MATH 231-01 Calculus III
Fall 2025

Instructor: Ben Bruce
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Class: MWF 12:00-12:50pm &
T 10:50am-12:05pm, LSC 137

Office hours: MF 3:30-5:00pm,
T 9:30-10:30am
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 9–14. 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 policies:

- Your overall score for the course will be weighted as follows:

Homework	35%
Final exam	25%
Midterm exam 1	15%
Midterm exam 2	15%
Participation	10%

- Your score will be converted to a letter grade using the following scale:

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 two midterm exams and a cumulative final exam. The midterms will be written in class on Friday, October 17th and Friday, November 21st. The final exam will be written on Monday, December 15th at 3:00 pm.

Homework: You will be assigned homework approximately once per week. You are welcome (and encouraged) to work with other students, but you must submit your own copy of the assignment written in your own words. Homework will be submitted through Moodle. Late work will be accepted only with use of grace days (see below).

Use of AI and external resources: It is vital that you 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, such as ChatGPT or other AI tools, 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!) When you are *not* working on homework, please do make use of any resource that piques your interest.

Grace days: You will be given three "grace days", each of which entitles you to a 24-hour extension on a homework assignment. 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.

Participation: You will receive a participation grade reflecting your level of engagement with the course. Your active participation benefits not only you but also your classmates. 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 high grade, you could ask questions in class or on Moodle, collaborate with other students, attend office hours, etc.

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. If you absolutely need to miss a class, please send me a brief email explaining the circumstances. Frequent 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 write an exam, you must notify me by email prior to or during that exam. Make-up exams will be given only in case of unavoidable absences, and documentation (e.g. a doctor's note) may be required.

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.