

**MATH 320**  
**INTRODUCTION TO REAL ANALYSIS**  
**FALL 2021**

**Instructor.** Eden Prywes

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**Office Hours.** Fine 310, Tuesdays 12:00 PM - 1:00 PM and Thursdays 1:00 PM - 2:00 PM, or by appointment.

**Classroom.** Fine Hall 401.

**Time.** Mondays and Wednesdays 11:00 AM - 12:20 PM.

**Undergraduate Course Assistants.** Alex McWeeney and Alan Yan will hold problem sessions Tuesdays and Thursdays from 7:30 PM-9:00 PM in Fine 601.

**Course Webpage.** <https://math.princeton.edu/~eprywes/F21Mat320.html>

**Prerequisites.** Math 201 and 202. Experience in a proof based course is highly recommended.

**Text.** H.L. Royden and P.M. Fitzpatrick, *Real Analysis*, 4<sup>th</sup>-edition.

**Course Description.** The course focuses on the theory of integration for functions of one real variable. The first part of the course will cover the real numbers and set theory of the real numbers. The second part will cover the construction of Lebesgue measure and Lebesgue integration. Finally, if there is time we will discuss  $L^p$ -spaces.

Students are expected to have some familiarity with mathematical proofs. We will aim to approach the topic in a rigorous manner. However, the course will not be as difficult as [Mat 425](#), which covers roughly the same material.

[Registrar description](#)

**Outline.** Chapters 1-6 in Royden and Fitzpatrick. If there is time, we will also cover Chapters 7 and 8.

**Assignments.** There will be weekly problem sets due on Monday in class. You may not consult other sources besides the text. You may work with other students on the problem sets but you must write up your own solutions. Late assignments will not be accepted. The lowest two problem sets will be dropped.

**Midterm Exam.** The midterm exam will be in class on October 13th.

**Final Exam.** The final exam date and location will be set by the course registrar.

**Grading.**

- Assignments - 30%
- Midterm Exam - 25%
- Final Exam - 45%