Mathematical Sciences Syllabi

NJIT Syllabi

Fall 2019

MATH 211-027: Calculus III A

M. Potocki-Dul

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MATH 211: Calculus III A
Fall 2019 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.

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 211-001	TBA
Math 211-003	Professor J. Zaleski
Math 211-005	TBA
Math 211-007	Professor M. Booty
Math 211-009	Professor R. Kelly
Math 211-013	Professor M. Booty
Math 211-017	Professor J. H. Ro
Math 211-027	Professor M. Potocki-Dul
Math 211-029	Professor S. Jiang
Math 211-101	Professor M. Potocki-Dul
Math 211-103	Professor S. Jiang

Office Hours for All Math Instructors: Fall 2019 Office Hours and Emails

Required Textbook:

Title	*Thomas' Calculus: Early Transcendentals*

Author	Hass, Heil, and Weir
Edition	14th
Publisher	Pearson
ISBN #	978-0134768496
Notes	w/ MyMathLab

University-wide Withdrawal Date:The last day to withdraw with a **W** is Monday, November 11, 2019. It will be strictly enforced.

COURSE GOALS

Course Objectives

- Apply previously developed skills learned in calculus of a single variable to the learning of multivariable calculus and vectors.
- Topics include: vectors, partial derivatives, multiple integrals and vector fields.
- An understanding of vector calculus prepares 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 to provide visualization of 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.

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 for MyMathLab. You can get an access code with a new book purchase that is bundled with MyMathLab or by buying the access code separately at the campus bookstore. If you buy a new book from another source make sure it is bundled with MyMathLab. In addition, on the first day of class your course instructor will give you a further code that is needed to access the homework assignments.

Each week a short quiz will be given online or in class based on the homework problems and 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	October 2, 2019
Common Midterm Exam II	November 13, 2019
Final Exam Period	December 14 - 20, 2019

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 your absence from a midterm or final exam, please review and follow 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 and put away during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Fall 2019 Hours)

Accommodation of Disabilities: Disability Support Services (DSS) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director of Disability Support Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support Services office authorizing your accommodations will be required.

For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Disability Support Services (DSS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Fall 2019 Academic Calendar, Registrar)

Date	Day	Event

September 3, 2019	T	First Day of Classes
September 13, 2019	M	Last Day to Add/Drop Classes
November 11, 2019	M	Last Day to Withdraw
November 26, 2019	T	Thursday Classes Meet
November 27, 2019	W	Friday Classes Meet
November 28 - December 1, 2019	R - Su	Thanksgiving Recess
December 11, 2019	W	Last Day of Classes
December 12 & 13, 2019	R & F	Reading Days
December 14 - 20, 2019	Sa - F	Final Exam Period

Course Outline

Lecture	Section	Topic	HW Assignment
1	12.1-	3-Dimensional Coordinate Systems and	p. 717: 13, 21, 26, 37, 55, 61
	12.2	Vectors	p. 726: 7, 13, 15, 17, 25, 29, 33, 39, 45, 49
2	12.3	Dot Product	p. 734: 3, 7, 11, 13, 16, 26, 29, 30, 43, 45
3	12.4	Cross Product	p. 741: 7, 15, 18, 21, 23, 25, 39, 43, 46, 48
4	12.5	Lines and Planes in Space	p. 749: 3, 9, 17, 23, 27, 29, 35, 41, 55, 57, 63, 65, 69
5	12.6	Cylinders and Quadric Surfaces	p. 755: 7, 9, 11, 14, 19, 23, 33, 41
6	13.1	Curves and Tangents in Space	p. 770: 5, 11, 13, 15, 19, 25, 26, 38
7	13.2	Integrals of Vector Functions: Projectile Motion	p. 777: 1, 7, 11, 17, 21, 23, 25, 29, 31
8	13.3	Arc Length of Space Curves	p. 784: 1, 6, 7, 11, 13, 14, 18
9	*	REVIEW FOR EXAM 1	****
	*	COMMON EXAM 1: WEDNESDAY, OCTOBER 2, 2019	
10	14.1	Functions of Several Variables	p. 812: 5, 11, 13, 14, 19, 23, 25, 27, 39, 49, 53, 59, 61
11	14.3	Partial Derivatives	p. 832: 5, 13, 17, 23, 25, 31, 37, 43, 48, 57, 68, 75, 77, 85, 89, 93
12	14.4	The Chain Rule	p. 842: 3, 5, 7, 9, 27, 31, 33, 37, 39, 41, 52
13	14.5	Directional Derivatives and Gradients	p. 852: 5, 9, 11, 15, 17, 19, 23, 27, 31, 33, 37, 38
14	14.6	Tangent Planes and Differentials	p. 860: 1, 5, 11, 17, 21, 23, 31, 43, 45, 51, 54, 55
15	14.7	Extrema and Saddle Points	p. 870: 3, 7, 19, 21, 27, 31, 35, 41, 51, 53, 59
16	14.8	Lagrange Multipliers	p. 879: 3, 7, 13, 17, 21, 23, 25, 30, 31
17	15.1	Double and Iterated Integrals over Rectangles	p. 901: 3, 9, 10, 11, 19, 21, 23, 29, 31
18	15.2-	Double Integrals over General Regions and	p. 909: 7, 13, 15, 35, 39, 43, 49, 51, 53, 57

	15.3	Area by Double Integration	p. 914: 3, 9, 11, 21
19	15.4	Double Integrals in Polar Form	p. 919: 7, 11, 13, 17, 23, 25, 29, 37
20	15.5-	Triple Integrals in Rectangular Coordinates and	p. 929: 7, 11, 15, 23, 25, 27, 31, 33
	15.6	Moments and Center of Mass	p. 939: 3, 4, 13
21	*	REVIEW FOR EXAM 2	****
	*	COMMON EXAM 2: WEDNESDAY, NOVEMBER 13, 2019	
22	15.7	Triple Integrals in Cylindrical Coordinates	p. 949: 25, 29, 31, 33, 39, 41, 65, 77, 79, 81
23	16.1	Line Integrals	p. 974: 7, 9, 11, 15, 19, 21, 23, 29, 33
24	16.2	Vector Fields and Line Integrals: Work, Circulation and Flux	p. 986: 9, 11, 15, 19, 21, 23, 25, 27, 29, 33
25	16.3	Path Independence, Conservative Fields and Potential Functions	p. 998: 3, 7, 9, 15, 19, 21, 23, 27, 29
26, 27	16.4	Green's Theorem in the Plane	p. 1010: 3, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 32, 34, 39
28	**	REVIEW FOR FINAL EXAM	*****
	***	FINAL EXAMS: DECEMBER 14-20, 2019	*******