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

Math 233 (Section 15391): Fall 2018 Syllabus

Analytic Geometry and Calculus III

Instructor: **Joseph Maher**

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Office hours: M12:20-1:10 M1:25-2:15 W1:25-2:15

Course location: MW 2:30-4:25

Textbook: Rogawski and Adams, *Calculus, Early Transcendentals*, 3rd edition, W.H. Freeman
ISBN: 978-1-4641-1488-5

Grading policy: 10% Homework and attendance

50% Midterms

40% 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`

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THE COLLEGE OF STATEN ISLAND, CUNY
DEPARTMENT OF MATHEMATICS

MATH 233 – CALCULUS III
COURSE OUTLINE

Text: Rogawski-Adams, Calculus – Early Transcendentals, Third Edition
W. H. Freeman & Co. (2015). ISBN# 978-1464114885

Note: Below, each lesson corresponds to a one-hour class. Homework problems in **bold** correspond to similar WeBWorK problems, which must be submitted online. Students are also required to complete four MATLAB projects listed below, which can be obtained in PDF at www.lulu.com with search term "csi math".

Lesson	Section	Topic	Homework Problems
1	12.1	Vectors in the plane	**39, 46, 48, 54,** 57
2	12.2	Vectors in three dimensions	**13, 29, 43, 53**
3	12.3	Dot product	**20, 41, 50, 55, 61, 68,** 78
4	12.4	Cross product	**11, 15, 20, 23, 43**
5	12.4	Cross product	
6	12.5	Planes in three-space	**3, 15, 19, 21, 39**
7	12.5	Planes in three-space	
8	12.6	Quadric surfaces	**7, 15, 17, 21, 39, 41,** 42 MATLAB Project 1
9	13.1	Vector-valued functions	**18, 23, 31, 32, 34, 37, 39**
10	13.2	Calculus of vector-valued functions	**10, 13, 17, 24, 25, 41, 43, 46, 50,** 56
11	13.3	Arc length and speed	**1, 3, 10, 14, 28, 29, 32,** 33
12	13.3	Arc length and speed	MATLAB Project 2
13	14.1	Functions of several variables	**1, 3**, 6, **7**, 9, **19, 20**, 21, **39**
14	14.2	Limits and continuity in several variables	**1**, 5, **7, 8**, 20, **29, 33, 38**
15	14.3	Partial derivatives	**3, 17, 20**, 22, 23, **25, 42, 50, 57, 67**
16	14.3	Partial derivatives	
17	14.4	Differentiability and tangent planes	**7, 10, 11, 16, 17, 18, 21, 29, 35, 39** MATLAB Project 3
18	14.4	Differentiability and tangent planes	
19	14.5	Gradient and directional derivatives	**1, 5, 7, 23, 25,** 35, **38**
20	14.5	Gradient and directional derivatives	
21		Review	
22		**Exam 1**	
23		**Exam 1**	
24	14.6	Chain rule in several variables	**1, 2, 5, 9**, **18, 27, 28, 31, 32**, 35, 36
25	14.6	Chain rule in several variables	
26	14.7	Optimization in several variables	**4, 7, 16, 21, 28, 32, 37, 40, 48**
27	14.7	Optimization in several variables	
28	14.8	Lagrange multipliers	**5, 11, 17, 19, 23, 25, 36, 47**
29	14.8	Lagrange multipliers	
30	15.1	Integration in several variables	**1, 7, 19, 29, 37, 40, 42,** 44, **47,** 48

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31	15.1	Integration in several variables	
32	15.2	Double integrals over general regions	**1, 7, 17, 22,** 29, **32, 35, 38, 44, 46**
33	15.2	Double integrals over general regions	MATLAB Project 4
34	15.3	Triple integrals	**6, 16, 17, 20, 23, 27,** 33, **39**
35	15.3	Triple integrals	
36	12.7	Cylindrical and spherical coordinates	**1, 7, 27, 31, 34, 40,** 52, **67**
37	15.4	Integration in polar, cylindrical coordinates	**3, 9, 17, 21, 23, 27,** 37, **45, 47**
38	15.4	Integration in spherical coordinates	
39	16.1	Vector fields	**3, 15, 41, 44,** 46, **48,** 50
40	16.2	Line integrals	**1, 5, 9, 15, 21, 27, 34, 37, 41**
41	16.3	Conservative vector fields	**3, 9, 11, 12, 13, 17,** 23, 25, 29
42		Review	
43		**Exam 2**	
44		**Exam 2**	
45	16.4	Parametrized surfaces	2, **3, 7, 19, 23, 25, 29, 34, 37**
46	16.4	Surface integrals and surface area	
47	16.5	Surface integrals of vector fields	**3, 7, 11, 15, 17, 23, 30**
48	16.5	Surface integrals of vector fields	
49	17.1	Green's Theorem	**3, 7, 9,** 12**, 13, 14, 25,** 32, 37
50	17.1	Green's Theorem	
51	17.2	Stokes' Theorem	**1, 3, 17, 20, 21, 22, 24,** 25, 27
52	17.2	Stokes' Theorem	
53	17.3	Divergence Theorem	**1, 3, 11, 15, 17, 18, 23, 25,** 32, 33
54	17.3	Divergence Theorem	
55		Final review	
56		Final review	

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.