

Spring 2026 Syllabus
Math 21-01, Calculus I (CRN 10025)

Instructor: Keith Thompson

Office: ACS 330C

Instructor E-mail: kthompson33@ucmerced.edu

Office Hours: See CatCourses

Class Meets: 11:30a-12:20p MWF

Classroom: COB2 110

TA email addresses and all office hours: See CatCourses course homepage.

Instructional team: Our instructional team aims to make your learning experience a rich and successful one this semester. In addition to myself as the instructor, we have both Teaching Assistants (TAs) and Undergraduate Learning Assistants (LAs) on the instructional team. Our goal is to support your understanding of, and keep you highly engaged with, the course content. While the main job of a graduate Teaching Assistant (TA) is to assist me, the teacher (by grading papers, running recitations, discussion sections, etc.), the main job of a Learning Assistant is to help you, the students. LAs will help me facilitate active learning and collaboration activities in the classroom, but they have nothing to do with grading in the course. LAs will focus on your processing of new content and hopefully help learn how to learn more effectively.

Course Prerequisite: Math 5, or placement test

Required Text: *Calculus, Volume I*, by Gilbert Strang et al.

The text is free and available under a CC BY-NC-SA 4.0 license:

URL: <https://openstax.org/details/books/calculus-volume-1>

Course Description: This course serves as an introduction to the study of functions as models of real-world phenomena, and as well as their applications. This is taken from the perspective of the study of their rates of change, which is the heart of the subject of calculus. By the end of the semester students will have developed core skills used in chemistry, physics, and engineering, as well as the groundwork to pursue more advanced methods within mathematics. We will work through most of chapters 1-5 in our textbook. A detailed list of Course Learning Outcomes can be found at the end of this document, and a schedule with a list of sections and topics to be covered can be found on CatCourses in the “Files” section.

General Education Goals: This course emphasizes the following General Education Guiding Principles.

- **Scientific Literacy** – Calculus provides a mathematical basis for quantitative modeling in social sciences, natural sciences, and engineering. Analyzing functions and their properties provides the fundamental mathematical framework needed to establish a quantitative understanding of the relationships between causes and their effects.
- **Decision Making** – Modeling real-world phenomena using calculus provides fundamental tools needed for quantitative decision making.
- **Ethics and Responsibility** – Mastery of fundamental mathematical tools such as calculus necessitates the practice of objective interpretation of data and the correct attribution of mathematical results, especially when remarking on models of real-world problems that may affect sustainable living and environmental and societal responsibility in one way or another.

Applied Mathematics Program Learning Outcomes: This course is aligned with the following Applied Mathematics program learning outcomes:

1. Solve mathematical problems using analytical methods.
2. Recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines.
3. Give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences.

Course Learning Objectives and Outcomes:

Learning **outcomes**: Upon completion of this course, students should be able to demonstrate understanding of...

- The role of functions in modeling and describing our world mathematically.
- The concept of a limit and the definitions of derivatives and definite integrals in terms of limits.
- How to use derivatives to analyze functions.
- The Fundamental Theorem of Calculus.
- How to apply differential and integral calculus to real-world problems.

Learning **objectives**: Upon completion of this course, students should be able to:

- Compute limits of algebraic expressions.
- Compute the derivative of elementary functions using both the definition of a derivative and differentiation formulas.
- Identify ways in which a function can fail to have a derivative.
- Find maximum or minimum values of functions.
- Sketch the graph of a function using information provided by the derivatives of the function.
- Solve optimization problems by converting them into the language of calculus.
- Compute certain simple antiderivatives.

- Compute the definite integral of elementary functions.
- Define the definite integral as a limit of Riemann sum approximations.

Grading: Your overall course grade will be based on a weighted average using the following standard scale and components. The instructor reserves the right to curve grades – for example by rounding up of borderline scores. Any curve would never result in receiving a grade lower than that indicated by the standard scale. Any score above 90% guarantees at least an A-, and a score of at least 70% guarantees a passing grade. Plus and minus will be applied to the upper and lower three percentage points of each range.

Standard scale:

A = 90%-100% 80%- 89% = **B** 70%- 79% = **C** 60%- 69% = **D** < 60% = **F**

Course component weights:

Midterms (3)	10% each
Homework	15%
Discussion section	25%
Lecture quizzes	15%
Final	15%

Schedule Notes:

1/19	Non-instructional day
1/21	First lecture meeting
2/9	Last day to add/drop classes
2/16	Presidents Day Holiday
3/23-3/27	Spring Recess/Cesar Chavez Holiday
4/7	Last day to Withdraw from classes
5/12	Final exam Tuesday May 12, 6:30pm-9:30pm in COB2-110.

Homework Assignments: You will be given online homework assignments through Knewton Alta. Alta is integrated through CatCourses and homework sets are available through the “Assignments” tab in CatCourses. Please be aware that Alta is a third-party system, and any technical problems must be directed to Knewton staff. Your professor and TAs do not have the ability to address those questions.

Knewton Alta purchase options: Alta access is required for the course homework component and must be purchased after the trial period. Alta Access is provided by default through the Inclusive Access program which applies the charge to your student account. Alternately, Alta is available for single-term access or a 2-year plan, both available directly from the publisher as well as through the campus bookstore.

Late homework policy:

Sets partially completed at the due date will receive proportional credit on the due date. For example, if you stand at 72% mastery on the due date, this score will be synchronized from Alta to CatCourses on the due date.

Progress after the due date will not be reflected in the gradebook until you finish the set (100%).

A set fully completed after the due date will receive partial credit with a 10% deduction per day after the due date. This will update your results in CatCourses if and only if it would improve your grade.

Homework advice: The purpose and value of completing these homework assignments is to practice and process the content and skills represented in the course learning outcomes. It is in your best interest not to rely too heavily on external tools or resources to complete the problem sets. It is important to do your own work to understand the material because it is easy to get a false sense of security by relying on others or external resources.

Exams and assessments: Exams and quizzes focus on measuring and providing feedback on students' own understanding and progress with the course's core concepts and methods in a hands-on setting. As such no electronics may be used during exams or discussion quizzes.

Please understand that assessments are designed with this in mind and that no overly complicated arithmetic or calculator-dependent work is expected or required. A well supported final answer need only be "calculator ready" to receive full credit unless other specific instructions are given.

Lecture: Regular class attendance is important and expected and lectures will feature breakout sessions with group activities as well as quizzes. If you are unable to attend for any reason on a particular day please plan to obtain notes from a fellow student, read the relevant section(s) of the textbook, and contact me to check in on the day's material and announcements.

Discussion Section: In discussion sections, you will develop and practice your problem-solving skills by working with your classmates to solve problems. You will have quizzes in nearly every discussion section. These will be based on the previous worksheet. Your participation in the discussion sections will also be graded – ensure a full score by meeting the following requirements.

- Be seated and prepared when discussion begins, stay the entire time.
Students who arrive more than 20 minutes late will not be eligible for credit for that day.
- Pay attention, ask questions, answer when called on.
- Participate in the group discussion and worksheet period.

- Do not engage in any activity not directly related to this course, including messaging, homework for other classes, surfing, etc. Students who do so will not be eligible for any credit for that day.
- Quizzes will be given weekly based on the preceding week's worksheet, except on a few specific days. Study and practice to score well on these quizzes.

“Homework Help” Sites, AI, Academic Integrity, Intellectual Property:

- Your work in this course, as with all of your courses, is covered by the Academic Integrity Policy and Student Code of Conduct: <https://osrr.ucmerced.edu/academic-integrity>
- The use of “homework help” sites or AI as a substitute for authentic effort is strongly discouraged.
- Doing your own work is the only way to learn and using another’s answer is not helpful for understanding.
- These sites lack quality control or qualifications for responders. Answers on these sites are frequently incomplete or flat wrong.
- Representing or submitting others’ work as your own is a violation of UC Academic Integrity policy and will be handled and reported as such. This can result in probation, suspension, or dismissal from the University as well as course consequences which are determined based on the severity of the incident.
- All course materials, including 3rd party materials such as the homework system, are subject to copyright by their respective authors. Distributing or posting any course content without prior written consent, including transmitting course content to a Large Language Model, AI, or bot, is expressly prohibited and illegal.

Dropped assignments: Your lowest results in some categories will be dropped automatically to accommodate personal emergencies as noted below:

- Lecture quizzes (2)
- Discussion quizzes/participation (2)
- Homework (2)

Please understand that these dropped assignments are included specifically to address personal emergencies for which documentation is not available, rather than to excuse poor work. Beyond the automatic dropped assignments listed above, excused absences or alternate arrangements may be offered in cases of a documented emergency or medical contingency, or by pre-arrangement for approved reasons such as professional conferences or University sports. In the event of such an absence please contact me well in advance for a planned future absence, or as soon as possible for medical or other emergency absences.

Accessibility and Accommodations: Every effort will be made to

accommodate students who, because of religious obligations or medical needs, have conflicts with the scheduled activities in this course. If you have a need or obligation that will cause a conflict at any point during the term, please speak to me in the first week regarding any necessary accommodation or adjustments.

If you anticipate or experience barriers due to pregnancy, temporary medical condition, or injury, please feel welcome to contact me so we can discuss options. University of California, Merced is committed to creating learning environments that are accessible to all. If you anticipate or experience physical or academic barriers based on a disability, please feel welcome to contact me privately so we can discuss options. In addition, please contact Student Accessibility Services (SAS) at:

Phone: (209) 228-6996, or Email: disabilityservices@ucmerced.edu

as soon as possible to explore reasonable accommodations. All accommodations must have prior approval from Student Accessibility Services based on appropriate documentation.

Accommodation Process

1. Student meets with SAS and provides documentation and completes registration forms.
2. SAS evaluates needs and determines appropriate accommodation(s).
3. SAS communicates accommodations to instructor. Student arranges to meet with his/her professors to discuss the approved accommodation(s) and make appropriate arrangements.
4. Student schedules proctoring through SAS as needed for assessments covered by accommodations.