NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 211: Calculus III A
Spring 2016 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: Topics include vectors, curvature, partial derivatives, multiple integrals, line integrals, and Green's theorem. Students who are considering a major in Mathematical Sciences or who are undecided about their major should take Math 213. Effective From: Fall 2012.

Number of Credits: 3

Prerequisites: Math 112 with a grade of C or better or Math 133 with a grade of C or better.

Course-Section and Instructors

Course-Section	Instructor
Math 211-002	Professor J. Zaleski
Math 211-004	Professor R. Goodman
Math 211-006	Professor J. Kappraff
Math 211-008	Professor N. Tsipenyuk
Math 211-010	Proefessor J. Hunter
Math 211-012	Professor J. Porus
Math 211-102	Professor M. Riahi

Required Textbook:

Title	*Thomas' Calculus: Early Transcendentals*
Author	Thomas
Edition	13th
Publisher	Pearson
ISBN #	978-0321981677
Notes	w/ MyMathLab

University-wide Withdrawal Date: Please note that the last day to withdraw with a **W** is **March 28, 2016**. It will be strictly enforced.

COURSE GOALS

Course Objectives

- Apply previously developed skills learned in Calculus to learn Multivariable Calculus and Vectors.
- Cover Vectors, Partial Derivatives, Multiple Integrals and Vector Fields to prepare students for further study in technological disciplines and more advanced mathematics courses.
- Cover relevant applications in science and engineering to illustrate the utility of learning these topics.
- Use mathematical software, in problem solving, to allow the solution of more complex problems and provide visualization of the mathematical concepts in three dimensions.

Course Outcomes

- Prepare students for further study in technological disciplines and more advanced mathematics courses.
- Illustrate the utility of learning Multivariable Calculus to solve problems in engineering and the sciences.
- Demonstrate mastery of the topics covered by testing with common exams and common grading.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Homework and Quizzes	20%
Common Midterm Exam I	25%
Common Midterm Exam II	25%
Final Exam	30%

Your final letter grade will be based on the following tentative curve. **NOTE**: This course needs to be passed with a grade of C or better in order to proceed to Math 328, Math 331, Math 332, Math 335, Math 340.

A	90 - 100	**C**	60 - 66
B+	81 - 89	**D**	57 - 59
B	74 - 80	**F**	0 - 56
C+	67 - 73		

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced.

Homework and Quiz Policy: The homework assignments are in the syllabus and online. In order to do the assignments you need to have a student access code. You can get an access code with a new book purchase that is bundled with My MathLab or by buying the code separately at the campus bookstore. If you buy a new book from another source make sure it is bundled with My MathLab. In addition on the first day of class your course instructor will give you an additional code needed to access the homework assignments. A quiz based on the homework problems will be given each week online or in class. There will be a short quiz every week on the material covered during the previous week. All of the quizzes will be graded. The homework and quizzes are intended to develop your problem-solving skills and to prepare you for the exams. The quiz and

homework grades will be a significant component of your course grade.

How to Get Started with MyMathLab:

- http://m.njit.edu/Undergraduate/UG-Files/MML_Getting_Started.pdf
- http://m.njit.edu/Undergraduate/UG-Files/Technology_Tips.pdf

Exams: There will be two common midterm exams held during the semester and one comprehensive common final exam. Exams are held on the following days:

Common Midterm Exam I	March 2, 2016
Common Midterm Exam II	April 6, 2016
Final Exam Period	May 6 - 12, 2016

The time of the midterm exams is **4:15-5:40 PM** for daytime students and **5:45-7:10 PM** for evening students. The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: To properly report their absence during a midterm or final exam, please review the required steps under the DMS Examination Policy found here:

- http://math.njit.edu/students/policies_exam.php

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in Cullimore, Room 214 (See: Spring 2016 Hours)

Accommodation of Disabilities: NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Coordinator of Student Disability Services located in the Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation and accommodation processes can be found on the webpage at:

- http://www.njit.edu/counseling/services/disabilities.php

Important Dates (See: Spring 2016 Academic Calendar, Registrar)

Date	Day	Event
January 19, 2016	T	First Day of Classes
January 25, 2016	M	Last Day to Add/Drop Classes
March 13 - 20, 2016	Su - Su	Spring Recess - No Classes, University Open
March 25, 2016	F	Good Friday - No Classes, University Closed
May 3, 2016	T	Friday Classes Meet/ Last Day of Classes
May 4 & 5, 2016	W & R	Reading Days
May 6 - 12, 2016	F - R	Final Exam Period

Course Outline

Lecture	Section	Topic	HW Assignment
1	12.1-12.2	3-Dimensional Coordinate Systems and Vectors	p. 707: 13, 21, 27, 43 p. 717: 10, 14, 17, 28, 34, 39, 43, 47
2	12.3	Dot Product	p. 724: 3, 12, 14, 15, 16, 24, 30, 41, 44
3	12.4	Cross Product	p. 730: 7, 17, 21, 23, 25, 39, 45, 48
4	12.5	Lines and Planes in Space	p. 738: 9, 17, 23, 27, 29, 35, 42, 48, 53, 59, 61, 65
5	12.6	Cylinders and Quadric Surfaces	p. 744: 5, 8, 11, 15, 19, 22, 33, 41
6	13.1	Curves and Tangents in Space	p. 757: 1, 7, 9, 14, 15, 21, 25
7	13.2	Integrals of Vector Functions: Projectile Motion	p. 765: 1, 7, 11, 15, 17, 21, 32
8	13.3	Arc Length of Space Curves	p. 771: 1, 6, 11, 13, 15
9	14.1	Functions of Several Variables	p.799: 5, 11, 13, 14, 18, 19, 25, 27, 39, 49, 53, 57, 61
10	14.3	Partial Derivatives	p. 819: 5, 13, 17, 30, 37, 43, 48, 53.61, 65, 66, 73, 90
11	*	REVIEW FOR EXAM 1	****
	*	**COMMON EXAM 1: WEDNESDAY, MARCH 2, 2016**	
12	14.4	The Chain Rule	p. 828: 3, 5, 7, 9, 27, 29, 35, 37, 43, 48
13	14.5	Directional Derivatives and Gradients	p. 838: 5, 9, 11, 15, 17, 20, 27, 31, 34
14	14.6	Tangent Planes and Differentials	p. 845: 2, 5, 9, 15, 19, 22, 29, 41, 43, 51, 53
15	14.7	Extrema and Saddle Points	p. 855: 3, 7, 20, 27, 31, 32, 41, 51, 53, 57
16	14.8	Lagrange Multipliers	p. 864: 3, 8, 13, 17, 19, 22, 25, 30, 35
17	15.1	Double and Iterated Integrals over Rectangles	p. 886: 3, 7, 10, 14, 17, 19, 23, 27
18	15.2, 15.3	Double Integrals over General Regions and Application to Computing Areas	p. 894: 13, 18, 35, 43, 44, 47, 51, 57 p. 890: 3, 7, 11, 21
19	15.4	Double Integrals in Polar Form	p. 904: 10, 14, 17, 21, 23, 29, 37
20	*	REVIEW FOR EXAM 2	****
	*	**COMMON EXAM 2: WEDNESDAY, APRIL 6, 2016**	
21	15.5	Triple Integrals in Rectangular Coordinates	p. 912: 7, 9, 11, 23, 25, 31, 33
22	15.6	Moments and Center of Mass	p. 920: 3, 4, 13, 15, 25, 29, 33
23	15.7	Triple Integrals in Cylindrical Coordinates	p. 930: 3, 7, 9, 17, 18, 52, 53, 55, 59
24	16.1	Line Integrals	p. 955: 9, 10, 15, 21, 24, 29, 34
25	16.2	Vector Fields and Line Integrals: Work, Circulation and Flux	p. 967: 9, 10, 15, 19, 21, 23, 24, 27.33, 36
26	16.3	Path Independence, Conservative Fields and Potential Functions	p. 978: 1, 7, 9, 15, 19, 20, 24, 27, 29
27	16.4	Green's Theorem in the Plane	p.990: 5, 7, 9, 11, 13, 15, 18, 19, 21, 23, 25, 26, 33
28	**	REVIEW FOR FINAL EXAM	*****

29	***	**FINAL EXAMS: MAY 6 - 12, 2016**	*******