

MATH 512.001: ADVANCED CALCULUS
SPRING 2008

CONTACT INFORMATION:

INSTRUCTOR : Dr. Hasan Coşkun
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OFFICE HOURS : TR 9:00-11:00am, 1:00-3:00pm
W 1:00-3:00pm (MPLX), otherwise by appt.

DESCRIPTION AND POLICIES:

1. CLASS SCHEDULE: TR 4:25-5:50pm @ BIN 329.
2. TEXT: An Introduction To Analysis by Wade, 2nd edition, is required. In addition, you may also find the following books useful.
 1. An Introduction to Analysis by Marsden & Hoffman.
 2. Advanced Calculus by Buck
 3. Principles of Mathematical Analysis by Rudin
3. DESCRIPTION: Properties of real numbers, continuity, differentiation, integration, sequences and series of functions, differentiation and integration of functions of several variables. Prerequisite: Math 436 or 440.
4. OBJECTIVES:
 1. Gaining factual knowledge (terminology, classifications, methods) in the area of introductory analysis.
 2. Learning fundamental principles, generalizations and theories in elementary analysis.
 3. Learning how to apply course material to improve thinking and to solve analysis problems.
 4. Learning to analyze and critically evaluate inferences and arguments used in proofs and solutions.
 5. Developing specific skills, competencies and points of view needed by professionals in the field of analysis.

5. COURSE OUTLINE:

1. Real Number System \mathbb{R} .
 2. Sequences in \mathbb{R} .
 3. Continuity on \mathbb{R} .
 4. Differentiability on \mathbb{R} .
 5. Integrability on \mathbb{R} .
 6. Infinite Series
 7. Metric Spaces
 8. Differentiability on \mathbb{R}^n .
 9. Integration on \mathbb{R}^n .
 10. Vector Calculus
 11. Fourier Series
6. TESTS & PROJECTS: There will be two midterm tests (100 points each) and a final exam (150 points).
7. HOMEWORK: Homework will be assigned regularly. Selected problems will be collected and graded. Late homework will not be accepted. Homework scores will add up to 100 points of the final grade.
8. GRADE DISTRIBUTION: The test scores and the homework score will be added and a letter grade will be assigned according to the following chart.
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|---|---------------|
| A | 406 – 450 pts |
| B | 361 – 405 pts |
| C | 316 – 360 pts |
| D | 271 – 315 pts |
| F | 0 – 270 pts |
9. OTHER IMPORTANT DATES:
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| March 17–23, 2008 | Spring break. |
| April 25, 2008 | Last day to drop a class or withdraw. |
| May 02, 2008 | Last class day. |
| May 06, 2008 | Final project/exam. |