MATH 2210-4, CALCULUS III, SPRING 2015

Classroom: LCB 219   **Time:** MWF 11:50 – 12:40
Instructor: Domingo Toledo
e-mail: `toledo@math.utah.edu`
Office: JWB 324   **Phone:** (801) 581-7824
Office Hours: Mon, Tue 12:55–1:45, or by appointment.
Web-page: `http://www.math.utah.edu/%7Etoledo/2210S15.html`

Prerequisite: Grade "C" or better in Math 1220 or 1250 or 1320, or AP Calculus BC score of at least 4.

Textbook: Varberg, Purcell and Rigdon, *Calculus*, Ninth Edition, ISBN: 0-13-230633-6 Any version of the ninth edition should work.

Course Description: This is a course on the calculus of functions of several variables. You will learn the meaning of derivatives and integrals for such functions, how to work with them and how to apply them. The topics that we will cover are:

> Geometry of Space and Vectors
> Derivatives of Functions of Two or More Variables
> Multiple Integrals
> Vector Calculus

These topics correspond to chapters 11 to 14 of the textbook. The last page of this syllabus gives an approximate weekly schedule of the sections that will be covered.

Extended Learning Outcomes: Upon successful completion of this course, a student should be able to:

- Compute dot and cross products of two vectors, projection of one vector onto another vector.
- Convert between cylindrical, rectangular and spherical coordinates.
- Determine the equation of a plane in 3-d, including a tangent plane to a surface in 3-d.
- Find the parametric equations of a line in 3-d.
- Perform calculus operations on functions of several variables, including limits, partial derivatives, directional derivatives, and gradients; understand what the gradient means geometrically.
- Find maxima and minima of a function of two variables; use Lagrange Multipliers for constrained optimization problems.

- Compute double and triple integrals in rectangular, spherical and cylindrical coordinates; proper use of double or triple integrals for finding surface area or volume of a 3-d region.
- Compute line and surface integrals.

Homework: Homework will be given every week using Webworks. If you are not familiar with Webworks, please look at `http://www.math.utah.edu/online/ww/classes.html` for an introduction. The first two homeworks will be due on Tuesday, January 27 at $10:00$ PM, and then every Tuesday at $10:00$ PM. Each homework will be available on the Monday a week before the Tuesday when it is due.

Please note that if you email me a question, it may take me up to 24 hours to be able to respond. Also I will not respond to emails sent after 3PM on the Tuesday when the homework is due. So please plan accordingly.

Exams: There will be three midterm exams on Wednesdays February 4, March 4 and April 8, and a comprehensive final exam on Monday, May 4. Please note that the dates of the midterms and final are not going to change, please plan accordingly. The topics for each midterm may change slightly from the approximate weekly schedule on the last page of this syllabus. The topics for each midterm will be posted a week in advance in the course web - page.

Calculators and notes: No calculators will be allowed in exams (calculator answers will never be required). All quizzes and exams will be closed book, closed notes, with no paper or electronic devices allowed. All you can have out is the paper provided to you and a pencil or pen to write on it. You can use the back for scratch paper. When appropriate (for example, in the final exam) I will give you a list of formulas you can use.

Tutoring: Free tutoring available in the Mathematics Tutoring Center, located in the T. Benny Rushing Mathematics Center. The hours are:

Monday–Thursday 8:00 AM to 8:00 PM
Friday 8:00 AM to 6:00 PM
Closed weekends and University holidays.

Please refer to `http://www.math.utah.edu/ugrad/mathcenter.html` for the services offered by the T. Benny Rushing Mathematics Center, including the tutoring center.

Grading Policy: Grades will be based on the homework, midterms and final. Two grades will be computed:

Grade 1:	Total score from the homework	30 %
	Three 50 minute midterms, drop lowest one:	40 %
	One 2 hour final exam (comprehensive):	30 %
Grade 2:	Final exam	100%

If you have attempted at least 50% of the homework and taken at least 2 midterms, the final grade will be the larger of Grade 1 and Grade 2. Otherwise your grade will be Grade 1. The grading system will not be any stricter than one letter grade for every 10 points (90-100 A or A-, 80-89 B or B+ or B-, etc).

Important dates:
> Last day to add classes without permission code: Monday January 19.
> Last day to drop (delete) classes: Wednesday, January 21.
> Tuition due: Monday January 26.
> Last day to withdraw from classes: Friday, March 6.

Student Responsibilities All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, t is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php

ADA: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581- 5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDS.

Week of	Cover Sections
January 12	11.1 – 11.3
January 19	11.3 –11.4 M Jan 19 Martin Luther King Day, no class
January 26	11.5 – 11.7
February 2	11.8 – 11.9 W Feb 4 MIDTERM 1
February 9	12.1 – 12.3
February 16	12.4 – 12.5 M Feb 16 President's Day, no class
February 23	12.6 – 12.8
March 2	12.9 W March 4 MIDTERM 2
March 9	13.1 – 13.3
March 16	SPRING BREAK
March 23	13.4 – 13.6
March 30	13.7 – 13.9
April 6	14.1 W April 8 MIDTERM 3
April 13	14.2 – 14.4
April 20	14.5 – 14.7
April 27	Review M April 27 Last class meeting
Mon May 4	FINAL EXAM 10:30 to 12:30, in usual classroom.