



PURE MATHEMATICS 435 "ANALYSIS I"

Calendar Description: H(3-1T)

Logic, sets, functions; real numbers, completeness, sequences; continuity and compactness; differentiation; integration; sequences and series of functions.

Prerequisite: Mathematics 253 or 263 or 283 or Applied Mathematics 219 or consent of the Division.

Note: Credit for both Pure Mathematics 435 and 455 will not be allowed.

Possible texts:

K.A. Ross, *Elementary Analysis: The Theory of Calculus*, Springer-Verlag, 1980.

J.R. Kirkwood, *An Introduction to Analysis*, 2ed, PWS, 1995.

Syllabus

<u>Topics</u>	<u>Number of hours</u>
Numbers, sets, and functions: induction; supremum, infimum, and completeness; basic set theory; bijective and inverse functions; countable and uncountable sets.	8
Sequences: convergence, Cauchy sequence, subsequence, Bolzano-Weierstrass theorem, limsup, and liminf.	7
Limits and continuity: basic theorems, intermediate value theorem, extreme value theorem, inverse function theorem, uniform continuity.	7
Derivative: basic theorems, mean value theorem, Taylor's theorem, trigonometric functions, exponential functions, l'Hopital's rule.	8
Riemann integral: basic definition and theorems, fundamental theorem of calculus.	6
TOTAL HOURS	36

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97.02.06 Effective Fall 1997

Description and prerequisite change: 2009:07:01

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