

## MAT 571 Real Analysis II

## Course Announcement

**Professor:** John Quigg

**Semester:** Spring 2021

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**Description:** This is the second semester of the real analysis course for graduate (and superior undergraduate) students in mathematics. The class will meet remotely via Zoom.

The first semester covers metric space analysis and then starts on measure and integration theory, getting at least up to Lebesgue's Dominated Convergence Theorem, which occurs halfway through chapter 2 of the Folland book. In the spring we'll continue where we left off in the fall, getting through Lebesgue's theory of differentiation by the end of chapter 3, then (with a brief interlude in the beginning of chapter 5) covering  $L^p$  spaces and the Riesz Representation Theorem for bounded linear functionals on  $C(X)$ . After all that, if time permits, we can continue with advanced topics, depending upon the preferences and preparation of the audience.

Note: the sequence MAT 570–571 prepares one for the Qualifying Exam in Real Analysis.

**Prerequisites:** MAT 570 (the first semester of the Real Analysis sequence). The prerequisite topics are abstract metric spaces and Lebesgue integration (up through the Dominated Convergence Theorem — Section 2.3 in the Folland book).

In any case, I encourage anyone interested in the course to contact me at quigg@asu.edu.

**Textbook:** G.B. Folland, “Real Analysis”, 2nd ed., Wiley, 1999.

**Grading:** The grade will be based on weekly homework, a midterm exam, and a final exam.