

My teaching philosophy is that **everybody is capable of learning mathematics**. As an instructor, I believe it is my responsibility to create an equitable, supportive learning environment that dispels the mythical “math gene” belief and helps develop students’ confidence to learn and understand mathematics. During my time at the University of Utah, I have had the opportunity to be the instructor of record for several courses, from college algebra to differential equations and linear algebra for engineers. In particular, I have focused on three main classroom strategies to achieve this goal: inclusive learning environment, transparency, and active and collaborative learning.

**Inclusive Learning Environment:** I want students to feel empowered about asking questions and sharing ideas in the classroom. In my calculus class, I engage students in a debate on how derivatives and integrals manifest in their daily lives and majors, writing down everyone’s contribution on the blackboard and discussing them. This creates a classroom that welcomes and supports all students, thereby encouraging students’ voice and promoting respect and trust among the students and myself. Throughout the semester, I explain the benefit of questioning authority: students need to understand that it is perfectly reasonable to think that something is wrong and ask questions. To ensure every student has equitable access to class material, I provide lecture notes outlining key concepts and information. I also pause frequently during lectures to make sure everyone has enough time to write down all the details.

*Math 1210, Calculus I: I think his class is really great, very open. I’m actually surprised by how much people speak up and ask questions, which is indicative of Chee Han creating an environment where we feel comfortable and willing to learn.*

*Math 1050, College Algebra: He is constantly asking if students understand the material - he sends out canvas announcements to make sure we know what to study, and he always makes time in class to help people. He also showed the class how to get to the math tutoring center, and is very open to helping students at the drop of a hat.*

*Math 1210, Calculus I: This instructor made me feel like he genuinely cared that I passed the course and not only that I pass, but that I understood the material. He was always willing to help, and provide insight where it was needed. He felt more like a friend than an instructor (with respectful boundaries for he and the other students), and I believe that made the class more enjoyable.*

**Transparency:** On the first day of class, I communicate with my students about my course plans, assessment expectations, and available resources to maximize their learning. I describe common mistakes in all topics and ways to avoid them, as well as showcasing multiple correct paths to solve a problem. This sends a positive message to students that everyone is on a level playing field and deserves an equal opportunity to be successful in the course. I also demonstrate what a “good” solution looks like by providing detailed solutions right after students submit their quizzes. This also gives them instant feedback on how well they are doing on important concepts and helps consolidate their learning.

*Math 1210, Calculus I: I like that he stresses the points that we absolutely need before moving on to the next material, it makes me make sure I have a working knowledge of that material. He is also very personable, and again makes sure we have the opportunity to say I’m not ready to move on yet, where he will then cover the material quickly again or from another angle of explanation.*

*Math 1210, Calculus I: He is incredibly good at explaining the material in various ways so the students would completely understand what is being taught. He also dedicates a lot of time for the students for extra learning time and also provides feedback and grades quickly which helps with being on track.*

*Math 1050, College Algebra: The instructor goes step by step with each problem and explains why the answer is what it is. He also shows us why we make common mistakes and why they are incorrect. I also appreciate how simply he reviews past class material so we remember the next day how to solve.*

**Active and Collaborative Learning:** I use a variety of learning strategies in my classroom, including discussion, group work, and interactive activities. I believe it is important to motivate the topics of the course and explain the intuition behind every theorem and formula we use in class. I often start a new topic with a motivating example and engage students to explore how to solve the relevant problem or arrive at a given formula, giving them a sense of ownership over their learning. I offer my calculus students an interactive opportunity to apply concepts from a falling body problem to measure the height of our classroom ceiling. Students are encouraged to bounce ideas off one another and help each other to figure out a correct approach. Near the end of class, I gather and discuss merits and demerits of everyone's ideas, and reveal the correct answer to the problem. This process allows student to gain a deeper understanding of concepts through a sense of authenticity to real-world applications. I allow students to work together on weekly quizzes, thereby encouraging them to help others learn the material and exchange different solving strategies.

*Math 1050, College Algebra: He demonstrated concepts WHILE we were learning them, instead of getting lost in definitions and terms right at the beginning of the lesson, he would demonstrate a example, and then we would go over the technical aspects. I also appreciate how fun and easy going Chee-Han is, he really seems to care for students, and makes the class fun and interesting.*

*Math 1210, Calculus I: The notes provided for the students made concentration on the material to be much easier. Allowing the student to work in groups when taking quizzes in order to learn rather than merely earn points was also quite effective.*

*Math 1050, College Algebra: He encourages teamwork which makes us explain what we learned to others. He also connects with students and hears their responses while solving equations. He has a learn and apply work pace that helps us understand what we have learned and what we need to work on.*

The process of creating an inclusive, transparent classroom that fosters a desire to learn and communicate mathematics has allowed me to engage my students on a personal level. By implementing active and collaborative learning strategies, I have seen students grow from not believing in their mathematical capabilities to confidently expressing their mathematical thinking. The excitement and joy of witnessing students progress in their learning experience inspires me to improve my teaching as an instructor and to enrich my students' understanding of the beauty of mathematics as a mathematician.

*Math 1050, College Algebra: For the first time in my life—honestly—I FINALLY not only understand math, but feel CONFIDENT thanks to him. Words cannot begin to express how grateful I am, he was such an excellent instructor. He always made everything so clear and simple, and was very responsive to the the class.*

## Mentorship

In addition to teaching a wide variety of courses at University of Utah, I have also participated in mentoring opportunities outside of the traditional classroom.

**ACCESS and undergraduate research program:** ACCESS is a program in the College of Science that supports the success of women in science and mathematics and welcomes all students who are committed to advancing gender equality in STEM fields, whether it be in academia or industry. I co-mentored undergraduate students Max Carlson and Emma Coates (ACCESS) on year long projects concerning the numerical study of linear fluid sloshing with surface tension. As the mentor, I was responsible for designing the project and helping the student learn background material.

**Directed Reading Program (DRP):** DRP matches undergraduate students with graduate student mentors for a semester-long independent reading course. The goal of DRP is to provide undergraduates an opportunity to study mathematical topics not covered in standard college curricula. I mentored Jameson McCarthy on numerical weather prediction, and met weekly to discuss assigned exercises and readings.

## Flipped Classroom

Virtual teaching became ubiquitous as a result of the pandemic. In an attempt to build a strong classroom community in an online setting, I decided to flip my classroom since Fall 2020. This is a collaborative effort with one of my graduate student peers, Nathan Willis, where we work together in developing pre-recorded video lectures, course notes, in-class worksheets, and online quizzes. A successful flipped classroom starts with a positive teacher-student relationship, and I am able to build a strong rapport with students by learning their names quickly and rewarding their comments and ideas with verbal praise. The in-class worksheets are designed to deepen students' understanding and improve problem solving fluency. Students work in groups to complete these worksheets, and it was satisfying to see students working on problems together as a team and supporting their peers along the way.

*Math 2250, Differential Equations and Linear Algebra: I like how much he pushed for students to participate, and it was helpful how we did problems with classmates, but then had them explained at the end of the class by the instructor.*

*Math 2250, Differential Equations and Linear Algebra: Chee Han was a great instructor! He genuinely cares about the subject and his students. He never makes anyone feel stupid or like theyre imposing, and he has a great grasp of English. I really enjoyed your class this semester, Chee Han :) Nathans videos were clear and covered all of the information necessary for homework and labs.*