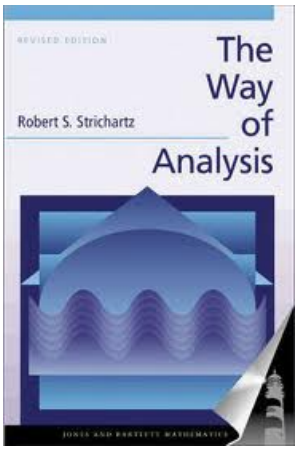
Department of Mathematics
Johns Hopkins University

110.406 Real Analysis II
Course Syllabus

The following list of topics is considered the core content for the course 110.406 Real Analysis II, and is the second course in a two semester course series along with 110.405 Real Analysis I. . The current text for the course is:

Text: **The Way of Analysis,** *Rev. Ed.*, Strichartz, R., Massachusetts: Jones and Bartlett, June 2000, **ISBN-10: 0763714976**, **ISBN-13: 9780763714970**.

Course Topics



- **Transcendental Functions (1.5 weeks)**
  - 8.1 The Exponential and Logarithmic
  - 8.2 Trigonometric Functions
- **Euclidean Space and Metric Spaces (3 weeks)**
  - 9.1 Structures on Euclidean Space
  - 9.2 Topology of Metric Spaces
  - 9.3 Continuous Functions on Metric Spaces
- **Differential Calculus in Euclidean Space (1.5 weeks)**
  - 10.1 The Differential
  - 10.2 Higher Derivatives
- **Ordinary Differential Equations (1 week)**
  - 11.1 Existence and Uniqueness
- **Fourier Series (1.5 weeks)**
  - 12.1 Origins of Fourier Series
  - 12.2 Convergence of Fourier Series
- **The Lebesgue Integral (3.5 weeks)**
  - 14.1 The Concept of Measure
  - 14.2 Proof of Existence of Measures
  - 14.3 The Integral
  - 14.4 The Lebesgue Spaces L^1 and L^2