

Math 21 – Summer 2024

Course Description

Improper integrals, sequences, infinite series, power series, Taylor series, and Applications.

Prerequisites

Math 20 or a strong foundation in differential calculus (limits, L'Hopital's Rule, derivative rules, derivative applications such as techniques for finding local/global extrema) **and** integral calculus (Riemann sums, area between curves, techniques for calculating definite and indefinite integrals, including substitution and integration by parts).

If you have not previously taken a calculus course at Stanford, you **must** have taken the math placement diagnostic exam to register for this course.

If you need a refresher, go to <https://mathematics.stanford.edu/academics/math-placement> and click on the "Precalculus Refresher" button. You will need a strong precalculus foundation to succeed in this course.

Note for students with only Calculus AB: Integration by parts shows up occasionally in this course, which is not typically a part of the AB syllabus. We will review it during the first lecture, so it is okay if you've never seen the technique before.

Textbook

Calculus, Volume 2, OpenStax. <https://openstax.org/details/books/calculus-volume-2>

This course will follow my posted lecture outlines, which follows the above book, though, the exact order may be different. There may be additional material not explicitly covered in the textbook as well.

We encourage you to do many of the exercises in the textbook to master the course material. For a refresher of Math 19, please see [Volume 1](#) of the textbook (Chapters 1-4). For a refresher of Math 20, please use the Volume 2 textbook above (Chapters 1.1-1.6, 2.1-2.3, 3.1-3.2, and 4.1-4.4).

Instructor

Dr. Zac Wickham (zwickham@stanford.edu)

For any inquiries, please reach out via **email**.

Course Assistant

Shintaro Fushida-Hardy (sfh@stanford.edu)

Office Hours

Office hours are drop-in periods where you can ask questions or work with other students on problems. Check Canvas for the teaching staff's office hours. Be on the lookout for any last-minute changes/cancellations via Canvas announcements. You are welcome to attend either of our office hours. We do not promise availability outside of these hours.

Lecture Information

Mon/Tues/Wed/Thurs: Room 380-380C, 10:30am – 11:45am

Monday – Wednesday will be lectures in which lecture outlines are projected and written over. You are encouraged to print them out before hand or bring a tablet. You can also write on your own paper.

Thursday will usually be a discussion section in which department-created worksheets will be worked on covering that week's material. In the event we cannot finish a lecture from earlier in the week, then we will use Thursday's lecture to catch up.

Annotated lecture notes will **not** be posted online. If you need to miss a class, please obtain the notes from another student in the class.

Grading Scheme

- Homework – 30% (graded out of 80% of the total points; score cannot exceed 100%)
- Midterm – 30%
- Final Exam – 40%

See the sections below for more information. No individual exam or assignment will be curved, but there may be a curve at the end of the course for final grade cutoffs. There is no predetermined curve beforehand, and we will not know if there will even be one until all the grades are in the system. Any curve, however, **will not hurt your grade** in comparison to the “standard curve” (i.e. 70% guarantees a C-, 80% guarantees a B-, and 90% guarantees an A-). If you are curious about your current performance, please use the standard curve percentages.

Homework Policy

Homework will be posted every Wednesday at 10am (beginning Week 1) on Canvas under the “Assignments” tab and will be **due the following Wednesday no later than 10am on Gradescope**. Solutions will be posted shortly after the due date (Files->Homework Solutions). **Late homework will not be accepted**, but you may submit what you have for **partial credit before the deadline**. If there are technical difficulties uploading the assignment, you must contact us **before the deadline with your assignment attached**. We encourage you to upload the homework early to avoid such issues. Submitting something is better than submitting nothing.

To offset this policy, your homework grade will be computed out of 80% of the total points. In other words, we will divide your total homework points by 80% of the available points instead of 100%. Note that the maximum you can receive in this category is 100% (i.e. no extra credit).

When uploading to Gradescope you must tag your problems appropriately as this makes the assignment much easier to grade and look back on once graded. Starting with Homework 3, **there will be a 10% homework score penalty if you do not tag your problems**. A guide is posted on Canvas.

We highly encourage you to collaborate with your peers. However, **you must submit the assignments in your own words/handwriting**. Write your name somewhere on the first page of your assignment.

Exams

There will be two exams – one midterm and one final exam. The final exam time is decided by the university.

- Midterm – Thursday, July 25th from 10:30am – 12:00pm in 380C*
- Final Exam – **Saturday**, August 17th from 8:30am – 11:30am in 380C

*This midterm is **in-class** plus an additional 15 minutes. If this would create a conflict with another course, please let me know ASAP by filling out the form on the Canvas homepage.

You are allowed to bring one handwritten 8.5x11-inch sheet of paper (regular printer paper) to each exam on which you can put on both sides whatever material you wish from the course coverage (definitions, formulas, theorems, results, etc.) as an Exam Reference Sheet to be used during the exam. If you wish, you may write on a tablet and **print it out**, but it must be handwritten and adhere to the dimensions previously stated.

If you have any OAE accommodations or a course related conflict with the midterm/final times, you **must fill out the Google Form on our Canvas homepage**.

Regrading Policy

Once an assignment's scores are published on Gradescope, if you feel like a problem was graded incorrectly, then you may submit a regrade request by the deadline mentioned on Gradescope (usually 2-3 days after publishing). Your request must be specific, for example "I received one point off for not computing the derivative in Problem 2a, however I did it off to the side on page X" as opposed to "Please regrade Problem 2a." If you submit a request, you are agreeing to accept the new score you receive (whether it be a higher score, lower score, or no change).

Access and Accommodations

Stanford is committed to providing equal educational opportunities for disabled students. Disabled students are a valued and essential part of the Stanford community. We welcome you to our class. If you experience disability, please register with the Office of Accessible Education (OAE). Professional staff will evaluate your needs, support appropriate and reasonable accommodations, and prepare an Academic Accommodation Letter for faculty. To get started, or to re-initiate services, please visit oae.stanford.edu.

If you already have an Academic Accommodation Letter, please use the form (available on the Canvas homepage) to upload it and detail the specific accommodations you will need in this course. Letters are preferred by the end of week 2, and at least two weeks in advance of any exam, so we may partner with you and OAE to identify any barriers to access and inclusion that might be encountered in your experience of this course. New accommodation letters, or revised letters, are welcome throughout the quarter; please note that there may be constraints in fulfilling last-minute requests.

Honor Code Policy

Please review the Honor Code here:

<https://communitystandards.stanford.edu/policies-guidance/honor-code>

In particular, it is forbidden to collaborate with another student or any other person on an exam. Any use of online sources included but not limited to Chegg, Slader, CourseHero, ChatGPT, etc. is considered an Honor Code violation.

Emergency/Illness

If you need to miss a lecture due to illness or emergency, there is no need to contact anyone on the teaching staff; please be sure to obtain any missed lecture notes from a classmate, and you are welcome to attend any of the teaching staff's office hours for help catching up. As mentioned previously, if you feel you cannot complete a homework assignment on time, **please submit what you have for partial credit.** Having some points for a given assignment will be beneficial towards the 80% homework policy.

If your illness/emergency forces you to miss an exam, please contact the **instructor** ASAP before the exam.

Course Outline

Please check the Canvas homepage for a link to the outline for the course.