Mathematics 2210, Sections 1 and 2   Calculus III   Fall 2015

Class Times and Place:
2210−001, MWF, 9:40−10:30, JTB 130
2210−002, MWF, 10:45−11:35, JWB 335

Instructor: Professor Kenneth M. Golden, LCB 328, 801-581-6176 (o), 801-582-0570 (h)
kenatmath@gmail.com, golden@math.utah.edu, website: www.math.utah.edu/∼golden

Office Hours: Mondays 11:45 AM – 12:45 PM, by appointment, or most days after class.
There will be a review session before each exam.

Text: *Calculus with Differential Equations, 9th Edition*, Varberg, Purcell and Rigdon

Course Materials: Practice exams, the syllabus, help schedules, etc. can be obtained at
www.math.utah.edu/∼golden.

Course Description: Mathematics 2210 is an introduction to **multivariable calculus**. Vectors, functions, and motion in two and three dimensional space will be examined. Derivatives and integrals of functions of many variables will be developed. The fundamental differential operators of calculus in higher dimensions, **div**, **grad**, and **curl**, and their physical interpretations for fluid and electromagnetic fields, will be studied in detail. Integration of functions on curves, surfaces, and volumes will be developed. The course will conclude with an introduction to vector field theory and the theorems of Green, Gauss, and Stokes.

Course Outline:

August	24-28	11.1 - 11.3	Vectors and the geometry of space	
	31-4	11.4 - 11.7	Motion and vector-valued functions	
September	9-11	11.8 - 11.9	Surfaces; coordinate systems	
	14-18	12.1-12.4	Derivatives of multivariable functions	
	21-25	12.5-12.6	Directional derivatives and the gradient	EXAM I (Sept. 25)
	28-2	12.7-12.9	Tangent planes; maxima and minima	
October	5-9	13.1-13.3	Double integrals	
	12-16		FALL BREAK	
	19-23	13.4-13.6	Surface area; applications	EXAM II (Oct. 23)
	26-30	13.7-13.8	Triple integrals	
November	2-6	13.9	Change of variables in multiple integrals	
	9-13	14.1-14.2	Vector fields and line integrals	
	16-20	14.3-14.4	Green's Theorem and path independence	EXAM III (Nov. 20)
	23-25	14.5-14.6	Gauss's Theorem and surface integrals	
	30-4	14.7	Stokes's Theorem	
December	7-11		Partial differential equations of science	
	14-18			FINAL EXAM

Teaching Assistants (TA's):

Huy Dinh, hdinh@math.utah.edu, 801-581-6208, JWB 121
Taylor Petty, petty@math.utah.edu, 801-581-7653, LCB Loft

Discussion Hours:

Every week there will be two (optional) hour-long discussion sessions conducted by the TA's. During these sessions you can get help with webwork problems, exams, etc. You can go to any session. Schedule of times and rooms will be posted later.

Getting Help:

- **Setting up a webwork account:** In class you'll be given information on how to get into your own Webwork account. If you encounter any problems, please contact a TA, and give your full name, course number and section, and student ID number.

- **Webwork feedback button:** When you use the feedback button within an exercise, state your question clearly. All relevant data about your question and answers is sent to the TA. Please don't over-use this option, the TA's will be getting lots of emails.

- **Free tutoring:** Available all day M-F in the Rushing Undergraduate Math Center.

Grades and Exams:

- (50%) Your two best scores on three in-class exams. The lowest of your three exam scores is dropped automatically in calculating the final grades. There are NO MAKE-UP EXAMS. You may bring one sheet of paper and a calculator to any exam, but NO laptops or wireless devices. Please bring University ID to all exams.

- (25%) Final exam.

- (25%) WeBWorK assignments.