

MATH 6337
Real Analysis
Tuesday-Thursday 12:30-1:50, Fondren 157

Instructor: T. Hagstrom

Office Hours: Tuesday 2:30-3:30; Wednesday 12:30-2; Thursday 10:30-12; Other times by appointment.

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Texts: *Analysis*, Lieb and Loss, AMS;

Applied Analysis, Hunter and Nachtergaele, www.math.ucdavis.edu/~hunter/book/pdfbook.html

Grading

- 7 homework assignments from the texts. Final project will entail the oral presentation of a proof of some result of interest to the student using the tools developed in the class.

Outcomes: Via the completion of assignments students will demonstrate an understanding of

- i. Uniform continuity and convergence, compactness;
- i. Basic properties of L^p -spaces and Sobolev spaces;
- ii. Integral inequalities;
- iii. Fourier transforms and distributions.

Tentative Course Outline

- i. Basics: Convergence, continuity and compactness; (HN Chapters 1-3).
- ii. Integration; (LL Chapter 1, HN Chapter 12).
- iii. L^p -spaces; (LL Chapter 2, HN Chapters 5-6,12).
- iv. Inequalities; (LL Chapters 3-4).
- v. Fourier transform; (LL Chapter 5, HN Chapter 11).
- vi. Distributions; (LL Chapter 6, HN Chapter 11).
- vii. Sobolev Spaces; (LL Chapter 7).
- viii. Sobolev inequalities; (LL Chapter 8).

Policies

Homework Assignments: Homework assignments are due by 4pm on the due date. Collaboration with other students is encouraged, but each student is responsible for writing their own assignment and running their own codes. Copied homework will not be credited.

Disability Accommodations: Students needing academic accommodations for a disability must first be registered with Disability Accommodations & Success Strategies (DASS) to verify the disability and to establish eligibility for accommodations. Students may call 214-768-4557 or visit <http://www.smu.edu/alec/class.asp> to begin the process. Once registered, students should then schedule an appointment with the professor to make appropriate arrangements.

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence.

Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work.

Academic Dishonesty: Students are expected to abide by the Honor Code.