

Matthew McCurdy

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Teaching Statement

There is no magical, catch-all strategy to get students to learn. In class, I cannot pour knowledge straight into my students' minds or force the students to learn; I make the learning *possible* but students are the ones who must do the learning. Making learning possible looks different depending on the unique needs of each class and each student. Sometimes this takes an active approach on my part: actively facilitating group discussions, lecturing, or working one-on-one with students outside of class. Other times, this takes a more passive form—getting out of the way, allowing students to talk about problems, and not stopping them the moment mistakes are made. With my experiences, from teaching at small liberal arts colleges to teaching a large state school, I have developed a myriad of tools and strategies to help me effectively teach students.

My teaching philosophy is centered on the idea that every student is able to learn mathematics. Every student possesses this ability whether or not they know it—my job as a teacher is to reveal that to them. However, my goal isn't to have each student become an innovative mathematician. When students finish a course with me, regardless of whether or not they will continue taking math classes, they should be able to think logically, communicate their ideas in a clear and concise manner, and have a deeper understanding of mathematical principles and concepts. With this goal in mind, my teaching style is based on two principles described below: learning-centered teaching and student engagement.

Learning Centered Teaching

I am a strong advocate for learning-centered teaching. The main idea behind this pedagogy is “the one who does the work does the learning.” Real, actual learning is not a straightforward process. Learning material is messy; it involves overcoming obstacles, working and re-working problems, and struggling with the material. This requires a substantial amount of buy-in from the students. To get this buy-in, I foster a sense of responsibility and self-direction in students by incorporating experiential learning into my courses, cultivating a collaborative learning environment in each of my classes, and emphasizing the importance of a growth mindset to all students.

Experiential learning is one of the cornerstones of the active learning approach I take to teaching, as it bridges the gap between theory and practice. Engaging students in real-world applications of concepts not only enhances retention of the material we cover, but also cultivates critical thinking skills and a deeper understanding of the topics we discuss in class. On my end, this requires providing opportunities for problem-solving activities, interactive discussions, and opportunities for reflection. Throughout high school and even in college, students have relied heavily on teachers to identify what needs to be learned, how it is learned, and how learning will be evaluated. Allowing students to self-regulate some of these choices gives them a greater sense of responsibility for their learning. One clear example of this is from my Applied Linear Algebra courses; after covering foundational material, students help choose topics to cover based on their interests. In past semesters, we've covered topics from game theory to ranking and rating algorithms.

Cultivating a **collaborative learning environment** is of paramount importance in my classes. This idea goes beyond individual achievement, emphasizing the collective strength of a community of learners since learning rarely happens in a vacuum. In this collaborative environment, students gain knowledge not only from me, but also from each other. In helping students engage with their peers,

I'm able to create an environment where students feel comfortable sharing ideas, making mistakes, and learning from one another. This collaborative exchange cultivates critical thinking, problem-solving abilities, and effective communication skills. Further, it mirrors 'real-world' scenarios where success often hinges on the ability to work effectively within a team. This prepares students for a globalized, interconnected world where collaboration is necessary for innovation and progress.

Emphasizing a **growth mindset** in my courses empowers students to view setbacks as opportunities for learning and to approach problems with a sense of curiosity and resilience. This mindset fosters a willingness to grapple with difficult material, seek help when needed, and persist through obstacles, ultimately leading to a deeper understanding and mastery of mathematical concepts. Moreover, a growth mindset instills confidence and self-efficacy, enabling students to tackle increasingly complex topics with confidence. In my mid- to upper-level courses, I routinely have students read articles (like [this article by Jo Boaler](#)) to help affirm that intelligence and abilities can be developed through dedication, hard work, and perseverance.

Student Engagement

For learning-centered teaching to be effective, student engagement is a priority both in and out of my classroom with intellectual, social, and emotional engagement.

Many of the topics we cover in the Calculus sequence and higher-level math courses lend themselves naturally to examples from chemistry, biology, and physics to help reinforce ideas from class. To engage the students intellectually, I create meaningful connections with these applications and personalize the course to student needs and interests. This stimulates student in math by making meaningful connections with applications they enjoy and can relate to.

For social engagement, I often pair up students or have students work collaboratively in groups on projects and discussions in class. Utilizing groups in class reinforces the idea that math (and problem solving in general) can be viewed as a joint endeavor, drawing from the experience and expertise of everyone in the group. One other tactic I use in my Calculus classes to engage students' social skills is with weekly problem presentations. Students write up solutions to problems and present their work to other students in a science fair-like set-up each week. Having to write and talk about math are two things a majority of my students have never had to do before. At the end of the semester, students express that these presentations are one of their favorite parts of the class and benefit them outside of their math courses.

If students are not comfortable in the classroom, they are not able to learn. Maslow's hierarchy of needs and other perspectives in educational psychology note that students are less likely to learn if basic needs, like a feeling of comfort or safety, are not met. Emotional engagement caters to this by creating a classroom where students feel comfortable enough to speak up and answer questions in class, even if they are wrong. I help normalize that being wrong is okay since many students do not realize that struggling with material is a natural part of the learning process. Additionally, reaching out to students when I notice they miss class or congratulating them on an improving test grades goes far with showing students I genuinely care about them.

Conclusion

In summary, based on my teaching experiences and educational course-work, I have developed an effective teaching style and various strategies to ensure success for my students, both in and out of the classroom. With my learning-centered approach and focus on student engagement, students have responded positively to my teaching style, as evident in student evaluations and outcomes from my courses thus far. As we navigate teaching in new ways post-Covid, sharing my passion for math will inevitably present new challenges, but I am looking forward to facing them head-on.

Teaching Experience

Assistant Professor, tenure-track– Ohio Wesleyan University (2022-present)

- Taught Calculus I & II, Differential Equations, Introduction to Computer Science, Linear Algebra, Partial Differential Equations, Math Modeling, Great Ideas in Mathematics

Thrive Summer Academy Professor– Thrive Scholars (Summers 2022, 2023)

- Instructor for a six-week Calculus I course for rising high school seniors at a residential program taking place on the campus of Amherst College
- Thrive Scholars is a non-profit aimed at helping high-achieving, low-income underrepresented students to get into and graduate from top colleges to achieve their full career potential

Harold L. Dorwart Visiting Assistant Professor– Trinity College (2020-2022)

- Taught Calculus I, Numerical Analysis, Differential Equations, Statistical Data Analysis, Applied Linear Algebra, Partial Differential Equations, Mathematical Modeling
- Faculty mentor for two summer research students, Samira Souley Hassane and Harieth Mhina (both class of 2022)

Instructor of Record– Florida State University (2019-2020)

- Solo instructor for Pre-Calculus, Calculus, and Ordinary Differential Equations
- Supervised undergraduate TAs aiding with my Calculus courses
- Developed lectures and lesson plans, created exams/quizzes/other assignments, and implemented learning-centered teaching strategies into my courses

Graduate Teaching Assistant– Florida State University (2015-2018)

- Led recitations and laboratory courses for various undergraduate math classes
- Held office hours and led study sessions

SAT Workshop– Escola Nossa Senhora da Misericórdia, Rio de Janeiro, Brazil (June-July 2013)

- Conducted SAT workshops for students wishing to pursue higher education in the U.S.
- Collaborated with a fellow Centre student to teach a class addressing college life

Teaching Evaluations

A selection of teaching evaluations are available to view (as links to the .pdfs):

- [Linear Algebra at OWU, Spring 2023](#)
- [Math Modeling at Trinity, Spring 2022](#)
- [Calculus I at Trinity, Spring 2022](#)
- [Applied Linear Algebra at Trinity, Fall 2021](#)
- [Differential Equations at Trinity, Fall 2021](#)
- [Numerical Analysis at Trinity, Fall 2020](#)
- [Calculus I at FSU, Summer 2019](#)

Additionally, I have selected comments from students answering the following question “What did you like about the course and/or instructor, Matthew McCurdy?” or from sections allowing for “Additional Comments,” depending on the institution:

- “I had never done a project in a math class. It was a great new way to showcase understanding without having to take a typical exam.” (Linear Algebra at OWU, in-person during Spring 2023)
- “Dr McCurdy is the best professor I have had in my 4 years at Trinity. He is organized, always is available to help with questions, and taught the material in a clear way.” (Math Modeling at Trinity, in-person during Spring 2022)
- “Prof McCurdy is an absolutely excellent professor. I hope that if he were able to read this, he would know that it is a refined skill to teach... and further teach well. His ability to to break down a complex idea and guide the discussion and the thought process, communicate in a highly effective and intuitive way, promotes learning and further inspires student excellence. I highly recommend Prof. McCurdy and in my humble opinion, Professor McCurdy is an asset to the math department at FSU. Thank you.” (from Applied Linear Algebra at FSU, online during Summer 2020)
- “Professor McCurdy did an extraordinary job preparing the notes for class and taking the time to explain the topics. He was able to transmit his enthusiasm for certain topic of the course which made the classes very entertaining and interesting.” (from Numerical Analysis at Trinity College, online during Fall 2020)
- “Dr. McCurdy has been the best professor I have had at encouraging students to participate and makes sure they are engaged.” (from Differential Equations at Trinity College, in-person during Spring 2021)
- “He explained the material clearly and had great pacing. It never felt like we were moving too fast. I also liked that he took time to review content before tests. He was funny and very engaging, and I like that he encouraged us to work with each other when solving problems. Doing warm-up problems before class was helpful, as was working through examples on our own in class before he went through them with us. Posting blank versions of the notes well before that content was covered in class allowed me ample time to print them before class. Having a ‘template’ for the notes allowed me to focus more on what he was saying in class and less on copying everything down. To that end, it was also wonderful that he posted scanned lecture notes to Canvas after class. He was incredibly organized, and having homework solutions, scanned notes, and test and quiz solutions easily accessible on Canvas was super helpful. Being able to use homework to complete the quizzes was great as well. During the craziness of this semester, he was very understanding and providing several days to complete the last test and the final significantly reduced my stress.” (from Ordinary Differential Equations at FSU, in-person to online during Spring 2020)
- “Although I realize the importance of calculus, my interests do not lie within the subject area. In addition, math is typically not a strength of mine. As a result, I was nervous to take the course because I feared I would struggle to pass. Thankfully, this was not the case and I attribute my success in the course to Matt. He is excellent at explaining the material in a clear way and is always willing to help students who have questions.” (from Calculus at FSU, in-person during summer 2019)

Full student evaluations are available upon request