

Math 112 Fall 2026

Sean Longbrake

Last Updated August 2026

1 General Course Information:

- Course times: Tuesday and Thursday 1:00 pm - 2:15 pm
- Course Location: Math and Science Center N306
- Instructor: Sean Longbrake
- Office: Math and Science Center N404
- Electronic Mailing Address: sean.longbrake@emory.edu
- Office Hours: Monday, Tuesday 10:00 am. More hours are available upon request.

2 Description of course content:

2.1 Textbook

The textbook for this course is Calculus: Early Transcendentals, 8th edition by James Stewart. Purchase is not required for successful completion of the course.

2.2 Course Outline:

The first half of this course is about techniques of integration and the basic theory of differential equations. The second half is about infinite sequences and series. More specifically, we will cover the following chapters from the textbook, in the given order:

- 1.4, 1.5, 3.5, 3.6 (Pre-calculus and Calculus 1 review)
- 7.1 - 7.5, 7.8
- 9.1, 9.3 - 9.6
- 11.1 - 11.11

(Note that we will not have enough time to cover all of the review material (1.4, 1.5, 3.5, 3.6), but we will touch on some important topics. Hopefully you will have fun reading those sections and reminding yourself of the things you learned in previous courses!)

3 Communication

Email is the preferred way of asynchronous communication for this course. I will share relevant course announcements using Canvas. Personal questions / comments / concerns should be emailed to me and will be acknowledged answered within a business day (if not, please assume I did not receive your initial email and send a follow-up).

4 Technology Policy

No calculators or calculating devices are allowed. Not during homeworks, tests, quizzes, or the final. Use of a calculator during these assessments will constitute a violation of the Honor Code (see Academic Integrity). In particular, if you feel the need to use a calculator, e.g. multiplying two three digit numbers, then a mistake has been made.

Using an artificial intelligence program to generate any content for any assignment in this course (including, but not limited to examinations, papers, homework, and creative work) constitutes plagiarism and is a violation of the Honor Code. The use of an artificial intelligence program in this course without permission from the instructor may also constitute seeking unauthorized assistance or violate other provisions of the Honor Code. Any suspicion of academic misconduct will be reported to the Honor Council.

The use of electronic devices in class is discouraged. If you are using a device in class, make sure you have a coherent and well-developed purpose for its usage, and do not stray from this purpose.

5 Assessments

5.1 Grading Breakdown

1. Homeworks: 25% of grade.
2. Quizzes: 10% of grade.
3. Midterm One: 15% of grade.
4. Midterm Two: 15% of grade.
5. Final: 20% of grade.
6. Final Project: 15% of grade.

5.2 Homework

A set of homework problems will be posted on Canvas and handed out in class on Thursday, and will be due Tuesday in person at start of class. If for some reason you are not able to turn them in-person on Tuesday for sake of illness, travel, or personal business, email me to make other arrangements. Three homeworks will be dropped. Homeworks will be worth 25% of your grade.

5.3 Quizzes

There will be twelve in-person quizzes throughout the semester, each consisting of one to three problems that should take no more than ten minutes. These quizzes cannot be made up. Two quizzes will be dropped. Quizzes will be worth 10% of your grade.

5.4 Texts

There will be two exams this semester. Each will take up a single class period of one hour and fifteen minutes.

5.5 Final

There will be a cumulative final exam on Dec 17th from 11:30 A.M. - 2:00 P.M.

5.6 Final Project

You will be asked to write a brief discussion of the role of Calculus II in some area of interest you have. Some suggested topics include:

1. Calculating the $\sum_{i=1}^{\infty} \frac{1}{n^2}$.
2. Approximating π , e , or the Euler–Mascheroni constant
3. Computing and or applying some solutions to a differential equation such as:
 - (a) Michaelis–Menten equation.
 - (b) The logistic equation
 - (c) Harmonic motion.
4. Applications of integration from section 8 of James Stewart.
5. Implement approximations for functions like $\sin(x)$, $\cos(x)$, $\tan(x)$ in your favorite programming language using only addition, subtraction, multiplication, and division.

6 Schedule

There will be twice weekly lectures according to the following schedule.

Week 1:	Aug. 25: No Class	Aug. 27: Review
Week 2:	Sept. 1: 7.1	Sept. 3: 7.2, Quiz 1
Week 3:	Sept. 8: 7.3	Sept. 10: 7.4, Quiz 2
Week 4:	Sept. 15: 7.5	Sept. 17: 7.8, Quiz 3
Week 5:	Sept. 22: 9.1	Sept. 24: 9.3, Quiz 4
Week 6:	Sept. 29: 9.4	Oct. 1: 9.5, Quiz 5
Week 7:	Oct. 6: 9.6	Oct. 8: 11.1 Quiz 6
Week 8:	Oct. 13: No Class	Oct. 15: Midterm I
Week 9:	Oct. 20: 11.2	Oct. 22: 11.3 Quiz 7
Week 10:	Oct. 27: 11.4	Oct. 29: 11.4, Quiz 8
Week 11:	Nov. 3: 11.5	Nov. 5: 11.6, Quiz 9
Week 12:	Nov. 10: 11.7	Nov. 12: 11.7, Quiz 10
Week 13:	Nov. 17: 11.8	Nov. 19: Midterm II
Week 14:	Nov. 24: 11.9	Nov. 26: No Class
Week 15:	Dec. 1, 11.10	Dec. 3: 11.10, Quiz 11
Week 16:	Dec. 8, 11.11	
Exam:	Dec. 17, 11:30 am-2:00 pm	

7 Ally Statement

Please let me know if you prefer to go by a different name than the one that is displayed on OPUS, and what pronouns you use. I strive to use intentionally inclusive language in the classroom, however, I am not always successful. Please do correct me if I make a mistake.

8 Academic Integrity:

The Emory Undergraduate Academic Honor Code is in effect throughout the semester. The Honor Code applies to any action or inaction that fails to meet the communal expectations of academic integrity. Students should strive to excel in their academic pursuits in a just, honest, and fair manner, and avoid all instances of cheating, lying, plagiarizing, or engaging in other acts that violate the Honor Code. Such violations undermine both the individual pursuit of knowledge and the collective trust of the Emory community. Students who violate the Honor Code may be subject to failing the course, a reportable record, suspension, permanent expulsion, or a combination of these and other sanctions. Website: <http://catalog.college.emory.edu/policies/honor-code.html>

9 Accommodation

Emory University is committed to providing equal access to course content, programs, activities, and services for students with disabilities. Students who anticipate or experience barriers to full participation in this course due to a disability are encouraged to connect with the Department of Accessibility Services (DAS) to request reasonable accommodations. Students who are already approved for accommodations should follow the Department of Accessibility Services process to ensure I receive a copy of their accommodation notification letter. Students are also expected to communicate in a timely manner with me regarding how approved accommodations will be implemented in the course. Accommodations are determined through an interactive process and are designed to provide access while maintaining the essential requirements and learning objectives of the course. Students who are interested in learning more about disability-related accommodations should visit the Department of Accessibility Services website: <https://accessibility.emory.edu/index.html>.

10 Syllabus changes

This syllabus is subject to change at any time and for any reason.