

MATH 524: Real Analysis

GENERAL INFORMATION (Winter 2020)

Instructor: Zhen-Qing Chen, Padelford C-341, Telephone: 543-1907.

Lecture: MWF: 11:30-12:20 pm., PDL C38

Office hours: Wednesdays 2:30-3:20 pm. and Fridays 1:30-2:20 pm. at Padelford C-341.

Email Address: zqchen@uw.edu

Course Web Page: <http://www.math.washington.edu/~zchen/M524.html>

Teaching Assistant: Joonyong Choi, PDL C-111. Office hours: Tuesdays 10:30-11:20 am. and Thursdays 3-3:50 pm. Email: jyc27@uw.edu

Textbook:

[F] Gerald B. Folland: *Real Analysis*, second edition, John Wiley & Sons, 1999. (required)

Reference Books:

H. L. Royden, *Real Analysis*, 3rd Edition

E. M. Stein and R. Shakarchi, *Real Analysis: measure theory, integration, & Hilbert spaces*. Princeton Univ. Press, 2005.

Course Information: This is the first part of a two-quarter course on real analysis. This sequential course will cover the fundamental tools needed to work in the general field of analysis. I plan to cover the following topics:

- Lebesgue measure and abstract measure (Chapter 1 of [F])
- Integration (includes convergence theorems). (Chapter 2 of [F])
- Differentiation (includes BV functions, absolutely continuous functions, fundamental theorem of calculus, Radon-Nikodym). (Chapter 3 of [F])
- Elements of functional analysis (if time permits). (Chapter 5 of [F])

Homework: There will be 8 weekly homework assignments throughout the quarter, which will be due in the following week on a date to be announced.

Midterm Exam: Wednesday, February 5, 2020, in class.

Final Exam: Wednesday, March 18, 2020, 2:30–4:20 pm. at PDL C-38.

Grading Policy: The homework will count for 40% towards the final grade, and the midterm and the final exam will count for 20% and 40%, respectively. The most important function of homework is that it helps you to internalize concepts and to develop problem solving skills. *It will be impossible to pass the course without doing and handing in the homework regularly.*

Prerequisites: Undergraduate Real Analysis: Math 424-5-6 or its equivalent.

The textbook as well as the reference book will be put on reserve in Math Library.