

Math 4443 – Introduction to Analysis – Fall 2025

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Office hours: Monday 1:30 - 2:00
Tuesday 1:30 - 2:00
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And by appointment

Text: *Understanding Analysis* by Abbott ISBN 978-0-38795-060-0

Catalog Description: A rigorous study of limits, continuity, differentiation, and integration of functions of a real variable.

Course Objectives: By exploring the foundations of the real numbers, we will investigate familiar concepts from calculus in a much more illuminating way. In so doing, the student will gain insight into mathematical proof and the need for rigour.

Help: I urge you to ask questions in class. In so doing, you will help yourself and your classmates. I also hope to see many of you at office hours over the course of the term. Don't forget that you can make an appointment if you can't make my regularly scheduled office hours.

Grading: Your grade will be determined according to the following scheme.

Midterm I	Midterm II	Homework	Final Exam
20 %	20%	30%	30%

Midterms: The tentative dates for the midterm exams are as follows:

Midterm Exam I - Friday, November 14
Midterm Exam II - Friday, December 5

The final exam is self scheduled and will be taken Thursday, December 11 or Friday, December 12. You are expected to be on campus at least one of those days.

Electronics Policy: During class, you may use the calculator app on your cell phone. You may not use a cell phone for any other purpose unless you have made arrangements with me in advance. Cell phones are not permitted in final exam rooms and must be placed in the wicker basket at the front of the room during midterms, and so, if you wish to use a calculator on exams, you will have to arrange for a dedicated calculator. Laptops and tablets may be used to take notes. All other uses of a laptop or tablet are prohibited.

Accommodations Randolph College is committed to providing learning experiences that are accessible for all students, and will make reasonable accommodations for individuals with documented disabilities. If you have a learning difference or a disability mental health, medical, or physical impairment please contact Larvail Jones, Coordinator of Access Services, at ljones@randolphcollege.edu or 947-8132 for more information. droy@randolphcollege.edu.

Homework: Homework is an integral part of this course and there will be an assignment due every few days. *You will be penalized at least 10% for an assignment submitted late.*

Please make certain that all assignments are neat and well organized. All sheets should be held together with a staple or paper clip.

When working on homework, you **may**:

Ask me for hints.

Discuss the problems with each other.

You may **not**:

Look at a classmate's solution.

Find a solution online.

Consult a solutions manual.

Pass anyone else's work off as your own.

Breaking these rules will constitute an honor code violation.

AI Policy: The use of AI is prohibited on homework and on exams.

Tentative Schedule:

Week of	Topics
October 20	Sets, N, Z, Q, R , Functions, Logic and Proof
October 27	Completeness, Cardinality, Sequence Limits, MCT, Infinite Series
November 3	Subsequences, Bolzano-Weierstrass, Cauchy Criterion, Topology
November 10	Compact and Perfect Sets, Connected Sets, Baire's Theorem
November 17	Functional Limits, Continuity, IVT, Sets of Discontinuity
November 24	Derivatives, MVT, Uniform Convergence, Series of Functions
December 1	Power and Taylor Series, Integration, The Riemann Integral
December 8	FTC, Lebesgue's Criterion, Review

Mandated Reporting: As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share information regarding sexual misconduct or information about a crime that may have occurred on Randolph's campus with the Colleges Title IX Coordinator, Jaclyn Beard (jbeard@randolphcollege.edu or 434-947-8031). I do this to make sure that you are able to get all the information and support you may need.

The Health Center and Counseling Center staff are not mandated reporters (counselingcenter@randolphcollege.edu). As such they are not required to share information about sexual misconduct with the College and will keep your information private and confidential.