

MATH 231-01 Calculus III

Fall 2026

Instructor: Ben Bruce
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Office: MECC 235
Office hours: MT 3:30-5pm,
WF 10-11am

Class: MWF 12-12:50pm in MECC 246,
T 10:50am-12:05pm in MECC 270
Website: [MATH 231-01 Moodle page](#)

Course description: In previous calculus courses, you worked with functions that take a single number as input and produce a single number as output. In this course, you will extend the main ideas of single-variable calculus to the multivariable (vector) setting, that is, to functions involving a vector as either input, output, or both. You will encounter some familiar themes, like derivatives and integrals, along with various new concepts unique to the multivariate world.

Learning objectives:

- Describe three-dimensional geometry using vectors.
- Model real-world situations using multivariable and/or vector-valued functions.
- Simplify computations using alternative coordinate systems.
- Understand multivariate derivatives and integrals from both analytic and geometric points of view.

Textbook: Our primary textbook will be *Calculus* by Laura Taalman and Peter Kohn. We will cover most parts of Chapters 10–14. You have been given free online access to the book, courtesy of the publisher. A link and password can be found on our Moodle page. (You can also purchase a print copy if you prefer, but this is not required.)

Grading:

- The breakdown of your grade is as follows:

Final exam	25%
3 midterm exams	45% (15% each)
Homework	25%
Participation & in-class work	5%

- Your letter grade will be calculated in a standard way:

A	A-	B+	B	B-	C+	C	C-	D	F
[93, 100]	[90, 93)	[87, 90)	[83, 87)	[80, 83)	[77, 80)	[73, 77)	[70, 73)	[60, 70)	[0, 60)

Exams: There will be three midterm exams and a cumulative final exam. The midterms will be taken in class on September 29, October 27, and November 24. The final exam will be taken on December 23 at 3:00pm, as set by the Registrar's Office. The final exam must be taken in person and cannot be moved to an earlier date or time (no exceptions). Do not make travel plans that conflict with the final exam.

Calculators: You will be allowed to use a non-graphing scientific calculator during exams, although exams will be designed so that no calculator is needed.

Homework: Your homework will consist of weekly written assignments that you submit in class. You are encouraged to work on your homework with other students, but you must write and submit your own solutions.

Late work: You will be given 3 “grace days”, each of which entitles you to a 24-hour extension on a homework assignment, no questions asked. You can use these however you see fit. (For example, you could use all three at once to get a single 72-hour extension, or you could use them one by one to get three 24-hour extensions.) After all grace days are used, extensions will be granted on a case-by-case basis at my discretion.

Use of AI and external resources: I expect you to complete the homework assignments yourself or with the help of your classmates. You may use your notes, the textbook, and any materials posted on Moodle, but nothing else. Submitting solutions from other sources, including AI sources like ChatGPT, without attribution may constitute plagiarism. If you get stuck on a problem, talk to a classmate or talk to me during office hours. This is totally normal! Homework aside, you are welcome to use AI (and other resources) to support your learning within this course. We will brainstorm potential beneficial uses of AI in class. Here are a few examples:

- Asking AI to generate practice problems
- Asking AI to illustrate a concept with an example
- Asking AI to quiz you on what you learned in class

Always bear in mind that AI can (and regularly does) output false information. It is a good practice to cross-reference AI output with other sources, or at least interpret it with some degree of skepticism. If you have any questions or concerns or ideas related to AI, please talk with me!

Participation & in-class work: A small part of your grade is determined by your participation and in-class work. “Participation” refers to your overall engagement with the course. Different students will prefer to participate in different ways, and that is perfectly fine. At a minimum, you should attend class. But to earn a higher grade, consider asking/answering questions in class or on Moodle, collaborating with other students, attending office hours, etc. “In-class work” refers to any graded work that is completed in class, such as a worksheet or quiz.

Office hours: It is very normal for students to make use of my office hours, and I encourage you to do so. Possible reasons you might visit:

- You are stuck on a homework problem and want to discuss ideas.
- You want to go over an exam or assignment to get extra feedback.
- You are interested in a concept from class and want to learn more about it.
- You are excited about something mathematical and want to share it with me.

Please be aware that my office hours are generally not private. If you need to speak with me privately, let me know and I will arrange a separate time for us to meet.

Absences: I expect you to attend class, and I will take attendance randomly throughout the semester. If you do need to miss a class, please send me a brief email in advance explaining the circumstances. (One or two sentences is fine.) Absences without proper explanation will impact your participation grade. It is your responsibility to review any material and/or announcements that you miss; this information will be posted on Moodle. If you are unable to take a midterm exam, you must notify me by email prior to or during that exam. A make-up exam will be given only in case of an unavoidable absence, and documentation (e.g. a doctor's note) may be required. The final exam must be taken in person at the scheduled time; no early or make-up final exams will be given.

Electronic devices: Laptops and cellphones can be distracting and generally should not be used during our class. (If you expect that you will need to use a laptop, please talk to me.) Tablets may be used in class for note-taking/writing purposes only.

Academic accommodations: If you need an accommodation to participate fully in this course, contact the Student Accessibility Resource Center (SARC@trincoll.edu) as soon as possible. If you already have approval for an accommodation, please notify me by the end of week two of classes. If your accommodation is approved after the start of the semester, I will need ten days' notice before implementing the accommodation. In all cases, please arrange a private meeting with me to discuss specifics.

Academic integrity: In accordance with the College's [Student Integrity Contract](#), you are expected to abide by the highest standards of academic integrity. You are responsible for knowing what constitutes intellectual honesty in every exam, homework assignment, or other academic exercise submitted for evaluation as part of this course.

Disclaimer: While this syllabus outlines my general plan and expectations for the course, adjustments may become necessary. Any changes to the syllabus will be communicated to you clearly and with reasonable notice.