

Instructor: Carolyn Abbott (pronouns: she/her/hers)

Office: 629 Mathematics Building

Office hours: Mondays and Wednesdays 1–2:30

Email: abbott@math.columbia.edu

My website: www.math.columbia.edu/~abbott

Lectures: Lecture is held Mondays and Wednesdays from 10:10am to 11:25am in 207 Mathematics Building.

Text: The textbook for this course is Calculus: Early Transcendentals, 8th Edition, by James Stewart. This is available for purchase at the Columbia bookstore, or you can acquire it as an ebook online.

Homework: There will be 12 homework assignments throughout the semester. These will be assigned weekly and will be due on Wednesdays by 8pm, unless otherwise noted. You should leave your homework in the appropriate Calculus III box outside room 410, on the 4th floor of the math department. Be sure to write your full name (first and last), UNI, and the section number on your homework, and staple all of the pages securely together.

No late homework will be accepted. However, I understand that due to external circumstances, it may not always be possible to complete your assignments on time. To account for this, the lowest two homework scores will be dropped.

You are encouraged to collaborate on and discuss the homework with other students. However, you must *independently* write up your own solutions. Similarly, you may use Google or any other resources to help you with the problems, but you must write up your own solutions *in your own words*.

Homework assignments will be posted below at least one week before the due date. All problems are from Stewart. Solutions to each homework assignment will be posted on the course webpage the morning after the assignment is due.

Exams and quizzes: There will be two in-class midterms and a final exam. See below for dates. A list of topics, a study guide, and practice exams will be provided before each exam. I will also hold a review session before each exam.

Important dates:

- Midterm #1: Wednesday, February 19
- Deadline to drop this class: Tuesday, February 25
- Midterm #2: Monday, March 30

- Final Exam: Wednesday, May 13, 9am–12pm

The date of the final exam is set by the university and cannot be changed. A makeup exam will be given only in specific circumstances, for example an exam conflict or a university athletic event. If you have a conflict with ones of these exams, please see me as soon as possible.

Grading scheme:

Homework: 10%

Midterm exams: 25% each

Final exam: 40%

Course schedule: The following page contains a tentative course schedule. This schedule is subject to change as the semester progresses and will be updated on the website if and when changes are made. In parentheses you will find the section(s) of the book that we will cover each week. I strongly suggest you read the section before coming to class. I do not expect that you will understand everything, but it will better prepare you for the day's lecture. After each class, I strongly suggest you reread the section and, in particular, work through the examples in the text (without first looking at the solution in the book!) and check your work. This is a great way to check that you've understood the material and are ready to start the homework problems for that section.

Getting help: I strongly encourage you to come to my office hours or the TA's office hours if you need help (the schedule will be posted on my website when available). You may also stop by the Help Room (502 Milstein Center) outside of the TA's office hours and get help. The Help Room is open Monday through Thursday 9am–10pm and Friday 9am–5pm, and you are welcome to drop in during those times. Finally, the math department has a list of graduate students who do private tutoring.

Academic honesty policy: Please read the Columbia University Undergraduate Guide to Academic Integrity. A link is available on my website.

Accessibility and accommodations: Your success in this class is important to me. We all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. We can develop strategies to meet both your needs and the requirements of the course.

If you have an accommodation letter, please present it to me as soon as possible. If you think you might need official accommodations, I encourage you to contact the Office of Disability Services for a confidential discussion. Once you register with them, they can provide you with an accommodation letter.

Student well-being: Your well-being is of primary importance. If you are facing challenges related to your physical or mental health, or obstacles like housing or food insecurity, you are encouraged to contact your advising dean and/or the Student Health Service. If you feel comfortable doing so, please do not hesitate to get in touch with me to discuss ways we can put you in the best possible position to succeed.

Inclusivity: We are part of a learning community and must treat one another with respect at all times. This is especially important with regard to race, religion, nationality, sexual orientation, gender, disability, age, immigration status, parental status, and any other aspect of identity. I am committed to ensuring that this class is a supportive, inclusive, and safe environment for all students, and that all students are treated with dignity and respect. See also the Columbia College Notice of Non-Discrimination (a link is available on my website).

Tentative Course Schedule

Dates	Material
1/22	<ul style="list-style-type: none"> • Brief overview of course • Coordinate systems (12.1, 10.3: up to but not including “Symmetry,” 15.7: “Cylindrical coordinates” only, 15.8: “Spherical coordinates” only)
1/27 & 1/29	<ul style="list-style-type: none"> • Vectors (12.2) • Dot product (12.3)
2/3 & 2/5	<ul style="list-style-type: none"> • Cross product (12.4) • Equations of lines and planes (12.5)
2/10 & 2/12	<ul style="list-style-type: none"> • Parametric curves (10.1: up to but not including “Graphing devices”) • Conic sections (10.5) • Cylinders and quadric surfaces (12.6)
2/17 & 2/19	<ul style="list-style-type: none"> • Review • Midterm #1 in class on Wednesday, 2/19
2/24 & 2/26	<ul style="list-style-type: none"> • Vector functions and space curves (13.1) • Derivatives and integrals of vector functions (13.2)
3/2 & 3/4	<ul style="list-style-type: none"> • Arc length and curvature (13.3) • Velocity and acceleration (13.4)
3/9 & 3/11	<ul style="list-style-type: none"> • Functions of several variables (14.1) • Limits of continuity (14.2) • Partial derivatives (14.3)
3/23 & 3/25	<ul style="list-style-type: none"> • Tangent planes and linear approximation (14.4) • Review
3/30 & 4/1	<ul style="list-style-type: none"> • Midterm #2 in class on Monday, 3/30 • Chain rule (14.5)
4/6 & 4/8	<ul style="list-style-type: none"> • Directional derivatives and the gradient (14.6)
4/13 & 4/15	<ul style="list-style-type: none"> • Maxima and minima (14.7)
4/20 & 4/22	<ul style="list-style-type: none"> • Lagrange multipliers (14.8) • Complex numbers (Appendix H)
4/27 & 4/29	<ul style="list-style-type: none"> • TBA
5/4	<ul style="list-style-type: none"> • Review for final
5/13	<ul style="list-style-type: none"> • Final Exam on Wednesday, 5/13, from 9am–12pm. Location TBA.