MATH 156 - Fall 2025

Mathematics for Computational Science I (GT-MA1)

Section 801 (CSU Online)

Instructor: Chris Liu
Office Hours: To be held in Microsoft Teams, schedule to be determined
Email: chris.liu@colostate.edu

This course combines elements of a traditional Calculus I and Calculus II with topics that are aligned with the needs of computational science. The course was designed and created by Dr. Alexander Hulpke, and will use materials and notes that Dr. Hulpke created.

Textbooks

There are lecture notes developed for the course, available in Canvas:

- Alexander Hulpke, *Mathematics for Computational Science, Lecture Notes*

There are also two open-access textbooks that are optional references. Download links are in Canvas:

- David Makinson, *Sets, logic and maths for computing*.
- Michael Oberguggenberger, Alexander Ostermann, *Analysis for Computer Scientists*.

How the class will run

This online course is "asynchronous", meaning you do not have to be online at any specific times or dates, and do not have to participate in live class sessions. You can do work on your own schedule, as long as assignments are submitted by their due date (assignments are due by 11:59 PM in the U.S. Mountain time zone at the end of the day they are due).

The course is presented as a series of weekly modules through Canvas, with recorded video lessons and examples. Homework will be written and then submitted through a service called Gradescope - you'll need a way to scan your homework and upload it online. A phone camera works well.

Assigned Work, Grades

Assigned work consists of three parts.

1. (GRADED FOR COMPLETION) Class discussions: to pass the class, you need to partake in at least 6 of the 8 discussion boards - there will be one per chapter of our book. Partaking means creating a thread, responding to a fellow student or myself in a substantive way. I recognize "substantive" is inherently subjective - as a rough guideline, it should entail you putting your own thoughts down in some way.
2. Written homework, given weekly (in Canvas): There will be weekly homework on non-exam weeks. They'll be graded for correctness. You are welcome to discuss homework questions with other class participants and use online resources, as long as the actual write-up is your own work.

3. Two midterm exams, (roughly) after weeks 5 and 10, and one final exam at the end of the course (all are "take home" exams) that are to be **done by yourself alone and not to be discussed with others**.

   Each Midterm exam counts as 15% of the final letter grade, the Final Exam counts 20%, with the remaining 50% from homework. The final letter grade with be given according to these points using a standard scale (90% and above earns an A, 80-89% a B, 70-79% a C, and 60-69% a D).

About me

I'm really excited to be your instructor! I grew up in the frozen tundra of Calgary, Alberta. Then I worked for several years in the software and data science industries prior to coming to CSU to pursue my PhD in mathematics. So I'm passionate about both mathematics and software, and having taught traditional Calculus I-III courses, I believe the material in this course better serves the need of students interested in computation.

Outside of mathematics, I enjoy outdoor activities like skiing and running! Currently I'm dabbling in knitting.

Disability Accommodations

If you will need accommodations in this class due to a disability or chronic health condition, please provide me with the SDC (Student Disability Center) accommodation letter. If you do not already have these accommodation letters, please contact the SDC as soon as possible to initiate the process of setting up accommodations.

The SDC is located on the room 121 of the TILT building. You can reach them by phone at 970-491-6385 or visit https://disabilitycenter.colostate.edu/.

Academic Integrity

This course will adhere to the CSU Academic Integrity Policy as found on the Student Responsibilities page of the CSU General Catalog and in the Student Conduct Code.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Student Resolution Center.

You are explicitly forbidden to post course material, full or part, on websites outside the university (such as “homework help” or “discussion”), or to use such websites to get help on solutions. Doing so will be considered a violation of academic integrity.