

MATH 22: Calculus II

Lectures — Spring 2026

Course Information

Section 01: MWF 3:30–4:20pm, COB2 110

Instructor: Dr. Alexander Yatskar (office ACS 330A)

Email: ayatskar@ucmerced.edu

Office Hours: Instructor, TA, and LA

- Yatskar — MW 11:00 am – 12:00 pm, ACS 330A
- Jacob — Thu. 1:30 – 2:30 pm, ACS 310B (starting week 2)
- Sean — M. 6:00 – 7:00 pm, SRE 475
- Huifang Dou — Mondays 5:00 – 7:00 pm, ACS 310C
- Nathan Tanlimco — Wed. 5:00 – 6:00 pm, SE1 278 (Extra OH on 5/12 w/ Jacob: 11:30am – 2:30pm, Gran 170)
- Yibing Wang — Thu. 1–2 pm; F 10:20–11:20 am, ACS 338D
- Julian Olaviano & William Chen — Tue. 12:00 – 1:00 pm, SRE 367
- Md. Wali Ullah — Tuesday, 12:00 – 2:00 pm, ACS 358B

Text: OpenStax Calculus II

Course Web Page: MATH 22 is part of the CatCourses management system, available automatically to all enrolled students. All important course materials are posted under *Files*. Course-related announcements are made through the email list maintained by the site. Web page: <https://my.ucmerced.edu/>

Course Description

MATH 22: Calculus II is a continuation of Calculus I, intended for engineering, computer science, physics, and other quantitative STEM majors.

Learning Objectives

This course is the second part of the calculus sequence. In Calculus I, you were introduced to the three fundamental notions upon which calculus is built: limits, derivatives, and integrals. Our

main objectives this semester are:

1. To deepen the comprehension of these notions through conceptual discussions and the investigation of many problems and applications.
2. To master more advanced methods and techniques, and apply them to the solution of a variety of problems.

In this course, we will discuss integration methods, applications of integration, and infinite sequences and series.

Learning Outcomes

Upon completion of the course, students should be able to:

- Given an integral, compute it using the most efficient methods.
- Use integrals to formulate and solve certain word problems.
- Construct and plot parametric and polar equations.
- Identify different types of series.
- Determine whether a particular series converges and identify the interval and radius of its convergence.
- Given a function, construct its Taylor series approximation and explain how such an approximation can be used.

Grade Determination

Our letter grade in the course will be based on:

- Homework assignments — 10% (lowest three dropped)
- Class participation — 6% (lowest two grades dropped)
- Quizzes — 15% (lowest two grades dropped)
- Calculus Project — 2%
- Three midterm exams — 15% each
- Cumulative final exam — 22%

Grades are strictly based on the work submitted, and standards are the same for all students. No “mercy passes” are given to students based on possible academic or personal hardships that might be incurred as a result of failing the class. All grades are final; there are no “bump ups” based on individual requests.

Grading Scale

Letter grades will be given in the approximate framework:

- A: 90–100%

- B: 80–90%
- C: 70–80%
- D: 60–70%

Your final grade will be determined by a curve based on the class average at the end of semester. Please be aware that you need a C– or better to proceed to Math 23 or Math 24.

Lectures

Lecture hours are devoted to discussing fundamental concepts and important techniques. Regular and active attendance in lectures provides a foundation for success in the class. Lecture slides will be posted under *Files*. A short quiz will be given at the end of most lectures. **Lecture code cannot be shared**; students violating this policy will face serious consequences such as being dropped from the class.

Attendance Policy

This course is not designed to accommodate long-term absences (two weeks or more). If your health or personal circumstances change significantly, you are strongly encouraged to retake the course at a later time.

Office Hours

During office hours you'll receive assistance with homework, worksheets, and any topic or concept that you didn't understand in class. You can also post questions on the Discussions forum in your Math 22 Discussions.

Discussion Sections

Discussion sections meet for two hours each week where you will develop and practice your problem-solving skills by working with your classmates to solve challenging problems. Your discussion section participation is graded on a ten-point scale. You must complete the minimum number of problems assigned by the TA and present problems selected by the TA on the board. It is your responsibility to print a copy of the worksheet before coming to discussion section.

Quizzes

- Two problems: one from a previously completed Knewton assignment and one from a previously completed worksheet. If you skipped a worksheet due to a holiday, then two Knewton problems will be selected. The TA will announce which Knewton assignment and worksheet will be on a quiz.
- Two lowest quiz scores are dropped.
- You will receive a 1-point quiz bonus if your back-to-back quiz score improves. Bonus points on quizzes are kept separately and will never be dropped. This bonus applies only to back-to-back (consecutive) quizzes and does not apply to a skipped quiz.

Homework

Each week you will see a new homework assignment posted on Knewton with the corresponding due date. Extensions will only be given in cases of illness or family emergencies.

Click on an assignment link. This will launch into Knewton Alta and will trigger the grade to be sent to the LMS gradebook for that coursework item. Note it may take up to 12 hours for the grade to appear in the LMS gradebook.

Alta grades will pass to the LMS gradebook:

- At the due date
- At the date of any given extensions
- At a new due date (if you change the due date from any screen, including bulk edit)
- When a student reaches 100% mastery in adaptive assignments

Exams

Three exams will be given during class. There will be no make-up exams and no early exams. If you are ill on the day of an exam, you must provide a doctor's order explicitly excusing you from school for the exam date(s) (e.g., "excused for three days"). Appointment cards, visit summaries, or sign-in logs are not accepted. Doctor's orders may not be used retroactively.

Family emergencies that require your absence on the day of an exam may be excused; in such cases, please submit a letter explaining the situation before the exam. Your course grade will then be determined by the rest of your coursework. Please bring your student ID to each exam. Calculators and crib sheets are not allowed on the exams.

On exam days, students are strongly encouraged to be in their seats 5 minutes before the beginning of class.

Support Groups

You're encouraged to organize study groups of 2–5 people where you meet regularly to discuss class topics covered during a week. You will receive extra credit worth 20 homework points per week by submitting a report. You must meet in person at a designated place, preferably one that has a board where you can work on different problems.

You must be enrolled in a Canvas group to submit this assignment. Go to People → Groups, join one available group, and (if you wish) rename your group to something appropriate. Each group submits one report total—only one member needs to upload it, and all group members will automatically receive the same grade. Canvas will not accept multiple submissions from the same group, so coordinate before submitting.

Class Project

At the end of the semester, submit a slide presentation on how the topics covered in class are used in your major.

Layout of Presentation

- **Slide 1:** Name of presentation and participants
- **Slide 2:** Introduction to your major and how the content covered in class relates to a topic you're interested in. Choose one topic only.
- **Slides 3–4:** Formulas and graphs that explain the topic.
- **Slide 5:** Conclusion

Presentation is graded on content and originality. Avoid generic topics such as “calculus is used to calculate orbits of planets around the sun”—it has to be something of interest to you.

Student Accommodation Service (SAS)

- **Approved Accommodations:** Your accommodation letter specifies your approved testing conditions (e.g., extended time).
- **Reserve your spot:** Submit an application with documentation of your disability to SAS at least 2 weeks before each midterm and 1 week before a discussion quiz.
- **Choose Your Testing Method:** Decide before each exam whether to use SAS accommodations or take the regular exam. Once you begin an exam under either method, that is your official exam attempt for that assessment. (If you take the regular exam and don't like your score, you cannot try again through SAS.)
- **Scheduled Exam Date:** SAS exams must be administered on the same date as the regularly scheduled exam.
- **No Show:** You forfeit your exam if you don't show up. A no-show exam cannot be rescheduled.

Cellphones and Laptops

Cell phones: All portable electronic devices (e.g., cell phones, pagers, and laptops) must be turned off and put away during exams, lectures, and discussion sections. Calculators are the exception; they may be used in lectures and discussion sections, but not in exams.

Laptops and notepads: Allowed in class as long as they're used for lecture. We will be using apps like Desmos or GeoGebra to demonstrate different topics. Remember, however, that no calculators or crib sheets are allowed in the exams.

Dropping the Course

You may drop the course on your own without fees until 2/9. After that date, instructor approval is required, with a final deadline of April 7.

Extra Help

You are encouraged to get extra help whenever you need it. The instructor and section leaders each have office hours, which are posted at the top of this document. You may go to the posted office hours of any Calculus I instructor or section leader, even if they are not your regular instructor or section leader. In addition, review sessions are scheduled just before each exam. Other helpful

items are posted on CatCourses. You are welcome to send questions to your instructor via email at any time.

Free tutoring is available through PALS, the Math Center, and the STEM Center:

- STEM Center: ucmerced.edu/academic-services
- Math Center: ucmerced.edu/
- PALS Center: ucmerced.edu/Tutoring_Info_Students

Beyond Calculus II

You must receive a grade of C– or better in this course in order to advance to Math 23 or Math 24.

Academic Integrity

Academic integrity is the foundation of an academic community, and without it none of the educational or research goals of the university can be achieved. All members of the university community are responsible for its academic integrity. Existing policies forbid cheating on examinations, plagiarism, and other forms of academic dishonesty. The current policies for UC Merced are described under Student Judicial Affairs at <http://studentlife.ucmerced.edu/>.

Examples of Academic Dishonesty

- Using Wolfram or similar programs/calculators during an examination
- Receiving or providing unauthorized assistance on examinations
- Using unauthorized materials during an examination
- Plagiarism — using materials from sources without citations
- Altering an exam and submitting it for re-grading
- Fabricating data or references
- Using false excuses to obtain extensions of time or to skip coursework

Use of a calculator or Wolfram during an exam will result in an immediate F for the course, with an option of academic dishonesty recorded on the transcript. The instructor does not need to catch a student in the act to initiate a disciplinary action; calculator use can be easily ascertained during the grading of an exam.

Student Responsibilities

The ultimate success of a code of academic conduct depends largely on the degree to which students fulfill their responsibilities toward academic integrity. These responsibilities include:

- Be honest at all times.
- Act fairly toward others — for example, do not disrupt or seek an unfair advantage over others by cheating, or by talking or allowing your eyes to wander during exams.

- Take group as well as individual responsibility for honorable behavior. Collectively, as well as individually, make every effort to prevent and avoid academic misconduct, and report acts of misconduct which you witness.
- Do not submit the same work in more than one course. Unless otherwise specified by the instructor, all work submitted to fulfill course requirements must be work done by the student specifically for that course. Work submitted for one course cannot be used to satisfy the requirements of another course unless the student obtains permission from the instructor.
- Know what plagiarism is and take steps to avoid it. When using the words or ideas of another, even if paraphrased in your own words, you must cite your source. Students who are confused about whether a particular act constitutes plagiarism should consult the instructor who gave the assignment.
- Know the rules — ignorance is no excuse. Those who violate campus rules regarding academic misconduct are subject to disciplinary sanctions, including suspension and dismissal.

Tips for Success

Everything that we will do in this class is to help you learn mathematics, but you need to take control, ownership, and responsibility of your academic career. At some point in college, most students discover that their study habits from high school don't work well anymore. Don't be discouraged! This is an encouraging sign that you are growing intellectually. Try to figure out what works for you.

Many students consider Math 22 to be a difficult course. Even those who have taken calculus in high school are likely to be surprised by the amount of work that we require.

Problem solving. The goal of this course is to help you continue to learn calculus as well as you can. Learning calculus means doing calculus. Just as a violinist must practice scales and a basketball player must practice free-throws, a calculus student needs to practice solving problems.

To succeed in this course, you need to learn (1) how to solve calculus problems and (2) why calculus works the way it does. To learn these two things, you need to gain experience by solving many problems. Along these lines, we suggest the following tips for success:

- **Manage your time wisely!** Plan to spend at least two hours outside of each lecture and discussion section working with Math 22 material.
- **Before lecture:** Read (at least scan) the day's material. Work through the example problems in that section and identify what you already know and what is new and different.
- **After lecture:** Review the day's textbook section and lecture notes. Go over the example problems done in class to warm up. Ask yourself, "What is the big picture here?" Try to answer that question as best as you can. Then start the homework problems.
- **Be mindful of the time it takes to complete a problem.** Speed is not the most important factor in your success in this course. However, there is a time limit to every homework assignment and exam, so, to some extent, you are graded based on your ability to solve problems in a timely manner. Practice through solving many problems is key.
- **Be engaged** in the class and discussion sections. Attend all lectures and discussion sections,

and ask questions when you have them — don't wait until later.

- As you practice solving problems, always try to understand the “why” behind the methods you use. Exams will be written to test your understanding of the methods, not your ability to follow a “recipe” for solving a particular problem.
- Homework will consist of even-numbered problems for which there are no solutions in the book. If you are stuck on a problem, try the odd-numbered problems on either side, for which the solution is in the back of the book.
- Use office hours both to aid in completion of homework and to understand topics that are not clear.