MATH 1010: Intro to Real Analysis
Tu-Th 1:00 - 2:20
Barus & Holley 155
Prof. Richard Schwartz (Richard.Evan.Schwartz@gmail.com)
U.T.A.: Lean Quimbo
Office Hours: TBD

Course Description: This is a first course in real analysis. The class deals with a rigorous understanding of real numbers, sequences, series, functions, limits, continuity, differentiation and integration. These ideas are all about the understanding of infinite processes. They will enable you to understand a wild world of fractals, space-filling curves, Cantor sets,and higher orders of infinity. The class will give you the tools to understand this kind of stuff. The book for the course is Abbot's *Understanding Analysis*. The table of contents in Abbot's book gives a good summary of the topics we will cover.

Objectives: Here are 4 main objectives for the class.

1. Learn the course material.
2. Solve challenging problems related to the course material.
3. Practice writing mathematical proofs.
4. Develop an intuition for the analysis of infinite processes.

Grading: Your grade has 4 components.

- HW: 25%
- Midterm 1: 20%
- Midterm 2: 20%
- Final: 35%

We will discuss the situation one-on-one in case you miss one or more of the exams and have a legitimate excuse.

HW Assignments: There will be weekly HW assignments. The assignments will consist of about 5 problems each week from the book. I will

send you email each week about the assignments, and also post them on the course website: (http://www.math.brown.edu/∼res/M1530) each Tuesday and then collect them the next Tuesday in class. There is no late HW allowed.

You are allowed to discuss the HW with other people in the class, but I think that it is better for you to do the HW largely on your own. If you do discuss the HW with other people, you should list their names on your assignment when you turn it in. Given that this is 2025, chatGPT probably do most of your HW pretty well. You should remember that the object of the HW is not for you to complete the assignment but rather for you to strengthen your understanding of the material.

Exams: We will decide the dates of the midterms by class vote. I hope to have the first midtern around the 5th week and the second midtern around the 10th week. I will probably hold the midterms in the evenings, where we can allow several hours for the exams. The purpose of having a long-format in-class exam is remove time pressure from the exam without having the uncontrolled environment associated with a take-home exam. The final exam will be an in-class exam lasting 3 hours.

Readings: The book for the course is *Understanding Analysis.* by Stephen Abbot.

Accommodations: Brown University is committed to full inclusion of all students. Please inform me, as soon as possible, if you have any conditions which might require special consideration. For more information, please contact the Student and Employee Accessibility Services (SEAS) at SEAS@brown.edu or 401.863.9688.