

MATHEMATICS 482 REAL ANALYSIS II (3) (EFFECTIVE FALL 2004)

PREREQUISITE: Math 314 and Math 320. Math 481 and 482 must be taken in sequence.

CATALOG DESCRIPTION: Sets and countability. The real number system. Sequences and limits, infinite series, metric spaces, continuous functions, uniform continuity, and convergence. Riemann and Lebesgue integration. Students are required to submit written work and make an oral presentation.

OBJECTIVES: The student will:

1. Discuss the concept of measure zero and give examples.
2. Define the Riemann integral (both definite and improper).
3. Prove the elementary properties of the Riemann integral.
4. Prove the Fundamental Theorem(s) of Calculus.
5. Determine whether a sequence of functions is pointwise convergent and if it is uniformly convergent.
6. State an example of a continuous nowhere-differentiable function.
7. Define measurable sets, measurable functions and the Lebesgue integral.
8. Prove and apply the elementary properties of the Lebesgue integral.

TEXT: Introduction to Real Analysis- Stoll, Manford. Adopted in 2003. Addison Wesley Publishers, Second Edition, ISBN: 0-321-04625-0

OUTLINE:

CHAPTERS	TITLE	
6	Riemann and Stieltjes Integrals	15
7	Series of Real Numbers	5
8	Sequences and Series of Functions	10
10	Lesbesgue Measure and Intergration	10
	2 One-Hour Exams	<u>2</u>
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