



# MATH 273-Calculus IV

## Content and Process Learner Outcomes

Through assignments, quizzes, exams, and in-class work, students will demonstrate knowledge of content and process objectives that include the following:

- Interpreting, explaining, and applying the Fundamental Theorems of Calculus for Line Integrals, Stoke's Theorem, and the Divergence Theorem.
- Modeling real-world phenomena with simple partial differential equations and multiple definite integrals.
- Making connections among numeric, symbolic, graphical representations of multiple integration models.
- Correctly choosing and applying appropriate problem solving procedures and/or processes to solve multiple integration problems and simple partial differential equations.
- Using technology appropriately in the computations involving multiple integration.
- Correctly applying Integration techniques to solve physical problems modeled with line integrals, flux integrals, and multiple integrals.

## Performance Learner Outcomes

Through assignments, quizzes, and exams, and in-class work, students will demonstrate knowledge of content and process objectives

### Course Content

**Text: Thomas' Calculus: Early Transcendentals**

Week 1-Differential Equations

Chapter 9.1-9.2

Week 2-Differential Equations

Chapter 9.3-9.4

Week 3-Differential Equations Multiple Integration

Chapter 9.5-15.1

**Test 1 (Diff. Eq.)**

Week 4-Multiple Integration

15.2-15.4

Week 5-Multiple Integration

15.5-15.6

Week 6-Multiple Integration

15.7-16.1

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### Office Hours

M-TH 12:00-1:30

If you need special provisions, please let me know.

### Course Philosophy

Calculus IV, is the counterpart to Calculus III. That is, the focus will be on integrals rather than derivatives. Similar to the relationship between Calculus I and Calculus II content, the inverse theory between integration and

between integration and differentiation will culminate in Fundamental Theorems of Calculus.

**Test 2  
(Mult.  
Int.)**

that include the following:

**Calculators**

A graphing calculator is required for this class. The Texas Instruments TI-83 (+) is recommended, although other graphing calculators may work. If you decide to use a calculator other than the Ti-83, you are responsible for knowing how to use its features! If you desire help with it, make sure you bring your instruction book with you.

**Homework**

Homework will be collected on Mondays, which will include all assignments through the previous Thursday. To receive credit, homeworks MUST be in order, oldest to newest, and bound with a paper clip. Each assignment MUST have your **NAME**, the complete text **SECTION NUMBER**, and the **PAGE NUMBERS** of the assignment (if from the book) in the **UPPER RIGHT HAND CORNER OF THE FIRST PAGE OF EACH ASSIGNMENT**. You will lose points if your homework is not neat or if it is not presented in the prescribed manner.

**Week 7-Vector  
Field Integration**

16.2-  
16.4

**Week 8-Vector  
Field Integration**

16.5-  
16.7

**Week 9-Vector  
Field Integration**

16.8

**Week 10-Special  
Topics if time  
permits**

**Week 11-Final  
Exam Friday,  
Dec.7, 8-10 am.**

**Problem-  
Solving**

- Working on extended problems
- Using diverse methods to solve problems
- Using questioning and generalization in solving problems
- Modeling real-world phenomena mathematically.

**Group  
Work**

- Working cooperatively
- Sharing ideas
- Dividing tasks effectively among group members

**Writing and  
Communication**

- Reading and understanding complex problems
- Summarizing the essential ideas of a problem
- Describing methods used to approach a problem
- Expressing solutions in written and verbal form
- Evaluating and improving the quality of written work.

**Assessments**

Homework

Quizzes

Midterm  
Exams

Final Exam

Percent  
of Final  
Grade

15%

20%

40%

25%

Final Point  
Distribution

93-100%

90-92%

87-90%

83-86%

80-82%

77-79%

73-76%

70-72%

67-69%

63-66%

Final Grade

A

A-

B+

B

B-

C+

C

C-

D+

D

60-62%	D-
Below 60%	F