

Syllabus for the Analysis Comprehensive Exam
October, 2000

Algebraic and completeness properties of the real numbers

Topology of Euclidean space, including completeness, compactness

Convergence of sequences and series

Metric spaces, including convergence and continuity

Theorems of the Calculus of one real variable, including differentiation, Riemann integration, the Mean Value Theorem, the Fundamental Theorem of Calculus, and Taylor's Theorem

Sequences and series of real valued functions of a real variable, including pointwise and uniform convergence, integration and differentiation of series.

Calculus of several variables, including differentiation, Taylor's Theorem, the Inverse and Implicit Function Theorems

Suggested references

J. Marsden and M. Hoffman, Elementary Classical Analysis

W. Rudin, Principles of Mathematical Analysis

A. Mattuck, Introduction to Analysis

P. Fitzpatrick, Advanced Calculus