Math 20A: Calculus for Science and Engineering I

Winter 2022

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Course Description

Math 20A is the first quarter calculus course for students majoring in mathematics, engineering, and the sciences. It provides the foundations of differential and integral calculus of one variable. A list of topics covered in the course, together with a tentative lecture schedule, is posted on the course webpage.

Prerequisites

Any of the following: Math Placement Exam qualifying score, or AP Calculus AB score of 3 (or equivalent AB subscore on BC exam), or SAT II MATH 2C score of 650 or higher, or MATH 4C or MATH 10A. If you are unsure about your level of preparation, I encourage you to reach out!

Textbook

The course textbook is *Calculus: Early Transcendentals, Single Variable, 4th edition* by Rogawski, Adams, and Franzosa. You will also need a Macmillan Achieve access code for the online homework. There are a variety of options for the access code together with an eBook or print book available from the UCSD bookstore and from the publisher (see `https://bit.ly/3scqQtD`). I recommend getting a physical copy if possible – it makes it much easier to study without distractions. Other good references include Paul's Online Notes and Khan Academy.

Homework

There will be weekly homework assignments, due on **Fridays at 3pm** Pacific Time. They will be submitted online using Macmillan Achieve, which can be accessed by clicking on the "Macmillan Learning" link in the class Canvas page. There are also textbook homework problems posted on the course webpage, which you are expected to complete, but which will not be collected or graded.

- Collaboration on homework is encouraged. However, you should think about the problems yourself before discussing them with others, and **you must work through each solution on your own before submitting it and understand anything that you submit.**

- **The use of solution manuals, homework from previous quarters, and "homework help" resources like Chegg is not permitted.**

Exams

There will be two in-person midterm exams held in class on the following dates.

Mon, Jan 31 (Week 5)
Fri, Feb 25 (Week 8)

The final exam will be in-person on **Friday, Mar 18**, from **3-6pm**, location TBA. For all exams:

- You may bring one 8.5 x 11 inch sheet of *handwritten* notes. You may use both sides.
- Calculators and other electronic devices are not allowed.
- Bring your student ID.

Grading

Grade breakdown: Your final numerical grade will be automatically computed as the best of the following options:

- **20%** Homework (best 9 of 10), **20%** each Midterm, **40%** Final Exam
- **20%** Homework (best 9 of 10), **30%** <u>best</u> Midterm, **50%** Final Exam

There are no makeup exams; this grading scheme is intended to accommodate emergencies that require missing a midterm exam (in which case, your grade will be computed using the second option).

Letter grade: Your course grade will be determined by your numerical grade at the end of the quarter, and will be based on the following scale. This scale is guaranteed, but may be adjusted to be more generous – for example, if your cumulative average is 80, your final grade will be *at least* B-.

A+	A	A-	B+	B	B-	C+	C	C-
97	93	90	87	83	80	77	73	70

Extra credit: For each lecture, there will be 1-2 extra credit homework problems, due by the start of the following lecture. In total, they will add up to a possible 2% extra credit in the course. My goal is to choose relatively straightforward problems that reinforce the main ideas, techniques, and definitions in each lecture, to help you keep up with the course by practicing regularly.

Midterm corrections: There will be an opportunity to earn some points back on each midterm by submitting corrections to your exam. More details will be announced after the first midterm.

Grading errors: Midterm exams will be graded and returned using the online tool Gradescope. For each exam, regrade requests can be made using the built-in regrade request feature in Gradescope **during a specified 60-hour window of time**; no requests will be accepted afterward. You should submit a separate request for each problem in which you believe an error in grading was made; in order for it to be considered, you will need to explain clearly and politely why you think an error was made. Also, although we will correct errors in grading, we will not modify our grading rubric or negotiate about partial credit.

Remote Learning

The university has announced that all classes will be remote for the first four weeks of Winter quarter. During this time, we will be holding lectures and discussion sections synchronously over Zoom, and in light of many students' disrupted schedules and internet issues, I will also post a recording of each lecture on Canvas (assuming no technical difficulties in recording).

Logistics: These are the two important places you should check for course information:

- **Email:** for announcements. (I will email out all Zoom links at the beginning of the quarter.)
- **Public course webpage:** for information about deadlines, lectures, syllabus, etc.

We will also use the following resources:

- **Piazza:** a forum for math and logistical questions. I will also archive any emailed announcements on Piazza.
- **Canvas:** there will be some materials posted or linked on Canvas but I will always give an explicit pointer to them from elsewhere.

Return to in-person: I plan to return to fully in-person teaching at the beginning of Week 5.

If disaster strikes: In the event that the public health situation necessitates a longer period of remote learning (either temporarily or for the remainder of the quarter), I may make changes to the course, including to the length, format, and number of exams. In making such a decision, I would follow university guidance and the recommendation of the mathematics department. In any event, we will try to give as much advance notice as possible, although it is likely that we would not be notified of any updates to university policy before students.

Study Resources

Instructional support and tutoring: In addition to lecture, discussion, and office hours, there are a variety of opportunities to receive help in Math 20A. These include Supplemental Instruction (SI), content tutoring, and OASIS tutoring workshops. More details about these resources (and times, where applicable) are posted on the course webpage.

Podcast: When in-person learning resumes, I plan to make an audio podcast available at: `https://podcast.ucsd.edu/`, which you may find useful as a supplement to your notes (for example, to hear an explanation or an announcement again). There are also podcasts with slides available from previous quarters, which should have a similar schedule and coverage to our course (e.g. from Prof. Quarfoot or Prof. Bach in Winter 2020).

If you miss class: There is a rough schedule posted on the course webpage of what will be covered in each lecture, together with the corresponding sections of the book. If you need to miss a lecture for any reason, I recommend reading from the book. You are also encouraged to discuss what was covered in the lecture and ask questions of one of your classmates. So be sure to make a friend and get the contact information of a fellow student early in the quarter!

Accommodations

Students requesting accommodations for this course due to a disability need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). You should make arrangements in advance to discuss your accommodations with me **no later than the end of Week 2**. We will make every effort to arrange for whatever accommodations are recommended by the OSD.

Academic Integrity

UC San Diego's Policy on Integrity of Scholarship outlines the academic honesty expected of all students, and details the consequences for academic dishonesty. Your integrity has great value: always cultivate and protect it.

Typo Bounty

If you find an error on the syllabus, website, homework assignments, etc., let me know! You will receive a small prize, redeemable in office hours ☺