Math 2654: Calculus III  
Spring 2010  

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**Instructor Office Hours:**  

<table>
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<tr>
<th>Weekdays</th>
<th>Morning</th>
<th>Afternoon</th>
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<tr>
<td>Monday</td>
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<td>2-4pm</td>
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<td>By Appointment</td>
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<tr>
<td>Tuesday</td>
<td>9am-11am</td>
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<td>Wednesday</td>
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<td>Thursday</td>
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<td>Friday</td>
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If you would like to see me but cannot come during one of these times, please call first or make an appointment.

**Hours Credit:** 4 hours  

**Prerequisites:** MATH 2644 with a grade of C or higher  

**Textbook:** *Calculus: Early Transcendentals Multivariable* 6th Edition; James Stewart  

**Description:** This is a continuation of MATH 2644. Topics include functions of two, three, and more variables, multiple integrals, and topics in vector calculus.
This course covers:

Chapter 12: Section 1, 2, 3, 4, 5, 6
Chapter 13: Sections 1, 2, 3, 4
Chapter 14: Sections 1, 2, 3, 4, 5, 6, 7, 8
Chapter 15: Sections 1, 2, 3, 4, 5, 6, 7, 8, 9
Chapter 16: Sections 1, 2, 3, 4, 5, 6, 7, 8, 9

Learning Outcomes: The student will be able to:

1. Compute vector sums, difference, and scalar products (L1).
2. Compute dot products and cross products of vectors (L1).
3. Compute equations of lines and planes in space (L1).
4. Compute the unit tangent vector, the unit normal vector, the unit bi-normal vector, the curvature, and the torsion of a space curve (L1).
5. Compute the tangential and normal components of acceleration (L1).
6. Convert between Cartesian, cylindrical, and spherical coordinates in space (L1).
7. Compute the limit of a function of two or three variables (L1).
8. Determine if a function of two or three variables is continuous at a points (L1).
9. Compute partial derivatives, gradients, and directional derivatives of functions of two and three variables (L1).
10. Compute using the Chain Rule for functions of several variables (L1).
11. Demonstrate understanding of the significance of the gradient vector (L1).
12. Solve theoretical and applied max-min problems using either direct methods or the method of Lagrange multipliers (L1).
13. Find and classify critical points of functions of two and three variables (L1).
14. Set up and evaluate double and triple integrals as iterated integrals in Cartesian, polar, cylindrical, and spherical coordinates (L1).
15. Set up and evaluate double and triple integrals as iterated integrals in Cartesian, polar, cylindrical, and spherical coordinates (L1).
16. Solve applied problems involving areas, volumes, centers of mass, first, second and polar moments of inertia (L1).
17. Evaluate line integrals, including applying the Fundamental Theorem of Line Integrals (L1).
18. Demonstrate an understanding of the concepts of conservative vector fields and independence of path (L1).

**Homework:** After each lesson, I will assign homework problems (from the text) that are not to be returned in and graded but that are meant to reflect the sort of question you can expect on tests. Ms Katie Dawson will go over some of the homework problems on Monday classes. I also encourage you to use my office hours if you have any questions.

**Attendance:**
If you miss a class, you are responsible for obtaining any information that you missed. If you miss a test, you must have a *university-approved excuse* in order to take a make-up test.

**Important Remark:** Calc III is a difficult course and if you do not work hard, you will fail this course.

**Quizzes:** There will be some quizzes given on Monday classes. The quizzes will be worth 15% toward your final grade. Ms Dawson will announce the dates for the quizzes.

**Tests:** There will be 3 class tests. Each will be worth 20% toward your final grade.
- Test 1: Thursday February 4
- Test 2: Thursday March 4
- Test 3: Thursday April 8

*(Tests dates are subject to change.)*

**Final exam:** The final exam will be worth 25% toward your final grade.  
*The final exam is on Tuesday, May 4, 11 am-1 pm.*

**Grading Scale:** A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%.

**Grading:** Your final grade will be determined as follows: Quizzes: 15%, Tests: 60% and Final exam: 25%.

**ACADEMIC DISHONESTY**
Academic dishonesty is NOT tolerated. It will result in failure on assignment(s) as well as possible disciplinary sanction(s) as stipulated by university rules. State University of West Georgia Student Conduct Code defines academic dishonesty as cheating, fabrication, plagiarism, and facilitating or allowing academic dishonesty in any academic exercise.

**Cheating:** Using or attempting to use unauthorized materials, information or study aids.

**Fabrication:** Falsification or unauthorized invention of any information or citation.

**Plagiarism:** Representing the words or ideas of another as one's own. Direct quotations must be indicated and ideas of another must be appropriately acknowledged.