help shape my courses going forward. In my first semester teaching Business Calculus, students commented on the fast pace. The next time I taught the course, I reformatted my course to exclude optional topics and spent more time focusing on the key points. Similarly, I will be teaching Numerical Analysis online again this upcoming summer and have been going through my past course as well as talking to current online instructors to see what can be improved. One modification I plan on making is to increase the number of coding videos available as it seems that is a common struggle for online students.