UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

PURE MATHEMATICS 435
"ANALYSIS I"

Calendar Description: H(3-1T)
Numbers, functions; sequences; limits and continuity; theory of differentiation and integration of functions of a single variable.

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

Note: This course is offered in the Fall term and would normally be taken in the third year. Potential honours students are urged to consider taking this course in second year. Please consult the appropriate Division Chair.

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

Topics	**Number of hours**
Numbers, sets, and functions: induction; supremum, infimum, and completeness; basic set theory; bejective 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
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