

Math 8: Calculus of One and Several Variables

Course Information

Instructor and Course Meeting Information

Instructor: Lola Thompson

E-mail: Lauren.A.Thompson@Dartmouth.edu

MWF 11:15 - 12:20

Tu 12 - 12:50 (X-hour)

Location: Kemeny 105

Office: 243 Kemeny Hall

Office Hours:

M: 3 - 4

W: 3 - 4

Th: 5 - 6

F: 3 - 4

*Also available by appointment.

Course Objectives

In this course, you will be able to:

- explain your thought processes in a clear, logical manner.
- apply your theoretical knowledge to solve a variety of real-world problems.
- assess whether it is appropriate to use a particular ‘test’ on a given infinite series.
- map the progression of ideas that lead us to approximate functions with Taylor series.
- translate between vector calculus problems and their graphical interpretations.

Textbook

Calculus (Seventh Edition) by James Stewart.

A printed version is available at Wheelock Books. You can also find used editions online (ex. Amazon.com), but please check to make sure that the edition matches the one that we are using.

Alternatives: If you are interested in obtaining this text in eBook format, you may purchase it online through Cengage. Purchasing the eBook also grants you access to online resources available through Cengage; however, these resources are not required for this course. You can also purchase individual chapters of the book through Cengage. The material on our syllabus can be found in Chapters 7, 11, 12, 13 & 14 of the text.

Grades

The grades in this course will be calculated as follows:

	number	percentage of grade
WeBWorK:	26	15%
Quizzes:	8	25%
Midterm Exam:	1	25%
Final Exam:	1	35%

Homework Assignments

There will be a WeBWorK assignment due every Monday, Wednesday and Friday at 1 PM EST. New assignments will be posted after every lecture.

There will also be a short 'take-home' lecture posted on Blackboard every Monday night (with a few exceptions; see the Course Schedule below). You are expected to review the take-home lecture before the beginning of class on Wednesday. The material covered in the take-home lectures is just as important as that which is covered in regular (in-class) lectures: in particular, it will appear on the homework assignments, quizzes and exams.

For your convenience, there will be a Math 8 tutorial session every Sunday, Tuesday and Thursday evening from 7 - 9 PM. The tutorial sessions will be led by Jonathan Bloom in Kemeny 105.

Quizzes

There will be a 10-minute quiz at the beginning of class every Friday. The quizzes will generally consist of one or two problems related to the topics covered during the previous three classes. The questions will be similar in nature to the exercises that appear in the lectures and WeBWorK assignments.

Calculators and notes are not permitted on quizzes. Quizzes will only be given on or before the assigned date. If you know you will not be in class on one of these days, it is your responsibility to notify your instructor and arrange a time before the missed day to take the quiz.

Exams

There will be one midterm and one final exam. Calculators and notes are not permitted on exams. If you are unable to make an exam, it is your responsibility to notify me at least 48 hours prior to the exam and arrange a make-up time. I will announce the exam locations as soon as they are available.

Midterm Exam: Tuesday, April 24, 5-7 PM.

Final Exam: Friday, June 1, 11:30 AM - 1:30 PM.

Course Policies

Attendance

Although attendance is not officially required, my expectation is that you will come to class every day (except in certain extenuating circumstances; see below for more details). I consider classroom interaction to be an invaluable component of the course and one of the cornerstones of a Dartmouth education.

Absence/Make-up Work/Serious Illness

My general policy is that I will not accept late homework, and missed quizzes and exams cannot be made up.* That said, I understand that some circumstances are beyond your control. Should you contract H1N1 or another serious illness, please contact me (via e-mail!) as quickly as possible. I will be happy to make arrangements with you under these types of extreme circumstances. Please do not come to class if you are displaying symptoms of an influenza-like illness.

* See the “Quizzes” and “Exams” sections on the previous page for information about what to do if you have a scheduling conflict.

Honor Principle

WeBWorK

You are welcome to consult the course text, your class notes, and the Math 8 instructors and TAs. We also encourage you to form study groups with other students, provided that you abide by the following guideline: you may discuss the general problem-solving techniques for WebWorK problems with other students, but you must independently arrive at the answers you submit.

Quizzes, Midterm Exam, Final Exam

You are not allowed to use any electronic device or consult any source other than the instructors during quizzes and exams. In particular, this means *no calculators, smartphones, regular cell phones, iPods, eReaders, laptops, notes, textbooks*, etc. You are on your honor not to talk to another student about an exam until both students have turned in their exams.

Disabilities, Religious Observances, Etc.

Students in this course with disabilities, including “invisible” disabilities such as chronic diseases and learning disabilities, and who may need disability-related classroom accommodations, are encouraged to make an appointment to see their instructor as soon as possible. They should also stop by the Academic Skills Center in Collis Center to register for support services. All discussions will remain confidential, although the Academic Skills Center may be consulted to verify the documentation of the disability and advise on an appropriate response to the need.

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

Course Schedule

Date	Section In Text	Brief Description	Homework
3/26	7.1	Integration by parts	W, L
3/28	7.8	Improper Integrals	W
3/30	11.1, 11.2	Sequences; Series (Quiz)	W
4/2	11.3	Integral Test	W
4/4	11.4, 11.5	Comparison Test; Alternating Series Test	W
4/6	11.6	No Class (Good Friday)	
4/9	11.8	Absolute Convergence; Ratio and Root Tests (Quiz)	W
4/10	11.8	Power Series (X-Hour)	W, L
4/11	11.8	Power Series	W
4/13	11.9	Representing Functions with Power Series (Quiz)	W
4/16	11.10	Taylor and Maclaurin Series	W, L
4/18	11.10	Taylor and Maclaurin Series	W
4/20		Pre-Midterm Exam Wrap-up (Quiz)	W
4/23	12.1	Three-Dimensional Coordinate Systems	W, L
4/24		Midterm Exam 5 - 7 PM; optional review (X-hour)	
4/25	12.2, 12.3	Vectors and Dot Products	W
4/27	12.4	The Cross Product (No Quiz)	W
4/30	12.5	Equations of Lines and Planes	W
5/2	13.1, 13.2	Vector Functions and Their Derivatives and Integrals	W
5/4		No Class	
5/7	13.3	Arc Length and Curvature (Quiz)	W, L
5/8	14.1	Functions of Several Variables (X-Hour)	W
5/9	14.2	Limits and Continuity	W
5/11	14.3	Partial Derivatives (Quiz)	W
5/14	14.4	Tangent Planes and Linear Approximations	W, L
5/16	14.5	The Chain Rule	W
5/18	14.6	Directional Derivatives and the Gradient Vector (Quiz)	W
5/21	14.7	Maximum and Minimum Values	W, L
5/23	14.7	Maximum and Minimum Values	W
5/25	14.8	Lagrange Multipliers (Quiz)	W
5/28		No Class (Memorial Day)	
5/30		Pre-Final Exam Wrap-up	
5/31		Optional exam review 7 - 9 PM	
6/1		Final Exam 11:30 AM - 1:30 PM	

TABLE 1. *

W = WeBWorK

L = take-home lecture