MTH 241: Calculus for Management and Social Science

Catalog Description: Elementary differential and integral calculus of polynomial, logarithmic, and exponential functions and their applications to business, management and social sciences.

Credits: 4

Terms Offered: F, W, S, Su

Enforced Prerequisites: MTH 111 with C- or ALEKS math placement test: 60% or math placement test: 24, or instructor permission.

Meetings: Three 50-minute lectures and one 80-minute recitation

Course Content:
1. Elementary differential and integral calculus of polynomial, logarithmic, and exponential functions
2. Applications of calculus to business, management and social sciences

MTH 241 Measurable Student Learning Outcomes: A successful student in MTH 241 will be able to:

- Apply elementary differential calculus, including the derivative tests for extrema and concavity, to analyze polynomial, exponential and logarithmic functions.
- From the graph of the first derivative of a function, determine where the functions is increasing or decreasing, has a relative maximum or minimum, or has an inflection point, and identify questions about a function that cannot be answered from the graph of the first derivative.
- Solve differential calculus problems using both the definition of the derivative and differentiation rules.
- Use calculus to solve application problems in business and economics (such as marginals and compound interest) and elementary physics (velocity and acceleration).
- Solve optimization problems, including maximizing revenue and profit, and minimizing cost.
- Apply elementary integral calculus to solve problems, including basic applications in business and economics.
- Perform accurate computations involving differential (such as the Product Rule) and integral calculus, (such as determining the anti-derivative of polynomial, exponential and logarithmic functions).
- Compose an organized and logical process of problem solving, and communicate it to others both verbally and in writing.

MTH 241 satisfies the Baccalaureate Core Skills category for Mathematics and successful completion of the Mathematics category is one of OSU’s First Year Skills requirements.

Baccalaureate Core Learning Outcomes:

1. Identify situations that can be modeled mathematically.
2. Calculate and/or estimate the relevant variables and relations in a mathematical setting.
3. Critique the applicability of a mathematical approach or the validity of a mathematical conclusion.

Evaluation of Student Performance: Your grade and measurement of your progress on the course outcomes will be based on weekly online homework, written quizzes, in-class small-group, problem-solving activities, along with two written midterms and final exam. (Approximate percentages given.)

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Online Homework</td>
<td>15%</td>
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<tr>
<td>Written Quizzes/Activities</td>
<td>15%</td>
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<tr>
<td>Two Midterms</td>
<td>40%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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Learning Resources: The required text is *Brief Calculus*, by Larry J. Goldstein, David I Schneider, David C. Lay, and Nakhle H. Asmar (2010, Twelfth Edition) with MyMathLab access code, or other similar text selected by department. Graphing calculator.

Selected portions of the text will be covered as follows.

Chapter 1: 1.3, 1.4  
Chapter 2: 2.3, 2.5  
Chapter 3: 3.1, 3.2, 3.4, 3.5  
Chapter 4: 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 4.8  
Chapter 5: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6

Students With Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Academic Honesty and Student Conduct: Students are expected to be familiar with the Homework and Exam policies stated in this syllabus, as well as Oregon State University's Student Conduct Code.  