

Math 447 Topics in Analysis

Spring 2004 TTH 12:45-2:00 PM
Final Exam: 8:00-10:00 AM, May 12, 2004
Midterm Exam: Week of March 1-5

Instructor : **Dr. Ronald G. Douglas**

Prerequisites: Math 409, and sufficient mathematical maturity.

Text: Walter Rudin, *Principles of Mathematical Analysis*, McGraw-Hill, Inc. (3rd edition) ISBN: 0-07-054235-X.

Course outline: Metric Spaces; Continuous Functions; Differentiation; Riemann-Stieltjes Integration; Sequences and Series of Functions; the Stone-Weierstrass and Arzela-Ascoli Theorems; Introduction to Lebesgue Measure Theory and Integration.

Objectives: This course is direct preparation for Math 607-608, which is the graduate qualifying exam sequence in Real Analysis.

**Preparation: Students who have done very well in Math 409 (non-honors advanced calculus) in Fall 2003 should be ready for this course and are encouraged to take it. Students who have taken either Math 409H or Math 489 (analysis on metric spaces) in Fall 2003 should be very well prepared for this class.

Tentative Schedule:

Week

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| 1-4 | Review of Metric Spaces, Continuous functions, Differentiation |
| 5-7 | Riemann-Stieltjes integration. |
| 8-10 | Sequences and Series of Functions, the Stone-Weierstrass Theorem, the Arzela-Ascoli Theorem. |
| 11-14 | Lebesgue Measure Theory and Integration. |

There will be one midterm and one final exam. Course grades will be based half on the exams and half on graded homework. The latter will consist of formal write-ups of student proofs of assigned problems.

Office: 231 Milner, Wednesdays, 1:00-3:00 PM or by appointment.
Email: rgd@tamu.edu (put Math 447 in subject heading)

Students with disabilities can get assistance from the Office of Services for Students with Disabilities (845-1637).