

Syllabus MAT319 Fall 2026

Foundations of Analysis

August 24, 2026

1 About this course

This course offers a rigorous discussion of the concepts used in the calculus courses. The list of subjects include: the real number system, limits of functions and sequences, differentiations, integration, and the fundamental theorem and series.

2 Text Book

Elementary Analysis: The Theory of Calculus
Keneth A. Ross,
Springer Verlag, Second edition, 2013.

3 Prerequisites

In order to register for MAT 319 or 320, you must first full fill one of the following prerequisites:

- C or higher in MAT 200 or MAT 250; or
- C or higher in MAT 203, 205, 211, 307, or AMS 261; or
- A- or higher in MAT 127, 132, 142, or AMS 161; or
- (very unusually) permission of the instructor.

4 Studying and Homework

To learn math one has to read the book and do exercises. *Doing Math* is a very important part of learning math. Each week there will be homework questions assigned. Each recitation will start with a 15 minute quiz. In these quizzes the student is asked to do a slight variation of one of the assigned homework problems.

Again, it is crucial that the student do the assigned homework exercises. During Recitation other exercises from the book will be discussed. There is an answer section at

the end of the book. There are many exercises in the book and probably not all of them will be discussed in class. Nevertheless, ideally the student should do as many exercises from the book as possible. The exams (midterms and Final) will consist of exercises which are variations on the more difficult exercises from the book.

It is completely useless to do the homework exercises using AI (see the grading policy). Don't waste the time with AI.

Homework Collection: Each recitation, starting August 29, you will be expected to turn in the homework assignment. After you turn in your assignment, there will be a quiz. However, only students who have turned in their homework will be permitted to take the quiz. It will not be possible to turn in your homework late, and no make-up quizzes will be given. However, students who miss a recitation because of a verified illness or have another acceptable excuse can arrange to have their homework and quiz scores "dropped" for the relevant recitation.

5 Examinations and grading

There will be two Midterm exams, held during class, and a Final exam. The dates and times:

- Midterm I: Thursday September 24, in class
- Midterm II: TBA
- Final: Tuesday December 15, 11:15 - 13:45. The room will be announced later.

The material which will be on each exam can be found on the schedule. Success on the exams will require the ability to find correct solutions to the more difficult assigned homework exercises from the book. Make sure that you can attend the exams at the scheduled times; make-ups will not be given.

Final grade is composed as follows:

Homework 5%

Quizzes 10%

MidtermI 25%

MidtermII 25

Final 35%

From the composition of the final grade it might seem that Homework is not important. The contrary is true. The Homework is the most important. It works like as follows:

If a student uses only AI to do the homework, then AI will only help for 5%. Almost nothing. However, the damage is enormous. The student will not understand the material and hence will get bad grades for all other exams. Notice that the exams will consist of problems which are only small variations of some of the assigned homework problems.

6 Webpage for the course

The webpage for the course can be found by clicking

- 1) Go to www.math.sunysb.edu/marco
- 2) Click Teaching
- 3) Click MAT319

On the webpage you can find the office hours, the syllabus and most importantly the schedule. The schedule will contain detailed information on the material discussed each week, information about the exams and other relevant information.

Return to the course webpage on a weekly basis

The Instructor can be reached by email:

marco@math.stonybrook.edu

7 Difference between MAT319 and MAT320

The first four weeks MAT319 and MAT320 are exactly the same. The first midterm will be held in September 25. After the first midterm the class will be split into two. If your grade on the first midterm is above a certain cut-off, you can choose to follow MAT320. You can also decide to stay in MAT319.

MAT320 will discuss more material and is slightly more sophisticated than MAT319. MAT320 is for the students who want to go further in math.

8 Disabilities

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at

<http://studentaffairs.stonybrook.edu/dss/>

or (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities.shtml>

9 Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

<http://www.stonybrook.edu/uaa/academicjudiciary/>

10 Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.