

MATH 420/507, Section 101, Fall 2012
Real Analysis I/ Measure Theory and Integration

Time and place: MWF 9:00-10:00, MATH 202

Web page: <http://www.math.ubc.ca/~gustaf/M420>

Text: G. Folland, *Real Analysis: Modern Techniques and Their Applications*, Wiley-Interscience, 2nd. ed., 1999.

General description: This cross-listed 1st-year graduate/4th.-year undergraduate course covers measure theory and integration, core material which, together with the functional analysis covered in Math 421/517, provides the foundation for much of mathematical analysis. It is useful in many areas of pure and applied mathematics, including harmonic analysis, differential equations, probability theory, information theory, differential geometry, and mathematical physics.

Topics: roughly the first 3 chapters of Folland. In brief,

- sigma algebras and measures
- integration
- convergence of functions
- Radon-Nikodym theorem
- introduction to L^p spaces

Pre-requisites: Undergrad. analysis at the level of UBC Math 320/321.

Grading:

- bi-weekly (approximately) homework assignments: 50 %
- final exam: 50 %

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