Math 131 - 01 Calculus I Summer 1 2025 - Syllabus

Instructor : Richard Bartels, PhD

Contact Information : MECC 227, 860-297-4244, rbartels@trincoll.edu

Office Hours: TR 12:15 pm - 1:30 pm
or by appointment (email to set up)

Lecture : MTWR 10:00 am - 12:05 pm MECC 270,

Textbook : OpenStax Calculus, Volume 1

Link to textbook: `https://openstax.org/details/books/calculus-volume-1`

Note: We will cover material in chapters 1, 2, 3, and 4 of the online OpenStax Calculus textbook. There are review exercises at the end of each chapter. The answer key at the bottom of the table of contents has answers to odd-numbered exercises. I will post my lecture notes on the Moodle course page.

Grading : Your final letter grade for the course will be determined from your numerical percentage grade in the standard way (..., B 83-86, B^+ 87-89, A^- 90-92,...) using the following breakdown.

Note: it is the policy of the math department to not award the grade of $A+$ in 100-level courses.

Attendance/Participation :	5%
Homework :	25%
3 Exams :	15% each
Final Exam :	25%

Important Dates :

Mon, May 19	First class
Tues, May 20	Add/Drop period ends
Mon, May 26	No class. Make-up class on Friday, May 30
Tues, June 3	Last day to withdraw from Summer 1 courses
Thursday June 19	No class. Make-up class on Friday, June 20
Fri, June 20	Last class, final exam

Please read and sign the following declaration regarding academic integrity:

In accordance with Article II of the Trinity College Student Integrity Contract, I hereby pledge that the papers, exams, and other academic exercises I submit for this course will represent my own work; that I will properly acknowledge and attribute any and all information and ideas that I have used from other sources; and that no collaboration unauthorized by the instructor of the course will occur in the course of its completion.

Signature: _____ Date: _____

Office Hours : You are encouraged to come to office hours whenever you have questions, especially when you don't understand how to solve a problem from a past exam. You are always welcome to ask me about homework problems and course material. If you are unable to make my regularly scheduled office hours, please email me to set up an appointment, or drop by if I'm in my office.

Exams : There will be three in-class exams during the second hour of class, as indicated on the following schedule. There is also a cumulative final exam during the entire class on Friday, June 20.

Expectations:

- You should expect to spend at least 8-12 hours per week outside of class working on homework assignments, reviewing lecture notes, reading the online textbook, and working on practice problems.
- You are expected to participate in lecture. The focus should be on keeping up with and understanding what is going on, not on taking notes. Ask questions when you don't understand something! If you fall too far behind, take notes and come to office hours.
- You should have a solid understanding of the precalculus material in Chapter 1 of the online textbook. If you are unsure about any of the precalculus material, please ask me about it.

Learning Goals: In this course, we will review (in Ch 1) some essential facts about functions of a single real variable and their graphs before studying differential calculus (in Ch 2-4). The goal is to gain a strong intuitive, geometric, and formal understanding of definitions, theorems, methods, and applications.

- (Ch 2) Understand the definition of the limit of a function, how it is used to define continuous functions, and important properties of continuity, especially the Intermediate Value Theorem. Be able to use algebraic techniques and results from class to calculate limits for a variety of elementary functions.
- (Ch 3) Understand the definition of the derivative of a function, especially how it is defined using a limit, and how it may be interpreted as a rate of change, or the slope of a tangent line. Be able to use algebraic techniques and results from the class to calculate derivatives for all elementary functions.
- (Ch 4) Understand the application of derivatives to fundamental problems in geometry, physics, and other disciplines. Be able to solve various word problems using calculus techniques, especially related rates and optimization problems. Be able to sketch accurate graphs of functions when given information about the function's first and second derivatives.
- Be able to communicate mathematics effectively, using complete sentences which blend the English language with mathematical definitions, notation and accompanying figures.

Homework : There are three homework assignments for the course. Homework will be assigned at the beginning of each week and is due Tuesday of the following week. You are encouraged to work on homework together, but you must write your own solutions.

Students with Accommodations : Trinity College is committed to creating an inclusive and accessible learning environment consistent with the Americans with Disabilities Act. Students with disabilities who may need some accommodation in order to fully participate in this class are urged to contact the Student Accessibility Resource Center, as soon as possible, to explore what arrangements need to be made to assure access.

If you have approval for academic accommodations, please notify me by the end of week two of classes. For those students with accommodations approved after the start of the semester, a minimum of 10 days' notice is required. Please be sure to meet with me privately to discuss implementation.

Student Accessibility Resources can be reached by emailing SARC@trincoll.edu

Academic Integrity : In accordance with the Trinity College Student Integrity Contract, students are expected to abide by the highest standards of intellectual honesty in all academic exercises. Intellectual honesty assumes that student do their own work and that they credit properly those upon whose work and thought they draw. It is the responsibility of each student to make sure that they are fully aware of what constitutes intellectually honest work in every exam, quiz, homework, or other academic exercise submitted for evaluation in a course at Trinity College.

Supplemental materials: At the webpage https://calculus.domains.trincoll.edu you will find links to helpful desmos graphs and other supplemental materials.

Attendance Policy : You are expected to attend and participate in lectures.

In the event of an unforeseen unavoidable circumstance which prevents you from attending class on the day of an exam, a suitable make-up exam will be given on a case-by-case basis.

It is your responsibility to find out what was covered in any lecture that you miss.

Course Policies :

- **Low Exam Policy:** If your grade on the final exam is better than the grade on your lowest midterm exam, your final exam grade will replace your lowest midterm exam grade. **Note:** you must take all three midterm exams.

- **Calculator Policy:** You may use a scientific or simple function calculator on exams, but not a graphing calculator. You may use any calculator during class, but not any other electronic devices, except for note taking.

- **Use of Moodle:** I will use Moodle to post links to lecture notes, homework assignments, solutions to homework assignments and exams, worksheets, and review packets. Please make sure you are able to access the Moodle site and bookmark it.

- **Use of Email:** I will use trincoll email to make announcements. Please make sure that your Trinity email account is working and check regularly for announcements.

Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
5/19 • Functions • Graphs of functions	**5/20** • Operations • Transformations • Inverses	**5/21** • Limits	**5/22** • Continuity	**5/23** No class
5/26 No class	**5/27** • Limit rules • Calculating limits	**5/28** • Infinite limits • Indeterminate forms	**5/29** • Intro to derivatives • **Exam 1**	**5/30** • Intro to derivatives
6/2 • Derivative rules	**6/3** • Chain rule • Implicit differentiation • **HW 1 due**	**6/4** • Derivatives of log and exponential functions	**6/5** • Derivatives of trig functions • **Exam 2**	**6/6** No class
6/9 • Mean Value Theorem	**6/10** • Curve sketching • **HW 2 due**	**6/11** • Curve sketching	**6/12** • Optimization • **Exam 3**	**6/13** No class
6/16 • Related rates	**6/17** • L'Hospital's rule • **HW 3 due**	**6/18** • Review for final exam	**6/19** No class	**6/20** • **Final exam**

The content, policies, assignments, and schedule listed in this syllabus are subject to change. I will announce any changes in class and via email.