Foundations of Analysis
Math 3513-001
Fall 2001

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Office Hours: MW 2:30-3:00 PM, Tues 10:00-11:00, Fri 10:30-11:30 or by appointment

Brief Description: Some of the main topics which will be explored in this course are: sets and functions; axioms for the real number system; limits of sequences; limits and continuity of functions; and, the intermediate and extreme value theorems. However the central goal for the course is for students to attain and develop skills of constructing mathematical proofs, and to gain experience working in mathematical and axiomatic frameworks. The course description in the University Catalogue reads as follows:

3513 Foundations of Analysis. Prerequisite: one semester of calculus; corequisite: 2433. The real number system, sequences of numbers, series of numbers, limits and continuity of functions, topology and continuity on the real line. (F, Sp, Su)

These topics and the experience of working with mathematical theories are basic to nearly all areas of mathematics. For these reasons, the Foundations course serves as a prerequisite for many of the upper division math courses.

Materials: The textbook for this course is Introduction to Real Analysis (third edition) by R. Bartle and D. Sherbert (J. Wiley & Sons, New York, 2000). Portions of Chapters 1 through 5 will be covered during the semester. Additional topics may be introduced as time permits.

Assignments and Quizzes: Homework will be assigned and collected at every class period. Each assignment will consist of one or two problems, and because of this there will be an expectation of carefully prepared work. Credit will be deducted for poorly written or hastily prepared work. Students are encouraged to work in study groups but must prepare each assignment on their own. The homework assignments should be submitted on regularly-sized $8\frac{1}{2} \times 11$ paper, and each problem should be preceded by a complete written statement of the problem.
Quizzes will be given regularly during class periods. During the semester the Math Club will be sponsoring a number of events, and attendance at some of these will be required as special assignments.

**Exams:** The final exam will be the only formal exam in the course. It will be comprehensive over topics discussed during the semester.

**Grading:** Course grades will be based on the following scale:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>50%</td>
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<tr>
<td>Quizzes</td>
<td>20%</td>
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<tr>
<td>Special Assignments</td>
<td>5%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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**Student Disabilities:** The instructor is committed to providing an environment in which students will be able to successfully complete this course. If any student has a physical disability that may affect their performance, they should contact the instructor so that steps may be taken to ensure full participation and to facilitate educational opportunities.