College of Staten Island, City University of New York (CUNY)

Math 233 (Section 6829): Spring 2012 Syllabus

Analytic Geometry and Calculus III

Instructor: **Joseph Maher**

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Office hours: M 2:30-4:25 W 2:30-3:20

Course location: M 12:20 - 2:15 1S-102
W 12:20 - 2:15 1S-219

Textbook: Rogawski, *Calculus, Early Transcendentals*, ET edition, W.H. Freeman
ISBN: 14292-95031

Grading policy: 20% Homework and attendance

50% Midterms

30% Final

Additional info:

Disability policy: Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office for Disability Services. Prior to granting disability accommodations in this course, the instructor must receive written verification of student's eligibility from the Office of Disability Services, which is located in 1P-101. It is the student's responsibility to initiate contact with the Office for Disability Services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Integrity policy: CUNY's Academic Integrity Policy is available online at
`http://www.cuny.edu/about/info/policies/academic-integrity.pdf`

MTH 233 Sp2011
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THE COLLEGE OF STATEN ISLAND, CUNY
DEPARTMENT OF MATHEMATICS

MATH 233 – CALCULUS III
COURSE OUTLINE

Text: Rogawski, Calculus – Early Transcendentals,
W. H. Freeman & Co. (2008)
ISBN-13: 978-1-4292-1073-7
ISBN-10: 1-4292-1073-7

Note: Below, each lesson corresponds to a one-hour class. Homework problems in **bold** correspond to similar WeBWorK problems, which must be submitted online.

Note: Students are also required to complete four MATLAB projects listed below. These can be obtained in PDF or hardcopy (fee) at www.lulu.com/csimath

Lesson	Section	Topic	Homework Problems
1	12.1 12.2	Review: Vectors	12.1/ **35, 39, 49, 51** 12.2/ **13, 25, 39, 51**
2	12.3 12.4	Review: Dot product Review: Cross product	12.3/ **25, 35, 43, 49, 61** 12.4/ **15, 19, 23, 27, 47**
3	12.5	Review: Planes in three-space	**3, 13, 15, 21, 31**
4	12.6	Quadric surfaces	**15, 17, 21, 33, 35** MATLAB Project 1
5	13.1	Vector-valued functions	**11, 15**, 18, 22, **27, 31**, **37**
6	13.2	Calculus of vector-valued functions	**11,** 13, **19, 27**, 29, 44, **45, 49, 55**
7	13.3	Arc length and speed	**1, 3**, **9, 11**, 16, **17, 19**, 20
8	13.4	Curvature (optional)	1, 7, **11,** 17, 34, 49
9	13.5	Motion in three-space	3, **5,** 8, **15, 17,** 19, 31, 48 MATLAB Project 2
10		Review	
11		Review	
12		**Exam 1**	
13		**Exam 1**	
14	14.1	Functions of several variables	**3,** 6, **7,** 15, **19,** 21
15	14.2	Limits and continuity in several variables	**1,** 6, **9, 13,** 17, 32
16	14.3	Partial derivatives	**3, 19,** 22, 24, **25, 41, 47, 53,** 64
17	14.4	Differentiability and tangent planes	**1, 5**, 6, **15,** 17, **19,** 23, **31, 35, 39** MATLAB Project 3
18	14.5	Gradient and directional derivatives	**1,** 5, **7, 23, 25, 35**
19	14.5 cont'd		
20	14.6	Chain rule in several variables	**1,** 2, **5, 9,** 19, **25,** 33, **35,**
21	14.7	Optimization in several variables	**5, 15, 19, 25, 29,** 30, **39,** 42
22	14.7 cont'd		
23	14.8	Lagrange multipliers	**5, 11, 15, 17,** 19, **21,** 26, **35**

24	14.8 cont'd		
25		Review	
26		Review	
27		**Exam 2**	
28		**Exam 2**	
29	15.1	Integration in several variables	**1, 7, 19, 25, 31, 39,** 42, 44
30	15.1 cont'd		
31	15.2	Double integrals over general regions	**1, 7, 17, 29,** 36, **41,** 46, **55**
32	15.2 cont'd		MATLAB Project 4
33	15.3	Triple integrals	**3, 7,** 16, **19, 23,** 29, **37**
34	15.3 cont'd		
35	12.7	Cylindrical and spherical coordinates	**1, 7,** 21, 27, **31, 37,** 45
36	15.4	Integration in polar, cylindrical, spherical coordinates	**3, 15, 23, 27, 31,** 42
37	15.5	Change of variables	**3,** 4, **13, 17,** 21, 25, **29**
38	15.5 cont'd		
39	16.1 16.2	Vector fields Line integrals	16.1/ **1, 3, 15, 17,** 26, **27,** 29
40	16.2 cont'd	Line integrals	**1, 5, 13, 17,** 21, **25, 33,** 40, 41
41	16.3	Conservative vector fields	**5, 9, 13, 17,** 21, **23,** 24
42	16.3 cont'd		
43	16.4	Parametrized surfaces and surface integrals	**3,** 14, **19, 23, 27, 31,** 36, **41**
44	16.4 cont'd		
45	16.5	Surface integrals of vector fields	**3, 7, 11, 15,** 18, **23,** 28
46	16.5 cont'd		
47		Review	
48		Review	
49		**Exam 3**	
50		**Exam 3**	
51	17.1	Green's Theorem	**3, 9, 13,** 22, **23, 27,** 28
52	17.1 cont'd		
53	17.2	Stokes' Theorem	**3, 7, 13, 17,** 19, **21,** 23
54	17.2 cont'd		
55	17.3	Divergence Theorem	**3, 7, 11, 15,** 22, 25
56	17.3 cont'd		

ROLE IN CURRICULUM

MTH 233 is the third course of a three-semester sequence in calculus.

LEARNING GOALS AND ASSESSMENT PLAN

Learning Goal	Assessment
Differentiate and integrate functions of several variables.	NA
Understand the geometric meaning of differentiation for functions of several variables.	NA
Apply Stokes' Theorem to solve related problems.	NA
	NA

When assessment activities are done, the results will be summarized in memorandum form and filed with the department chairperson for record keeping purposes.

Information obtained from assessment will be used to assess and self-reflect on the success of the course and to make any necessary changes to improve teaching and learning effectiveness.

Undergraduate Catalog Course Description

College of Staten Island

Course prefix:	MTH
Course number:	233
Course title:	Analytic Geometry and Calculus III
Subject	Mathematics
Minimum credits:	3.0
Maximum credits:	3.0
Hours per week:	4.0
Course description:	The third of a three-semester sequence in calculus. Topics include vectors, solid analytic geometry, partial derivatives, multiple integrals with applications.
Prerequisite:	MTH 232. MTH 229 or permission of the department.
Comments:	MTH 229 or permission of the department.