

SSU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
 SYLLABUS (*Tentative*)
 MATH 452/552 *Analysis II*

Objective: To continue to develop the foundations for the analysis of real-valued functions. The primary focus will be on proof. This course will lead students to a deeper understanding of Analysis, which is a fundamental area of mathematics.

Intended for: All majors in the mathematical sciences and any students who wish to pursue graduate study in Mathematics or its applications, physics or engineering.

Prerequisite: MATH 451 with grade of C or better.

Text: "Elementary Analysis: The Theory of Calculus," by Kenneth A. Ross; Springer, 1980, and other texts to support the study of Measure Theory and Lebesgue integration, available in Blackwell Library.

Topic:

	Weeks
Review of Analysis I topics	1.0
Sequences of Functions Pointwise vs. Uniform Convergence, Continuity of a Limit of Functions.	1.0
Differentiation <i>continued</i> Taylor Series and Taylor's Theorem, Differentiation of Power Series, Approximation to Polynomials	2.0
Riemann Integration Fundamental Properties and non-integrable functions, The fundamental Theorem of Calculus, Integration of Power Series, Riemann-Stieltjes Integrals	3.5
Measure Theory Sigma-Algebras, the Borel Sets, Measures, Lebesgue Measure, a Non-Measurable Set	3.0
Tests, Review, and Optional Topics	3.5
	<u>14.0</u>

EVALUATION

Portfolio	10-20%
Board work	10-15%
Homework	15-20%
Midterms + Final	50%