

Math 272- Calculus III

Michael A. Lundin

Central Washington University
Department of Mathematics
400 East 8th Avenue
Ellensburg, WA 98926-7424
Bouillon Hall Room 108D
Phone: 509:963-1398

[e-Mail Mike Lundin](mailto:mike.lundin@cwu.edu)

<http://www.cwu.edu/~lundin/>

Office Hours

M-F 10:00-11:00

If you cannot meet during this time, we can make arrangements to meet at another time. Also, if you need special accommodations, please let me know.

Course Philosophy

Multivariable Calculus prepares students for deterministic modeling of physical phenomena. As such,

Course Content

Text: Calculus by Hughes-Hallett et al

Week 1-Functions of Several Variables

Chapter 12.1-12.3

Week 2- Linear Functions, Limits, Continuity

Chapter 12.3-12.6

Week 3- Vectors

Chapter 13.1-13.2

Week 4-Operations on Vectors

Chapter 13.3-13.4

Week 5-Partial Derivatives I

Chapter 14.1-14.3

Test 1 (material through week 4)

Week 6-Partial Derivatives II

Chapter 14.3-14.6

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:

- Modeling real-world phenomena with vector functions of several variables and their derivatives.
- Interpreting functions of several variables numerically, symbolically, and graphically.
- Making connections among numeric, symbolic, graphical representations of functions of several variables, their derivatives, and real-world models.
- Optimization of functions of several variables, including the method of Lagrange.
- Investigating partial derivatives and gradients numerically, symbolically, and graphically.
- Correctly choosing and applying appropriate functions of several variables and/or their derivatives to real-world problems.
- Modeling and solving a variety of problems using the tools of calculus, including limits and derivatives.
- Approximating functions with sequences with Taylor Series, power series, or Fourier series.

Performance Learner Outcomes

to understanding physical science. In general, this course encompasses the elementary theory of vector calculus and sequences of approximating functions and their applications to the sciences.

Calculators

A graphing calculator is required for this class. The Texas Instruments TI-84 is recommended, although other graphing calculators may work. If you decide to use a calculator other than the Ti-84, 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.

Week 7-Partial Derivatives III

Chapter 14.7-14.8

Week 8-Optimization

Chapter 15.1-15.2

Week 9-Lagrange Multipliers

Chapter 15.3

Test 2 (material through week 8)

Week 10-Applications and Review

Chapter 16.1-16.2

Week 11-**Final Exam**

work, students will demonstrate knowledge of content and process objectives that include the following:

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	Percent of Final Grade	Final Point Distribution	Final Grade
Homework Projects	15%	93-100%	A
Quizzes	20%	90-92%	A-
Midterm Exams	2 X 20%	87-90%	B+
Final Exam	25%	83-86%	B
		80-82%	B-
		77-79%	C+
		73-76%	C
		70-72%	C-
		67-69%	D+
		63-66%	D
		60-62%	D-
		Below 60%	F