MATH 211: Calculus III A
Fall 2025 Course Syllabus

NJIT Academic Integrity Code: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

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	Professor J.H. Ro
Math 211-003	Professor C. Diekman
Math 211-005	Professor Y. Boubendir
Math 211-007	Professor J. Jaquette
Math 211-009	Professor Y. Boubendir
Math 211-101	Professor J.H. Ro

Office Hours for All Math Instructors: Office Hours and Emails

Required Textbook:

Title	*Thomas' Calculus: Early Transcendentals*
Author	Hass, Heil, and Weir
Edition	15th
Publisher	Pearson
ISBN #	9780137559893 9780137560042
Notes	w/ MyMathLab

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 10, 2025**. It will be strictly enforced.

COURSE GOALS

Course Objectives

- Apply previously developed single-variable calculus skills to learn multivariate calculus describing the properties of scalar- and vector-valued functions of several variables.
- Acquire an in-depth understanding of partial derivatives, multiple integrals, scalar and vector fields.
- Prepare students for further study of learned topics 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 to allow the solution of more complex problems and to provide visualization of mathematical concepts in three dimensions.

Course Outcomes

- Students will be prepared for further study in STEM disciplines and more advanced mathematics courses.
- Students can apply their multivariable calculus skills to solve problems in engineering and the sciences. Students can demonstrate mastery of the learned material through testing with common exams.

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	26%
Common Midterm Exam I	22%
Common Midterm Exam II	22%

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**	56 - 59
B	74 - 80	**F**	0 - 55
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.

Religious Observance: NJIT is committed to supporting students observing religious holidays. Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence

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 Exam I	October 8, 2025
Common Exam II	November 19, 2025
Final Exam	December 14 - December 20, 2025

The time of the midterm exams is **4:15-5:40 PM** for daytime students and **6:00-7:25 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 during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Fall 2025 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

Accommodation of Disabilities: The Office of Accessibility Resources and Services (OARS) 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 If you need an accommodation due to a disability please contact the Office of Accessibility Resources and Services at oars@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and 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 Office of Accessibility Resources and Services (OARS) website at:

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

Important Dates (See: Fall 2025 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2025	Monday	Labor Day
September 2, 2025	Tuesday	First Day of Classes
September 8, 2025	Monday	Last Day to Add/Drop Classes
October 2, 2025	Thursday	Wellness Day
November 10, 2025	Monday	Last Day to Withdraw
November 25, 2025	Tuesday	Thursday Classes Meet
November 26, 2025	Wednesday	Friday Classes Meet
November 27 to November 30, 2025	Thursday and Sunday	Thanksgiving Recess - Closed
December 11, 2025	Thursday	Last Day of Classes
December 12, 2025	Friday	Reading Day

December 13, 2025	Saturday	Saturday Classes Meet
December 14 to December 20, 2025	Sunday to Saturday	Final Exam Period

Course Outline

Lecture	Section	Topic	HW Assignment
1	12.1	3-Dimensional Coordinate Systems	p. 713: 11, 13, 21, 26, 37, 55, 61
2	12.2	Vectors	p. 723: 7, 13, 15, 17, 25, 29, 33, 39, 45, 49
3	12.3	Dot Product	p. 732: 3, 7, 11, 13, 16, 26, 29, 30, 43, 45
4	12.4	Cross Product	p. 739: 7, 15, 18, 21, 23, 25, 39, 43, 46, 48
5	12.5	Lines and Planes in Space	p. 747: 3, 9, 17, 23, 27, 29, 35, 41, 55, 57, 63, 65, 69
6	12.6	Cylinders and Quadric Surfaces	p. 756: 7, 9, 11, 14, 19, 23, 33, 41
7	13.1	Curves and Tangents in Space	p. 767: 5, 11, 13, 15, 19, 25, 26, 38
8	13.2	Integrals of Vector Functions: Projectile Motion	p. 774: 1, 7, 11, 17, 21, 23, 25, 29, 31
9	14.1	Functions of Several Variables	p. 808: 5, 11, 13, 14, 19, 23, 25, 27, 39, 49, 53, 59, 61
10	14.3	Partial Derivatives	p. 828: 5, 13, 17, 23, 25, 31, 37, 43, 48, 57, 68, 75, 77, 85, 89, 93
11	*	REVIEW FOR EXAM 1	
	*	**COMMON EXAM 1: WEDNESDAY, October 8, 2025**	
12	14.4	The Chain Rule	p. 838: 3, 5, 7, 9, 27, 31, 33, 37, 39, 41, 52
13	14.5	Directional Derivatives and Gradients	p. 849: 5, 9, 11, 15, 17, 19, 23, 27, 31, 33, 37, 38
14	14.6	Tangent Planes and Differentials	p. 857: 1, 5, 11, 17, 21, 23, 31, 43, 45, 51, 54, 55
15	14.7	Extrema and Saddle Points	p. 867: 3, 7, 19, 21, 27, 31, 35, 41, 51, 53
16	14.8	Lagrange Multipliers	p. 876: 3, 7, 13, 17, 21, 23, 25, 30, 31
17	15.1	Double and Iterated Integrals over Rectangles	p. 898: 3, 9, 10, 11, 19, 21, 23, 29, 31

18	15.2-	Double Integrals over General Regions and	p. 905: 7, 13, 15, 35, 39, 43, 49, 51, 53, 57
	15.3	Area by Double Integration	p. 910: 3, 9, 11, 21
19	15.4	Double Integrals in Polar Form	p. 916: 7, 11, 13, 17, 23, 25, 29, 37
20	15.5	Triple Integrals in Rectangular Coordinates and	p. 926: 7, 11, 15, 23, 25, 27, 31, 33
	15.6	Moments and Center of Mass	p. 935: 3, 4, 13
21	*	REVIEW FOR EXAM 2	****
		COMMON EXAM 2: WEDNESDAY, November 19, 2025	
22	15.7	Triple Integrals in Cylindrical Coordinates	p. 946: 25, 29, 31, 33, 39, 41, 65, 77, 79, 81
	16.1	Line Integrals and	p. 970: 7, 11, 15, 19, 21, 29, 33
23	13.3	Arc Length of Space Curves	p. 781: 1, 6, 7, 11, 13, 18
24	16.2	Vector Fields and Line Integrals: Work, Circulation and Flux	p. 982: 9, 11, 15, 19, 21, 23, 25, 27, 29, 33
25	16.3	Path Independence, Conservative Fields and Potential Functions	p. 994: 3, 7, 9, 15, 19, 21, 23, 27, 29
26, 27	16.4	Green's Theorem in the Plane	p. 1006: 3, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 32, 34, 39
28	**	REVIEW FOR FINAL EXAM	*****
	***	**FINAL EXAM PERIOD: December 14 - December 20, 2025**	