Math 150 – Calculus I

Section 3, Fall 2023

30 August – 11 December 2023

- **Instructor:** Chaitanya Leena Subramaniam
  (email: cleenasubramaniam@sandiego.edu)
- **Course website:** `https://www.chaitanyals.site/teaching/math150`
- **Class timings:**
  - **Lectures:** Mondays, Wednesdays & Fridays, 12:20 PM to 1:15 PM in **SH 104B** (Saints Tekakwitha and Serra Hall).
  - **Problem-solving sessions:** Thursdays, 9:15 AM to 10:10 AM in **SH 209** (Saints Tekakwitha and Serra Hall).

  Holidays: September 4 (Labor Day), November 22nd–24th (Thanksgiving).
- **Office hours:** Wednesdays & Fridays, 9:30 AM to 12:00 PM in **SH 138** (Saints Tekakwitha and Serra Hall).
  To meet me outside of office hours: send me an email with **at least two days' notice**.
- **Grading:** Since some people are better exam-takers and others work better with more time and less stress, your grade will be calculated in *two* ways (Grade 1 and Grade 2), and your final grade will be the *higher* of the two.

  Important: An (assignment + participation) grade of **5% or more is required for an A**. This rule will be **strictly enforced**. (For example: if you miss even one assignment submission AND never participate in class, your grade will be an **A-** or lower.)

	Grade 1 (G1)	**Grade 2 (G2)**
Final exam	30%	40%
Midterm exam	20%	30%
Take-home test 1	20%	10%
Take-home test 2	20%	10%
Assignments	5%	5%
Participation	5%	5%

Your final grade = max(G1,G2)

Assignment grade: This grade is based on how often you submit your weekly assignments. You start with 5% and lose 1% per assignment missed.

Participation grade: You get this grade as soon as you come to the blackboard **once** (during the entire semester) to attempt to solve a problem (even if you get the answer wrong).

- **Important dates:**

Thu, Aug 31	Diagnostic/pre-course quiz
Mon, Sep 18	Receive 1st graded take-home test
Mon, Oct 2	Hand in 1st graded take-home test
Thu, Oct 19	Midterm exam (during class hours)
Mon, Nov 13	Receive 2nd graded take-home test
Mon, Nov 27	Hand in 2nd graded take-home test
Wed, Dec 20	Final exam (**time: 2 PM to 4 PM**)

Course outline

In this course, you will learn to understand and work with:

- *Real functions* (i.e. functions whose inputs and outputs are real numbers), both geometrically (the graph of a real function) and algebraically (the sum, product and composition of real functions), the average rate of change of a real function;
- The principle of the Fundamental Theorem of Calculus (FTC), which is a simple relationship between a real function and its rate of change (that you already know if you understand student loans and interest rates!);
- *Limits* of real functions, the algebra of limits, the notion of *continuity*;
- The *derivative* of a real function f, which is a real function f' that records the *instantaneous rate of change* of f, computing various derivatives;
- Applications of differential calculus;
- The *integral* of a continuous real function and the true FTC;
- Applications of the FTC.

Course material

- **Class notes:** Perhaps the most useful resource in this course are the notes that you take during class.
- **Textbooks:** There is no assigned textbook for this class. There are many, many, *many* books on calculus, and finding a book that speaks to you is mostly a matter of personal preference. A few (freely available online) books are:
  - *Active Calculus* (Chapters 1 through 6). `https://activecalculus.org/single`
  - *Calculus I*. `https://authors.library.caltech.edu/records/00arw-c5851`
  - Strang's *Calculus*. `https://ocw.mit.edu/ans7870/resources/Strang/Edited/Calculus/Calculus.pdf`
- **Homework:** Solutions to assignments and take-home tests will be posted on the website, usually a week after the hand-in date.

Exams

- The midterm exam will take place in class during lecture hours on **Thursday, October 19**.
- The final exam will take place from **2 to 4 PM** on **Wednesday, December 20**.
- You are only allowed to use your personal class notes on paper during exams. No electronic devices or other documents are allowed.

Take-home tests

- You will receive two take-home tests during the semester. Each of these contributes to your final grade (see "Grading").
- You will have **two weeks** to finish each test. You must hand in your work before 11:59 PM on the submission date (see "Important dates").
- You can hand in your work **in person** or **by email**. If I do not acknowledge your email, it means that I have not received it. Tests submitted by email must be *good-quality* PDFs (no other format): the Files app (on iOS) and Google Drive (on Android) let you scan documents to PDF using your smartphone.
- You are expected to work **alone** on your take-home tests. Any plagiarism of your work will void your own test score, so **please do not share your work with others**.

Assignments

- You will receive a homework assignment almost every Monday, to be handed in on/before the **Monday** of the following week **in person** or **by email**. If I do not acknowledge your email, it means that I have not received your assignment. Assignments handed in by email must be *good-quality* PDFs (no other format): the Files app (on iOS) and Google Drive (on Android) let you scan documents to PDF using your smartphone/tablet.
- You are only graded on your *regularity* in handing in assignments and *not* on whether your solutions are correct — however, your work needs to show that you have made an effort.
- You are strongly encouraged to work on assignments in groups and to help others with their assignments. However, giving someone your work to copy isn't helpful — it doesn't make a difference to their grade, and prevents them from learning to solve problems on their own.
- You are strongly encouraged to make mistakes and to give every problem your best shot.

Plagiarism and academic integrity

Intellectual honesty and academic integrity are very important in this course. Much of the material will be new to you, problems/assignments will likely seem difficult, and they will require a certain kind of mathematical abstraction and reasoning that may be unfamiliar to you. This course has been designed for you to make mistakes. If you feel overwhelmed by the material, the best thing to do is to contact me by email and to meet me during office hours. Plagiarism (any unauthorized attempt to benefit from others' work) is highly detrimental to the learning process, and will be sanctioned with a **fail grade** and referral to the university.

Title IX information

The University of San Diego is committed to upholding standards that promote respect and human dignity in an environment of academic excellence and professionalism. Sexual misconduct and relationship violence in any form are antithetical to the University's mission and core values, violate university policies, and may also violate federal and state law. Faculty members are considered Responsible Employees and are required to report incidents of sexual misconduct and relationship violence. If you or someone you know has been impacted by sexual assault, dating and domestic violence, stalking or sexual exploitation, please visit `https://www.sandiego.edu/care` to access information about University support and resources.

General information

- **Force majeure:** If you have missed, or will miss, exams and/or deadlines due to any unexpected event, you must contact me as soon as possible.
- **Student athletes:** You need to contact me **in the first two weeks** to discuss any classes/exams that you will miss.
- **Extra requirements:** If you require academic adjustments/accommodations (e.g. due to a documented disability), please contact me **during the first two weeks**. If your disability needs to be documented, it is your responsibility to contact the Disability and Learning Difference Resource Center as soon as possible (`https://www.sandiego.edu/disability`)
- **COVID-19 protocol:** We will follow the guidelines at `https://www.sandiego.edu/onward`