

## Course Syllabus for MA 213, 009-010 - Spring 2013

Calculus III 4 hrs. credit Prerequisite: MA 114 or equivalent

**Lecture:** MWF 1:00-1:50 p.m. CB 349  
**Lecturer:** Dr. Lawrence Harris 939 POT Office Hours: MWF 4-5  
**Recitation** for section 009 Tues. Thurs. 2:00-2:50 CB 335  
for section 010 Tues. Thurs. 3:00-3:50 CB 339  
**Instructor:** Ms. Sema Gunturkun 718 POT Office hours: (TBA)  
email:gunturkun@ms.uky.edu

**Text:** *Calculus, Early Transcendentals*, Sixth Edition (Custom Edition for UK), James Stewart, ISBN: 0-495-56339-0

We will cover Chapters 12-15 and the first five sections of Chapter 16. This is calculus in several variables including vector geometry, motion along a curve, higher dimensional derivatives, calculus for surfaces, multiple integrals, line integrals and vector field theory.

The course grade will be computed (with 90–100% A, 80–89% B, 70–79% C, 60–69% D, 0–59% E) on the basis of 525 points earned as follows:

3 in-class exams	100 points each
quizzes and homework	100 points
1 final exam	125 points

The “in-class” exams will be given in class on Wednesday, Feb. 6, Monday, March 4 and Monday, April 8. The final exam is comprehensive and will be held on Wednesday, May 1, from 1:00 -3:00 p.m. in our classroom. Students may use a graphing calculator on exams but may not use any device with the ability to do symbolic computations such as the TI-89, TI-92, HP48 or a laptop, netbook, ipad, etc.. Moreover, any device capable of electronic communication such as a cell phone or computer must be turned off and put away out of sight during all examinations. During regular class periods cell phones must be turned off and laptops may not be used.

Course information is posted at <http://www.ms.uky.edu/~larry/ma213.html> . Online homework will be assigned from the WebWork system and each week a quiz will be given in your recitation section. Homework will count 40% and Quizzes will count 50% of your recitation grade. Attendance and participation will count the remaining 10%. At the end of the semester, your lowest quiz score will be dropped.

Attendance in lecture and recitation is expected. A student will receive an additional 20 points extra credit added to their score at the end of the semester if the number of lectures for which the student is not present during the entire class period is no greater than three.

*You are required to present FULL documentation that any makeups you request are required by University rules.*

Date	Section	Topic
<b>Vectors</b>		
W 1/9	§12.1-12.2	Three dimensional coordinate systems, Vectors
F 1/11	§12.3	The dot product
M 1/14	§12.4	The cross product
W 1/16	§12.4	Cross product continued
F 1/18	§12.5	Equations of lines and planes
M 1/21		Martin Luther King Day
W 1/23	§12.6	Cylinders and quadric surfaces
F 1/25	§10.3-10.4	Review of polar coordinates
M 1/28	§15.7-15.8	Cylindrical and spherical coordinates (only)
W 1/30	§13.1	Vector functions and space curves
F 2/1	§13.2-§13.3	Derivatives and integrals of vector functions, Arc length
M 2/4		Review
W 2/6		<b>Exam I</b>
<b>Partial Derivatives and Chain Rule</b>		
F 2/8	§13.3	Curvature
M 2/11	§13.4	Motion in space
W 2/13	§14.1	Functions of several variables
F 2/15	§14.2	Limits and continuity
M 2/18	§14.3	Partial derivatives,
W 2/20	§14.4	Tangent planes and linear approximations
F 2/22	§14.5	The chain rule
M 2/25	§14.6	Directional derivatives and the gradient
W 2/27	§14.7	Maxima and minima
F 3/1		Review
M 3/4		<b>Exam II</b>
<b>Multiple Integrals</b>		
W 3/6	§15.1	Double integrals over rectangles
F 3/8	§15.2	Iterated integrals
3/11-15		Spring break
M 3/18	§15.3	Double integrals over general regions
W 3/20	§15.4	Double integrals in polar coordinates
F 3/22	§15.5	Applications of double integrals
M 3/25	§16.6	Surface area (p. 1074-1081)
W 3/27	§15.6	Triple integrals
F 3/29	§15.7	Triple integrals in cylindrical coordinates
M 4/1	§15.8	Triple integrals in spherical coordinates
W 4/3	§15.8	(Continued)
F 4/5		Review (Last day to withdraw)
M 4/8		<b>Exam III</b>

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**Line integrals and Green's theorem**

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W 4/10	§16.1	Vector fields
F 4/12	§16.2	Line integrals
M 4/15	§16.2	(Continued)
W 4/17	§16.3	Fundamental theorem for line integrals
F 4/19	§16.3	(Continued)
M 4/22	§16.4	Green's theorem
W 4/24	§16.5	Curl and divergence
F 4/26		Review

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**W 5/01**                      **Final exam 1:00-3:00 p.m.**

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## MA 213 Recommended Problems

### Exam I

p. 769 4, 20  
p. 777 8, 18  
p. 778 34, 38  
p. 784 16, 24, 38, 47  
p. 785 49  
p. 792 5, 20, 30, 40, 43  
p. 802 16, 18, 26, 38, 44, 56  
p. 811 12, 18, 21-28  
p. 647 6, 10, 18  
p. 647 56  
p. 653 14, 18  
p. 1004 8, 10, 12  
p. 1010 4, 8, 10, 14  
p. 822 18, 19-24, 42, 43c  
p. 828 6, 18, 24, 40, 48  
p. 836 6  
p. 847 10, 14, 22

### Exam III

p. 958 2, 12, 14, 18  
p. 964 8, 20, 26, 30  
p. 972 18, 20, 26, 47  
p. 972 46  
p. 978 6, 10, 14, 26  
p. 988 2, 8, 12, 18, 26  
p. 1080 38, 42, 44  
p. 998 12, 18, 28, 34, 36  
p. 1004 8, 12, 16, 18, 22  
p. 1010 8, 9, 14, 18, 22  
p. 1004 24, 28  
p. 1010 24, 30, 32

### Exam II

p. 837 18, 22, 44  
p. 847 14, 16, 22, 36  
p. 837 46  
p. 866 8, 26, 28, 30, 46  
p. 877 10, 14, 18, 38  
p. 889 24, 46, 72d,e, 80  
p. 891 75, 81  
p. 899 2, 32, 36, 39  
p. 907 4, 10, 22, 35  
p. 920 12, 20, 24, 32  
p. 900 44  
p. 909 52, 58  
p. 931 12, 34, 42, 50

### Final Exam

p. 1032 4, 11-14, 15-18, 29-32  
p. 1043 6, 8, 14, 34, 40  
p. 1053 4, 6, 12, 16, 22, 27, 28  
p. 1061 10, 12, 18, 19  
p. 1068 2, 16, 18, 22