

Faculty of Science Course Syllabus
Department of Mathematics and Statistics
MATH 2505, Intermediate Analysis
Winter 2019

Instructor(s): Robert Milson rmilson@dal.ca 203 Chase

Lectures: 13:35-14:25 LSC 216

Laboratories: n/a

Tutorials: n/a

Course Description

This course is for honours students and other serious students of mathematics. Topics include: the axioms for the real number system, limits, continuity, differentiability, the Riemann integral.

Course Prerequisites

MATH 2001

Course Objectives/Learning Outcomes

The key objective of the course is to advance the maturity of the student in the use of formal reasoning, and especially the modes of thought of used in introductory analysis.

Specific outcomes for the student are:

- Ability to formulate coherent, correct, and clear arguments.
- Familiarity with limits, continuous functions, and the epsilon-delta formalism.
- Familiarity with the major theorems, and an appreciation of the structured inter-dependence of arguments, assumptions and definitions presented in the course

Course Materials

Elementary Analysis by K. Ross

Course Assessment

| Component | Weight (% of final grade) | Date |
|----------------------|---------------------------|--------------------------|
| <i>Midterm test:</i> | 30% | 27 February, 2019 |
| <i>Final exam:</i> | 40% | (Scheduled by Registrar) |
| <i>Assignments:</i> | 30% | |

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

| | | | | |
|--------------------|-------------------|-------------------|----------|---------|
| A+ (90-100) | B+ (77-79) | C+ (65-69) | D | (50-54) |
| A (85-89) | B (73-76) | C (60-64) | F | (<50) |
| A- (80-84) | B- (70-72) | C- (55-59) | | |

Course Policies

- Be sure to plan your term to include the dates and times of the tests and the

- examination. Conflicts with travel arrangements, jobs, etc. cannot be accommodated.
- Calculators, textbooks, and notes are not allowed in tests.
 - Assignments must be submitted in class before the start of lecture. Late assignments will not be accepted.
 - Assignments should be submitted on a separate piece of piece of paper. Solutions written out on the assignment sheet are not acceptable.
 - Submissions should be legibly written or typeset. Illegible, unbound or poorly bound submissions will not be accepted.
 - Students are permitted to discuss homework problems with one another, but the write-ups should be done individually, without access to the papers of fellow students.
 - Collaboration on assignments is permitted, but not encouraged. Jointly solved problems must be submitted together, must bear the names of all involved students, and will receive reduced credit. Duplicate submissions are not allowed. See academicintegrity.dal.ca for the university's policies on academic integrity.

Course Content

- foundations of the real number system
- sequences, convergence, limit points
- series convergence
- continuous functions, limits
- derivatives, mean value theorem
- power series, uniform convergence
- Riemann integration, the Fundamental Theorem of Calculus