

MATH 4331
Introduction to Real Analysis
Fall 2013

Class: Tu&Th 10:00-11:20am, GAR 201

Instructor: Bernhard Bodmann, bgb@math.uh.edu

Office: PGH 604; Tu 1-2:30pm, W 10-11:30am,

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Objectives: This course provides a rigorous introduction to deeper properties of the real numbers, continuous functions, and differentiability needed for advanced study in mathematics, science and engineering. It is assumed that the student is familiar with the material of Math 3333, including an introduction to the real numbers, basic properties of continuous and differentiable functions on the real line, and an ability to do epsilon-delta proofs.

Contents:	<i>Topic</i>	<i>Approx. Time</i>
	Metric spaces	2 weeks
	Open and closed sets	1 week
	Cauchy sequences and completeness	1 week
	Compact and connected sets	1 week
	Convergence of sequences	1 week
	Properties of continuous functions	1 week
	Contraction mapping principle	1 week
	Countable and uncountable sets	1 week
	Continuous functions on compact sets, uniform continuity	1 week
	Riemann-Stieltjes integration	2 weeks

Prerequisites: MATH 3333 or 3334.

Text: Maxwell Rosenlicht, "Introduction to Analysis", Dover, 1986.

Exams: Midterms: October 10 and November 21, 2013; in-class exams. Final exam date and location to be announced by the registrar.

Assignments: You will be asked to hand in approximately ten assignments, which will be due on Thursdays in the lecture. Solutions will be posted online.

Final Grade: Final exam contributes 30%, midterms 20% each, assignments 30%. All grades are summed and divided by the total number of points you can collect in the course. A percentage of 46% or more is D-, 54% or more is D, 62% or more is C, 70% is B-, 77% is B, 85% or more is A-, of 90% or more is A.