

509. Advanced Analysis

Spring 2011 Syllabus

Professor: Robert Strain (strain at math.upenn.edu)

Course Web Page: <http://www.math.upenn.edu/~strain/11ma509/>

Class schedule: MW @ 1:30-3:00PM in DRL 3C4, attendance is *expected*.

Course Assistant: Peter Du (du AT math DOT upenn DOT edu)

Lab schedule: T @ 6:30-8:30PM and R @ 6:30-8:30PM in DRL 3C2.

Brief course description: Continuation of Math 508. The Arzela-Ascoli theorem. Introduction to the topology of metric spaces with an emphasis on higher dimensional Euclidean spaces. The contraction mapping principle. Inverse and implicit function theorems. Rigorous treatment of higher dimensional differential calculus. Introduction to Fourier analysis and asymptotic methods.

Homework: Weekly, posted on the course website. Collaboration between students is encouraged, but you must write your own solutions, understand them and give credit to your collaborators. (In other words, put a list of the students with whom you collaborated on your homework.)

Late homework will not be accepted.

The two lowest homework scores will be dropped.

Exams: There will be two in class exams. Exam attendance is *mandatory*.

The first exam is on March 2.

The second exam is on April 25 (which is the last day of classes).

Evaluation: Your final grade is based on your level of participation in class (10%), the homework (30%), as well as the in class exams (30% and 30%).

Textbook: Kenneth Hoffman, "Analysis in Euclidean space," Dover paperback (reprinted from the 1975 Prentice Hall edition); ISBN-10: 0486458040.

Please order this book from, for instance, Amazon.com; it is not at the Penn bookstore. This text will also be on reserve at the Math/Physics/Astronomy Library in DRL.