

Introduction to Real Analysis - Math 721 - Fall 07

Professor: Virginia Naibo (vnaibo@math.ksu.edu - 232 CW)

Prerequisites: MATH 634 or graduate standing.

Math 721 is a prerequisite for Math 821, which is one of the courses on which the qualifying examination in Analysis is based. Graduate students that need to pass this exam are urged to take Math 721. Undergraduate students that are planning on attending graduate school in mathematics will also find this course very useful.

We will present a detailed approach to the study of the basic concepts of mathematical analysis - the real number system as a complete ordered field, basic topology, limits, continuity, differentiation, Riemann integration, uniform convergence of sequences, equicontinuous families of functions, the Stone-Weierstrass theorem, Arzela-Ascoli theorem. This approach is based on the statement of precise definitions and rigorous proofs of theorems.

The goal of the course is two-fold. On the one hand, the application of its contents to other areas in mathematics and physics. On the other hand, the development of analytical and logical skills.

Book: *The Way of Analysis, Revised Edition*, Robert S. Strichartz, Jones and Bartlett Publishers. ISBN 13: 9780763714970, ISBN 10: 0763714976.

Other suggested reading:

Principles of Mathematical Analysis, Walter Rudin, 3rd edition, McGraw-Hill.

An Introduction to Analysis, William R. Wade, 3rd edition, Pearson Prentice Hall, 2004