

MATH 450 Real Analysis

Fall 2003

Course Information:

- **Class Location & Time:** SL1211, TR 7:30-8:45pm
- **Instructor:** Dr. Koung Hee Leem, kleem@siue.edu, 650-2366, SL 1331,
Office Hours : TR 6:00-7:00pm

Course Website: <http://www.siue.edu/~kleem/math450.html>

Pay close attention to the course website. Homework assignments and other information will be posted.

Textbook: *Introduction to Real Analysis, 2nd Edition* by Robert Bartle and Donald Sherbert.

Prerequisite: MATH 250, 321 and 350 or equivalent.

Course Objectives and Description

To provide all mathematics students with necessary rigorous mathematical knowledge for senior and graduate level mathematics courses, this course covers basic mathematical fundamentals, such as Differentiation, Riemann Integral, Sequences of Functions, Infinite Series, Lebesgue Integral, Open and Closed Sets in \mathbb{R} , Compact Sets, etc.

Course Outline and Topics:

1. *Chapter 6*, Differentiations
The Derivative, Mean Value Theorem, L'Hospital's Rules, Taylor's Theorem.
2. *Chapter 7*, The Riemann Integral
The Riemann Integral, Riemann Integrable Functions, The Fundamental Theorem, Approximate Integration.
3. *Chapter 8*, Sequences of Functions
Pointwise and Uniform Convergence (Review from MATH350), Interchange of Limit, The Exponential and Logarithmic Functions.
4. *Chapter 9*, Infinite Series
Absolute Convergence, Tests for Absolute Convergence, Tests for Nonabsolute Convergence, Series of Functions.
5. *Chapter 10*, The Generalized Riemann Integral
Definition and Main Properties, Improper and Lebesgue Integral.
6. *Chapter 11*, A Glimpse into Topology
Open and Closed Sets in \mathbb{R} , Compact Sets.

Grading Scheme:

The final grade will be based on exams, homework assignments and class presentations, as follows:

20%	Homework Assignments and Class Presentations
50%	Two Midterms
30%	Final

Homework assignments are given after each section. Some of the problems will be collected and Some are for the presentations in class. Two midterms are given on the following dates:

Oct 9, Nov 13

Final exam is comprehensive and from 8:30-10:10pm on Tuesday, December 16.

Make-up Quiz and Exam Policy:

No make-up for Homework.

Make-up may be given for exam missed due to unavoidable circumstances and compelling situations which are documented.

Note:

The course plan may be modified during the semester. All changes will be announced in class in advance. It is the student's responsibility to be informed of such announced changes.

All works on homework must be your own. PLEASE DO NOT SIMPLY COPY ANOTHER PERSON'S HOMEWORK.

I would like to hear from anyone who has a disability which may require some modifications of seating, testing or other class requirements so that appropriate arrangements may be made. Please see me after class or during my office hours in the beginning of the semester.