

MONTGOMERY COUNTY COMMUNITY COLLEGE  
CALCULUS III BC  
MAT 202  
Fall 2005

**Walter R. Hunter**

**Meeting Times:** MWF 8:40 to 10:00

**Textbook:** *Calculus*, 7<sup>th</sup> edition, Larson, Hostetler, and Edwards. Houghton Mifflin.

**Requirements:** A TI voyage 200 will be provided to you.

**Prerequisites:** MAT 201, with a minimum grade of C.

**Course Description:** This is a third course in the calculus sequence and is a four credit course. It is designed primarily for students who will major in mathematics, science, engineering, or business. Topics include polar coordinates, vector analysis, solid analytic geometry, partial derivatives and multiple integrals with applications.

1. Solve double integral problems including change of variables to polar coordinates.
2. Compute and apply triple integrals.
3. Compute and apply the concepts of line integrals and Green's theorem.

**Office:** Room 146, Parkhouse Hall  
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**Office Hours:** Tuesday 9:00 to 10:30  
Thursday 9:00 to 10:30

<b>Grading:</b>	Assignments	35%
	Five tests	50%
	Final	15%

**Grades:** 90 to 100 A  
80 to 89 B  
70 to 79 C  
60 to 69 D  
Below 60 F

**Makeup Exam Policy:** A makeup exam will **NOT** be given under any circumstances. If you miss an exam, you must contact me immediately.

**Withdrawal Policy:** You must withdraw by the eighth week of the semester.

**Assignment  
Policy:**

You may hand in 2 assignments late. They must be handed in before I return them to the class.

**Disability  
Statement:**

Students with disabilities may be eligible for accommodations in this course. Please contact the Director of Services for Students with Disabilities in the Counseling Center, College Hall, at (215) 641- 6575/6577 for more information.

**Learning Objectives:** Upon successfully completing this course, students should have the following knowledge and skills.

4. Solve basic problems involving conic sections. Some problems will involve implicit differentiation.
5. Understand how to graph and differentiate parametric equations.
6. Graph and differentiate polar functions.
7. Find area and arclength in polar coordinates.
8. Compute and graph basic vector concepts in both two and three dimensions.
9. Apply and understand the dot product of two vectors.
10. Apply and understand the cross product of two vectors.
11. Use the dot and cross products to gain a better understanding of planes and lines in three dimensions.
12. Graph basic surfaces in three dimensions, including cylindrical and spherical coordinates.
13. Differentiate and integrate vector valued functions and apply them to velocity and acceleration arclength and curvature problems.
14. Understand the concepts of limits and continuity for functions of two variables.
15. Compute partial derivatives.
16. Understand and apply differentials to functions of two variables.
17. Compute and understand directional derivatives and gradients
18. Use partial derivatives to solve problems involving tangent planes, normal lines, and Extremas.
19. Solve integrated integral problems.

**Snow Closing  
Number**

320

## Homework

Section 9.1 p. 660 1-8, 13, 35, 49, 57, 65, 81, 89, 91, 105, 109  
Section 9.2 p. 672 1, 5, 19, 33, 41, 42, 49, 55, 57, 61, 75  
Section 9.3 p. 681 3, 5, 9, 13, 15, 19, 21, 23, 27, 31, 35, 37, 43, 49, 65, 68, 70  
Section 9.4 p. 691 1, 3, 7, 11, 21, 27, 29, 33, 37, 43, 53, 55, 59, 63, 67, 85  
Section 9.5 p. 700 3, 7, 9, 13, 27, 43, and 47  
Review Problems p. 709 5, 8, 13, 14, 23, 26, 35, 37, 43, 45, 47, 49, 50, 55, 61, 77, 81, 87, 91, 95

### TEST 1

Section 10.1 p. 723 1, 5, 9, 17, 19, 20, 21, 23, 25, 26, 27, 29, 31, 33, 37, 45, 53, 55, 69, 71, 73, 77, 79, 81, 87, 89, 91  
Section 10.2 p. 732 1, 4, 5, 11, 12, 13, 21, 27, 35, 39, 41, 45, 47, 53, 57, 63, 67, 71, 79, 89, 93  
Section 10.3 p. 741 1, 5, 7, 9, 11, 17, 19, 27, 31, 35, 39, 41, 47, 61, 63, 67, 69  
Section 10.4 p. 750 1, 7, 11, 17, 21, 27, 33, 37, 39, 41, 43, 45  
Section 10.5 p. 759 1, 5, 13, 15, 19, 23, 25, 29, 35, 41, 45, 51, 65, 69, 75, 77, 81, 89  
Section 10.6 p. 771 1-6, 7, 9, 11, 15, 19, 25, 31, 35, 41, 45, 50, 51, 59, 63  
Review Problems p. 780 1, 5, 19, 23, 27, 30, 35, 41, 44, 46, 47, 48, 53, 57, 59

### TEST 2

Section 11.1 p. 791 3, 7, 9, 13, 15, 17-20, 23, 33, 39, 47, 51, 59, 63, 69, 73, 79  
Section 11.2 p. 800 1, 5, 7, 11, 13, 15, 17, 23, 25, 27, 29, 33, 35, 37 a, c and e, 39, 43, 47, 49, 51, 55  
Section 11.3 p. 808 1, 7, 9, 15, 17, 21, 25, 27, 31 (see problem 29), 32, 37, 41  
Section 11.4 p. 817 1, 5, 13, 17, 19, 21, 25, 27, 31, 33, 35, 39, 47, 49, 53, 55  
Section 11.5 p. 828 1, 3, 11, 17, 21, 25, 33, 83  
Review Problems p. 832 7, 27, 33, 37, 41, 49, 53, 57, 69

### TEST 3

Section 12.1 p. 846 17, 21, 31, 35, 39, 45-48, 49, 55  
Section 12.2 p. 856 3, 7, 13, 17, 20, 21, 25, 29, 33  
Section 12.3 p. 865 5, 13, 19, 25, 33, 37, 41, 45, 47, 51, 57, 65, 73, 77, 91, 95  
Section 12.4 p. 874 1, 7, 11, 25, 29, 31, 34  
Section 12.5 p. 882 1, 3, 5, 7, 11, 13, 15, 21, 25, 27, 31, 37, 39, 55, 57  
Section 12.6 p. 893 1, 5, 11, 13, 21, 25, 27, 29, 31, 35, 47-50, 53, 55, 59, 63, 76  
Section 12.7 p. 902 3, 7, 13, 15, 23, 31, 33, 39, 43, 45, 49, 53  
Section 12.8 p. 911 7, 13, 17, 19, 21, 23, 28, 45, 49, 51, 53, 55  
Section 12.10 p. 927 1, 5, 11, 13, 15, 19, 23, 37  
Review Problems p. 929 15, 21, 27, 28, 37, 40, 41, 42, 47, 49, 51, 55, 57, 61, 65, 67, 70, 77

### TEST 4

Section 13.1 p. 942 1, 7, 11, 17, 21, 23, 25, 27, 31, 33, 35, 39, 43, 51, 59, 65, 67, 69  
Section 13.2 p. 951 1, 7, 11, 13, 15, 17, 21, 27, 29, 31, 33, 39, 43, 49, 53  
Section 13.3 p. 960 3, 5, 7, 9, 15, 19, 23, 27, 31, 33, 39  
Section 13.6 p. 986 1, 5, 9, 11, 13, 15, 17, 19, 23, 25  
Section 14.1 p. 1017 1 to 6, 7, 11, 21, 27, 31, 35, 43, 49, 51, 57  
Section 14.2 p. 1029 1, 5, 7, 9, 11, 15, 17, 21, 25, 27  
Section 14.4 p. 1048 1, 5, 7, 11, 17, 21, 27  
Review Problems p. 986 13, 15, 17 p. 1001 17, 27, 29 p. 1087 5, 7, 21, 23, 45

### TEST 5