COURSE OUTLINE 2001-2002

MATHEMATICS 421/510 (3 credits)

REAL ANALYSIS II

CATALOGUE NO: Math 421—19307 ; Math 510—33115

PREREQUISITES:
- For Math 421: Math 420
- For Math 510: Familiarity with the material of Math 420 (roughly chapters 1–3 and §6.1 of Folland or chapters 1–5 and 11 of Royden)

INSTRUCTOR:

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TEXT:

Gerald B. Folland, Real Analysis – Modern Techniques and Their Applications, second edition, Wiley, 1999.

OUTLINE:

Point Set Topology (Chapter 4, excluding §4.3, §4.8)
Banach and Hilbert Spaces (Chapter 5, excluding §5.4)
L^p Spaces (Chapter 6, excluding §6.4, §6.5)
Riesz Representation Theorem (only §7.1)
Applications
    Brownian Motion
    Haar measure

OTHER REFERENCE BOOKS:
- Michael Reed and Barry Simon, Methods of Modern Mathematical Physics, I: Functional Analysis, Academic Press.
- H. L. Royden, Real Analysis, Macmillan.
- Walter Rudin, Real and Complex Analysis, McGraw–Hill.
- Walter Rudin, Functional Analysis, McGraw–Hill.

GRADING:
- Weekly problem sets, assigned each Wednesday and due the following Wednesday.
- Final exam.

I will post all handouts, problem sets, final grades, etc. on the web at
    http://www.math.ubc.ca/~feldman/m421/
= http://www.math.ubc.ca/~feldman/m510/