

MATH 118A: INTRODUCTION TO REAL ANALYSIS

ANDREW COTTON-CLAY

1. INTRODUCTION

My Name: Andrew Cotton-Clay, but please call me Andy

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Course website: <http://math.ucsb.edu/~cottonclay/math118a.html>

Gauchospace Site: <https://gauchospace.ucsb.edu/courses/course/view.php?id=5163>

Room: Girvetz 1119 **Time:** MWF from 2-2:50

My Office: South Hall 6501 **Office Hours:** TBD

TA: Nic Brody, nbrody@math.ucsb.edu

Overview: The real number system, elements of set theory, continuity, differentiability, Riemann integral, implicit function theorems, convergence processes, and special topics.

In the first quarter, we should cover chapters 1-4 of Rudin, including the real and complex fields, metric topology and compactness, sequences and series, and continuity, culminating in the extreme value theorem and applications such as the fundamental theorem of algebra.

Prerequisites:

1. Familiarity with (non-rigorous) differential and integral calculus.
2. A proof-based/rigorous understanding of linear algebra. (Math 108A&B)
3. Familiarity with convergence and continuity. (Math 117)

Textbook: Walter Rudin, *Principles of Mathematical Analysis*, Third Edition.

2. ASSIGNMENTS AND GRADING

Weekly Problem Sets: Available and due on Wednesdays. For grading purposes, your lowest will be dropped. Please contact me, ideally before the homework is due, if you will need to hand in something late.

Problem sets are very important and are the backbone of the course! Actually getting your hands dirty and working on problems is vital for understanding. If you fall behind on the problem sets, you may well fall behind in your understanding of the lectures as well.

Come to office hours, send me an e-mail, ask in the class forum on Gauchospace, etc if you're having trouble.

Quiz & Midterm: There will be a short in-class quiz on Friday, October 17, and a midterm exam in class on Friday, November 7. Quick response questions may be incorporated into lectures.

Final Exam: The final exam for courses meeting MWF 2-2:50 is scheduled for Monday, December 15 from 4-7 PM.

Grading: Problem sets: 40%. Quiz: 5%. Midterm: 15%. Final: 35%. Participation: 5%.

3. MISCELLANEOUS

Academic Integrity: On problem sets, collaboration is allowed and encouraged, but your write-up must be in your own words.

Furthermore, any collaborators, consultants, or references should be acknowledged: put a list of the people you work with or consult, and any references you use. This will not in any way diminish the credit you receive; it is simply proper form, just as you would cite your references in a humanities class. (You may omit myself, the TA, and general references to the textbook if you like.)

Students with Disabilities: If you require accommodations of any sort, please let me know. If you require test taking accommodations, remember to submit a request through DSP in advance.