

Welcome to the Summer '25 manifestation of MATH 22 at UC Santa Cruz! This syllabus contains important information about the course. If you are a student, I highly recommend you read the document in its entirety. Additional information about the course can be found on [my webpage](#).

Basic Course Information

Instructor: Jadyn V. Breland (he/him/his.)

Office Hours: Tu/Th 4:45-5:45PM in McHenry 4117.

Email: jbreland@ucsc.edu

Personal Webpage: <http://jadynbreland.com>

Prerequisites: MATH 11B or MATH 19B or MATH 20B or AM 15B or AP calculus BC exam score of 4 or 5.

Meetings: M/W/F 5:00-7:15PM in Cowell 131. Attendance is factored into your grade via the Daily Assignment.

Textbook: *Active Calculus - Multivariable*, Steve Schlicker. In the spirit of reducing the cost of your education, I have chosen to use this free and open source textbook. You can [download the textbook for free](#) or [view the .html version](#). This textbook is by no means traditional: as the title suggests, the student is expected to actively engage with the textbook. There are very few worked examples in the texts, with there instead being 3-4 activities per section that engage students in connecting ideas, solving problems, and developing understanding of key calculus concepts. Everyone will be expected to read the textbook and digest the material in a meaningful way, outside of class. Class meetings will typically be reserved for discussing key ideas and completing the activities, either individually or in groups.

Course Webpage: The course web page is located at https://people.ucsc.edu/~jbreland/teaching/SM25_MATH22.html. Most of the course content will be posted here, including: this syllabus, assignments, due dates, notes, and other resources.

Edfinity: We will use the online homework management system [edfinity](#). You are required to enroll in our course at the following link: <https://edfinity.com/join/K3LFRUY6>. The cost is \$35 per student.

Canvas: The Canvas webpage will be used for hosting grades and making announcements.

Discussion Sections: Tu/Th 3:30-4:30PM in Physical Sciences 130. Sections begin the first week of class.

TA: Joseph Immel

TA e-mail: jhimmel@ucsc.edu

TA Office Hours: TBD

Study Hall Tutoring: LSS is supporting our course through the [Math Study Hall Program](#). You can sign-up for tutoring sessions on [TutorHub](#).

Tutors: Kate Wang (she/her)

e-mail: kafwang@ucsc.edu

Megan Tallcott (they/she)

e-mail: mtallcot@ucsc.edu

Accessibility: I am strongly committed to making my course as accessible as possible. If you encounter materials that are not accessible to you, or experience a barrier to your participation, please bring this to my attention and I will gladly work with you to ensure accessibility. I am also happy to honor any accommodations letters from the Disability Resource Center (DRC) that you would like to confidentially bring to my attention.

Course Content: Functions of several variables. Continuity and partial derivatives. The chain rule, gradient and directional derivative. Maxima and minima, including Lagrange multipliers. The double and triple integral and change of variables. Surface area and volumes. Applications from biology, chemistry, earth sciences, engineering, and physics.

Learning Outcomes: Upon successful completion of the course, students will be able to do the following within the topic of multivariable calculus:

1. Recall the basic definitions, theorems, and techniques of multivariable calculus.
2. Distinguish truth from falsehood and create examples and counterexamples.
3. Competently and confidently solve a variety of problems that require techniques from multivariable calculus.
4. Communicate mathematical ideas and arguments in clear, convincing, and concise language, both written and oral.

In addition to mastering course content, students will further develop as independent, self-directed learners with the confidence to explore unfamiliar problems and ideas.

Assessment

Assessment Distribution: Your final score in the course will be calculated as the weighted average of the following assessments.

- **READING ASSIGNMENTS (15%)**

There will be 12 Reading assignments. Reading assignments will be assigned shortly after each class meeting and will be due before the next class meeting. Reading assignments and due dates will always be posted on the [course website](#).

Generally, you will read assigned sections of the textbook, complete the assigned preview activities, and write a brief summary of things that you learned or still have questions about. I may add additional tasks as I see fit. The work to be turned in will be a write-up of the assigned tasks, submitted via [gradescope](#).

For each reading assignment, you will either receive 1 point (a “Pass”) or 0 points (a “No Pass”). You will receive 1 point if you:

- submit your assignment on time;
- attempt all assigned activities; and
- make a good faith effort to complete each activity correctly.

Otherwise, you will receive 0 points. Your lowest 2 scores will be dropped.

If you do not complete the readings prior to class, you will be unprepared to discuss the activities during class meetings. This will severely limit your ability to learn the material.

- **DAILY ASSIGNMENTS (15%)**

There will be 13 Daily assignments, which are to be completed during class meetings. You will complete assigned activities from the textbook during class meetings, usually in small groups. You will submit (individually) a write-up of the activities completed in class via [gradescope](#). The deadline to submit is 11:59PM the same day.

For each daily assignment, you will either receive 1 point (a “Pass”) or 0 points (a “No Pass”). You will receive 1 point if you:

- attend the class meeting;
- actively participate in discussions;
- attempt all assigned activities; and

- make a good faith effort to complete each activity correctly.

Otherwise, you will receive 0 points. Your lowest 3 scores will be dropped.

- **WEEKLY ASSIGNMENTS (25%)**

There will be 4 weekly assignments. Weekly assignments and due dates will always be posted on the [course website](#).

Weekly assignments are writing assignments which will typically consist of solving a few challenging problems and carefully writing up a detailed solution. Each problem is graded out of 4 points. Your score for each problem is determined by the grader using the [Weekly Assignment Rubric](#).

- **EDFINITY EXERCISES (15%)**

Exercises from [Edfinity](#) will be assigned each time we cover a section of the text and will typically be due a week later. See [Edfinity](#) for due dates.

- **MIDTERM (15%)**

The midterm exam will happen during class on **Wednesday, August 13**.

- **FINAL EXAM (15%)**

The final exam will happen during class on **Friday, August 29**. The final exam is *not* cumulative and won't directly test material from the midterm, but since calculus builds on itself, a strong grasp of earlier topics is essential for success.

- **DISCUSSION SECTIONS (5%)**

There will be 10 discussion sections held by our TA. You will receive 1 point for each section you attend. During the section, the activities from the most recent [reading assignment](#) will be discussed. I recommend that you work on the reading assignment prior to the section.

Submitting Assignments: All Reading, Daily, and Weekly assignments must be submitted via [gradescope](#). When you submit your files, you will be prompted to select, for each specified problem or activity, the pages on which the associated work/solution are located. You are required to accurately identify the pages associated to each problem. If you fail to do so, you may receive a “No Pass” (if it is a daily or reading assignment) or you may receive no credit for each problem for which the pages are not correctly identified (if it is a weekly assignment).

It is your responsibility to make sure your submission is legible and easy to read. If you submit work that is difficult or impossible to read, you will not receive credit for it, and you will not be allowed to resubmit. There are numerous free smart phone apps that allow you scan your work and save it as a .pdf.

Use of Generative AI: Use of generative AI (such as ChatGPT or Gemini) is permitted as a learning and study aid in this course, provided that their use aligns with the academic integrity policies at UCSC. All work submitted for grading must be your own original work. Any AI use on graded assignments must be documented and properly cited.

Generative AI programs create responses to prompts by predicting what text comes next based on patterns in its training data. It does not understand math or reason logically. This means it can produce convincing “answers” that are completely wrong, especially in technical subjects like mathematics.

Students must be aware that generative AI programs frequently generate misinformation and are generally unreliable for mathematical problem solving.

Weekly Assignment Guidelines: (See also: [Weekly Assignment Webpage](#))

- Discussing the problems with your classmates is allowed and *encouraged*.
- You are **NOT** allowed to copy someone else's work.
- You are **NOT** allowed to let someone else copy your work.
- I expect your submissions to be well-written, neat, and organized. Do not turn in rough drafts or scratch work. What you turn in should be the "polished" version of potentially several drafts.
- Pay close attention to the presentation and clarity of your reasoning in your answers. The ability to communicate effectively is just as important as solving a problem correctly.
- You may freely consult the textbook or any notes from our class meetings. However, you are forbidden from consulting any other resources, including, but not limited to, other textbooks, the internet, Chegg, and math.stackexchange.

Exams: Exams are timed tests which will be administered during class. You will have the entire time to work on the exam.

- **Note sheets:** I do not expect you to memorize all the material. On each exam, you are allowed to use one two-sided 8.5in by 11in sheet of notes. There is no restriction on what you may write on your note sheet - you might include examples, definitions, theorems, or whatever else seems important to you.
- **Missed Exams:** If you miss an exam, you will receive a zero. Make-up exams will not be administered except in extreme circumstances, as determined by the instructor. Extreme circumstances must be adequately documented and confidentially brought to my attention as soon as possible.

Late Work Policy: I will not, under any circumstance, accept late submissions for reading assignments, daily assignments, or [Edfinity](#) exercises. Late submissions of weekly assignments and exams are only accepted, at my sole discretion, in extreme circumstances. Extreme circumstances must be adequately documented and confidentially brought to my attention as soon as possible.

Letter Grades: Your final letter grade depends on your score. Final letter grades are assigned according to the following score ranges:

A+	96-100	B+	86-89	C+	76-79	D+	66-69	F	0-59
A	93-95	B	83-85	C	73-75	D	63-65		
A-	90-92	B-	80-82	C-	70-72	D-	60-62		

Score ranges may be adjusted (to your advantage) according to class performance. Scores falling in between two ranges will be rounded up. For example, according to the ranges above a final score of 75.1 will earn the letter grade C+ (rounded up), whereas a final score of 74.9 will earn the letter grade C (no rounding).

P/NP Grading: A passing grade (P) will be awarded if your score would earn a letter grade of C or higher. Otherwise, you will not receive a passing grade (NP). **Warning:** a score earning the letter grade of C- at UCSC is NOT passing, contrary to popular belief.

I RESERVE THE RIGHT TO CHANGE ANY PART OF THE SYLLABUS ABOVE.

YOU WILL BE PROMPTLY NOTIFIED OF ANY CHANGES VIA EMAIL.

Other Important Information

Summer Session Calendar:

<https://summer.ucsc.edu/summer-edge/dates-deadlines/>

Mathematics Department's Enrollment Info:

<https://www.math.ucsc.edu/courses/enrollment-info.html>

DRC Accommodations: UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please affiliate with the DRC. I encourage all students to benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu. For students already affiliated, make sure that you have requested Academic Access Letters, where you intend to use accommodations. You can also request to meet privately with me during my office hours or by appointment, as soon as possible. I would like us to discuss how we can implement your accommodations in this course to ensure your access and full engagement in this course.

CAPS (Counseling and Psychological Services): This is a stressful time, so if you are in distress, managing heightened stress and anxiety, or want to get more support and a counselor's perspective on something you're going through, CAPS provides a variety of services for your needs, please visit their website for more information <https://caps.ucsc.edu>.

Academic Integrity: Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university community. It tarnishes the value of a UCSC degree. All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC. For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the [Academic Integrity page](#) at the Division of Undergraduate Education.

Title IX: The [Title IX Office](#) is committed to fostering a campus climate in which members of our community are protected from all forms of sex discrimination, including sexual harassment, sexual violence, and gender-based harassment and discrimination. Title IX is a neutral office committed to safety, fairness, trauma-informed practices, and due process. Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the Campus Advocacy Resources & Education (CARE) Office by calling (831) 502-2273. In addition, Counseling & Psychological Services (CAPS) can provide confidential, counseling support, (831) 459-2628. You can also report gender discrimination directly to the University's Title IX Office, (831) 459-2462. Reports to law enforcement can be made to UCPD, (831) 459-2231 ext. 1. For emergencies call 911.