

MAT215: Real Analysis I

Fall 2005

Lectures: 13:00 - 2:15 Tuesday/Thursday in N116

Instructor

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Overview

This course is designed to fill the gaps left in the development of calculus as it is presented in elementary courses, and to provide the background required for insight into more advanced courses in pure and applied mathematics. The study of real analysis is indispensable for any undergraduate student who wishes to go beyond the routine manipulations of formulas to solve standard problems in mathematics. It develops the ability to think deductively, analyze mathematical situations, and extend ideas to new contexts. Hence, the main objective of this course is to teach you that proofs in mathematics are not a bunch of statements put together in some magic way to draw up the desired conclusions; rather, they are cleverly and delicately woven fabrics of thought and, they must be understood as a single theme.

Textbook

The required text for this course is:

Introduction to Real Analysis, Robert G. Bartle & Donald R. Sherbert.

Third Edition, J. Wiley & Sons, 2000.

“This book gives an excellent introduction to the topic of real analysis. The chapters are presented in a logical order, such that one topic flows seamlessly into the next. The authors explain the concepts of real analysis very clearly and succinctly. This book is an excellent reference for those currently enrolled in a real analysis course, or for those that simply need to brush up on the concepts and ideas of the subject.”
(from “*Customer Reviews*”)

Course Contents

Following is a rough outline of the topics that will be covered. Please note that this is a tentative sequence and that nothing is written in stone. If we need to spend more time on some particularly difficult concept, we shall do so.

- **Chapter 2:** *The Real Numbers.*
- **Chapter 3:** *Sequences and Series.*
- **Chapter 4:** *Limits.*
- **Chapter 5:** *Continuous Functions.*
- **Chapter 6:** *Differentiation.*
- **Chapter 7:** *The Riemann Integral.*

- **Supplementary material, handouts, assignments and additional information (if any):** will be posted on my web page or/and handed in class.

Evaluation

Final grades in this course will be based on performance on (1) written homeworks, and (2) midterm and final exams. Grades in these individual areas will be weighted as follows:

Homeworks (weekly basis)	20%
Midterm Exam(s)	30%
Final Exam	50%

NOTES:

- Late assignments will not be accepted unless a special permission is obtained from the instructor. If unforeseen problems arise, discuss them with your professor on or before the due date. You will normally hand in assignments to your professor during class on the due date.
- The final exam will cover the contents of the whole course.
- A supplemental examination will not be allowed in this course.
- The dates of the midterm exams will be announced in the second week of the course.

Honor Code

- Please read pages 21 through 23 in the academic calendar regarding plagiarism, academic dishonesty, and attendance issues (<http://www.ubishops.ca/academic/calOO6.htm>)
- Please remember that students are bound by the University Policy on Academic Integrity in regard to all work related to this course. Any student found to be violating this code will be subject to disciplinary action.

Special Needs

- If because of a disability, you may have a need for special accommodations, please come and discuss this with me at the beginning of the semester. As well you must contact the Counseling and Employment Resource Centre (<http://www.ubishops.ca/counselling/index.html>) to obtain authorization for any special arrangements.