

# Introduction to Mathematical Rigor

Mathematics 307 Fall 2010  
TTh 11:00-12:15 Lippitt Hall 205

Instructor: Prof. W. Kook  
Phone: 874-4421  
email: andrewk@math.uri.edu  
Office: Lippitt Hall 101F  
Office hours: TTh 10:00-11:00 or by appointments

TEXT: *Analysis with an Introduction to Proof* by Stephen R. Lay, 4<sup>th</sup> edition.

COURSE: In this course we will cover most of the first five chapters of the text and other additional topics. We will cover roughly one section of the text per lecture. Some sections will require two or more lectures. Make sure to read the text before class. Topics to be covered in this course are logic, basic set theory, functions, mathematical induction, ordered fields, the completeness axiom for the real numbers, topology of real numbers, sequences, and limits and continuity. If time permits, we will cover additional topics such as basic number theory, groups, and rings.

GRADING: Your course grade will be based on weekly quizzes (30%), two midterm exams (40%), and a comprehensive final exam (30%). See below for details.

HOMEWORK: Weekly assignments will be given every Thursday. Collaboration among students is strongly encouraged. Although assignments are not collected, it is crucial to keep up by working all assigned problems. Quizzes and exams are based on homework problems.

QUIZZES: There will be a 20-30 minute quiz every Thursday. They are based on selected homework problems and other examples presented during the lectures. You may use your notes for the quizzes. The lowest quiz grade will be dropped.

EXAMS: There will be two in-class midterm exams. The dates of the midterm exams will be announced later. Two midterm exams count for 40% of your course grade. The final exam, which counts for 30% of your course grade, will be a comprehensive exam covering all of chapters 1-5 of the text and other additional topics that are covered in this course. I will give you detailed information about the final exam near the end of the course. All exams are closed book and notes are not allowed.

Other recommended references are

*Introduction to Advanced Mathematics* by Barnier and Feldman  
*Methods of Real Analysis* by R. Goldberg  
*Principles of mathematical analysis* by W. Rudin