Course Outline

Department of Mathematics
and Statistics

Minnesota State University, Mankato

Math 316 Intermediate Analysis (3 semester hours)

Course Description:

Limits, sequences, continuity, and differentiation of a real valued function of a real variable.

Prerequisites: MATH 223 and MATH 290 with “C” (2.0) or better or consent

Learning Outcomes

Students will be able to:

1. Develop a foundational understanding of the basic concepts of calculus
2. Apply techniques of proof common to real analysis
3. Apply definitions and theorems from real analysis
4. Express ideas in mathematical terminology
5. Develop a deeper understanding of the real number system

Content Outline

1. The completeness property of the real numbers
2. The topology of the real numbers
3. Real sequences
4. Continuity of real valued functions of a real variable.
5. Differentiation of real valued functions of a real variable
4. Riemann Integral

Textbook/Related Readings/Materials:

Robert G. Bartle and Donald Sherbert, Introduction to Real Analysis
Frank Dangello and Michael Seyfried, Introductory Real Analysis
James S. Howland, Basic, Real Analysis
James R. Kirkwood, An Introduction to Analysis.
Steven R. Lay, Analysis with an Introduction to Proof.