Mat 570 — Real Analysis I — Fall 2021

Line No.	73054
Time	TuTh 10:30-11:45 AM
Room	WXLRA 308
Instructor	Jack Spielberg
Office	PSA-747
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Office Hours	TBA, and by appointment.
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Text	Folland, *Real Analysis, 2nd edition*, Wiley 1999

Course Description

This is the first half of a year-long sequence in real analysis. The first few weeks concern the topology of metric spaces and uniform properties of continuous functions. The key topics are compactness, connectedness, and uniform convergence of continuous functions, including treatments of the Weierstrass approximation theorem and the Arzela-Ascoli theorem. The remainder of the semester, and the continuation in the spring, are devoted to abstract measure theory and integration. The sequence 570 - 571 is the basis for the graduate qualifier examination in Real Analysis, which is given in May.

The text for the course is Folland's *Real Analysis*, but notes on metric spaces will be provided for the first part of the course.

The course grade will be based on weekly problem sets, a midterm exam, and a final exam. However, students should take the point of view that working (and struggling with) the homework is the most important part of the course.

Prerequisites: This is a graduate level course, but well-prepared undergraduates are welcome too. The formal prerequisite is Advanced Calculus, but some exposure to the topology of $\mathbb{R}^n$, and a tolerance for abstraction, will be particularly useful.

Questions about the course are welcome, and should be addressed to the instructor.