

SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
 SYLLABUS (*revised Tentative*)
 MATH 451/551* *Analysis I*

- Objectives:** To develop the foundations for the analysis of real-valued functions. The primary focus will be on proof.
- Intended for:** Students wishing to learn the techniques which support the study of real-valued functions.
- Prerequisite:** Calculus II (MATH 202) and Discrete Math (MATH 210).
- Text:** "Elementary Analysis: The Theory of Calculus," by Kenneth Ross; Springer-Verlag, 1980.

	Weeks
<i>Introduction</i>	2.0
Induction, Field and Order Axioms, the Completeness Axiom, Consequences of Completeness, Absolute Value.	
<i>Sequences</i>	6.0
Limits; Limits of Monotone, Bounded, and Cauchy Sequences; Limits of Subsequences; Limit Supremum (or Infimum); Convergence tests for Series.	
<i>Continuity & Limits of Functions</i>	2.0
Proving Continuity, Properties of Continuous Functions, Limits of a Function.	
<i>Differentiation</i>	1.5
Fundamental Properties, The Mean Value Theorem, L'hôpital's Rule and Parametrized Functions,	
<i>Tests, Review, and Optional Topics</i>	<u>2.0</u>
	14.0

EVALUATION

Homework and Quizzes	20 - 40%
Tests and Portfolio	40 - 60%
Comprehensive Final Exam	20 - 40%

NOTE: Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.

*Graduate students will be assigned special homework/test problems or projects.