

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 213: Calculus III B

Fall 2026 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 Code of Student Conduct and Academic Integrity Policy that is found at: [Code of Student Conduct and Academic Integrity Policy](#).

Please note that I am required to report any suspected academic misconduct to the Office of the Dean of Students. Academic misconduct includes, but is not limited to, cheating, plagiarism, and the inappropriate use of online tools or software. Students who are found responsible for violating the Academic Integrity Code may be subject to disciplinary action. Possible outcomes can include a failing grade on an assignment or in the course, as well as additional sanctions up to and including suspension or dismissal from the university. If you have questions about the Code of Student Conduct and Academic Integrity or the student conduct process, you may contact communitystandards@njit.edu.

COURSE INFORMATION

Course Description: Topics include vectors, curvature, partial derivatives, multiple integrals, line integrals, surface integrals, and Green's, Divergence, and Stokes' theorems. Effective From: Fall 2012.

Number of Credits: 4

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

Course-Section and Instructors:

Course-Section	Instructor
Math 213-001	Professor I. Cohanoschi
Math 213-003	Professor I. Cohanoschi
Math 213-007	Professor P. Ward
Math 213-009	Professor P. Ward
Math 213-011	Professor V. Barreto Aranda
Math 213-013	Professor M. Potocki-Dul
Math 213-101	Professor A. Ionescu

Office Hours for All Math Instructors: [Office Hours and Emails](#)

Required Textbook:

Title	<i>Thomas' Calculus: Early Transcendentals</i>
Author	Hass, Heil, Bogacki, and Weir
Edition	15th
Publisher	Pearson
ISBN #	9780137559893 9780137560042
Notes	w/ Pearson MyLab Math

University-wide Withdrawal Date: The last day to withdraw with a W is **Tuesday, November 10, 2026**. It will be strictly enforced.

COURSE GOALS

Course Objectives:

- Apply previously developed skills learned in Calculus to learn Multivariable Calculus and Vector Analysis.
- 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.

Course Outcomes:

- Prepare students for further study in technological disciplines and more advanced mathematics courses.
- Illustrate the utility of Multivariable Calculus topics 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	11%
Quizzes	11%
Midterm Exams (3)	48%
Final Exam	30%

Your final letter grade will be based on the following tentative curve:

A	90 - 100	C	64 - 69
B+	83 - 89	D	58 - 63
B	76 - 82	F	0 - 57
C+	70 - 75		

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 Policy: The homework assignments are 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 **Pearson MyLab Math** 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 MyLab**. In addition, your instructor will send you information about **MyLab** registration and the code needed to register. Also, on the first day of class your course instructor will give you that code (again) needed to access the homework assignments.

Pearson MyLab Math account URL: [\[Pearson MyLab Math \]](#)

Quiz Policy: At least one quiz based on the homework problems will be given each week 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 HW+Quiz grades are a significant component of your course grade (22%)**

Exams: There will be three exams during the semester and a cumulative final exam:

Common Exam I	September 23, 2026
Common Exam II	October 21, 2026
Common Exam III	November 18, 2026
Final Exam Period	December 16 - December 22, 2026

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: There will be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event an exam is not taken under rare circumstances where the student has a legitimate reason for missing the exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the Math Department Office/Instructor that the exam will be missed.

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

Statement on the use of artificial intelligence:

This course recognizes that Artificial Intelligence (AI) may be of educational use and may help student understanding of the course material. Such resources as ChatGPT's **Study and Learn** and Google Gemini's **Guided Learning** facilities can help students navigate math content. Students are encouraged to explore the use of such resources, as well as Pearson online resources that come with the textbook, among so many other

useful learning resources. Such resources might be used, to get a different take on the material, to develop practice examples and to provide examples of how the content might apply to real-world problems. However, students MAY NOT submit AI output verbatim and without understanding for any work that counts toward their grade in the course. Further, the use of any online resources is prohibited on quizzes or exams.

If you make use of AI for this course, please let the professor know what you use it for as it may be helpful to other students. Suggestions for relevant educational use of AI to accomplish the goals and objectives of the course beyond what has been mentioned above would be appreciated.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: [Fall 2026 Hours](#))

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 2026 Academic Calendar, Registrar](#))

Date	Day	Event
September 1, 2026	Tuesday	First Day of Classes
September 5, 2026	Saturday	Saturday Classes Begin
September 7, 2026	Monday	Labor Day. University Closed
September 8, 2026	Tuesday	Last Day to Add/Drop Classes
September 8, 2026	Tuesday	Conversion Day - Monday Classes Meet
October 2, 2026	Friday	Wellness Day
November 10, 2026	Tuesday	Last Day to Withdraw
November 25, 2026	Wednesday	Conversion Day - Friday Classes Meet
November 26 to November 29, 2026	Thu and Sun	Thanksgiving Recess - Closed
December 11, 2026	Friday	Friday Classes Meet - Make up day for Wellness Day
December 12, 2026	Saturday	Saturday Classes Meet
December 13, 2026	Sunday	Last Day of Classes
December 14, 2026	Monday	Reading Day 1
December 15, 2026	Tuesday	Reading Day 2
December 16 to December 22, 2026	Wed to Tue	Final Exam Period

Course Outline

The precise set of sections to be tested on for each Common Exam will be provided by the course instructor on the Friday preceding the exam, and the precise date each section is covered is subject to change.

Lecture	Section #	Subject Topic	Homework (HW) Assignment
9/1	12.1-12.2	3D Coordinate Systems; Vectors	12.1: #1,7,11,13,21,23,29,31,35,47,51,55
9/3	12.2-12.3	Vectors (continued); The Dot Product	12.2: #1,5,9,13,17,25,37,41,49,53,59 12.3: #5,9,13,19,22,25,29,35,39,43,47
9/4	12.4	The Cross Product	12.4: #1,4,9,15,21,23,25,30,39,46,48,57
9/10	12.5	Lines and Planes in Space	
9/11	12.5-12.6	Lines and Planes in Space; Cylinders and Quadric Surfaces	12.5: #1,8,11,15,23,25,29,33,39,47,59,65,69,71
9/15	12.6	Cylinders and Quadric Surfaces	12.6: #1,7,11,14,18,21,23,26,27,31,39,45,47
9/17	13.1	Curves in Space and their Tangents	13.1 #1,5,11,15,21,24,29,31,37,43
9/18	13.2	Integrals of Vector Functions; Projectile Motion	13.2 #1,7,11,15,19,23,26,29,38
9/22	REVIEW FOR COMMON EXAM I		
9/23	COMMON EXAM I		
9/24	13.3-13.4	Arc Length in Space; Curvature and Normal Vectors	13.3: #1,7,9,11,13,18 13.4: #1,9,11,14,21,25
9/25	14.1	Functions of Several Variables	14.1: #1,4,6,9,13,16,19,25,33,37,40,45,49,55
9/29	14.2	Limits and Continuity in Higher Dimensions	14.2: #3,7,13,17,21,31,33,35,41,43,49,61,65,68,71,79
10/1	14.3	Partial Derivatives	14.3: #1,3,19,25,35,38,41,44,48,61,63,77,85,94
10/6	14.4	The Chain Rule	14.4: #1,5,7,13,17,27,33,37,45,57
10/8	14.5	Directional Derivatives and Gradient Vectors	14.5: #1,5,9,11,15,21,27,31,33,38,43
10/9	14.6	Tangent Planes and Differentials	14.6: #1,5,13,17,23,28,31,35,47,59,60,61
10/13	14.7	Extreme Values and Saddle Points	14.7: #1,3,11,33,35,43,47,49,53,65
10/15	14.8	Lagrange Multipliers	14.8: #3,9,15,18,29,36,41
10/16	14.9	Taylor's Formula in Two Variables	14.9: #1,4,5,6,7,9
10/20	REVIEW FOR COMMON EXAM II		
10/21	COMMON EXAM II		
10/22	15.1	Double and Iterated Integrals over Rectangles	15.1: #1,3,10,21,23,30,33,38

10/23	15.2	<i>Double Integrals over General Regions</i>	15.2: #1,5,9,13,31,34,39,46,59,65,75,78,79,85
10/27	15.3	<i>Areas by Double Integrals</i>	15.3: #1,5,11,15,17,19,21,26
10/29	15.4	<i>Double Integrals in Polar Form</i>	15.4: #1,5,9,12,20,25,29,32,33,37,44
20/30	15.5	<i>Triple Integrals in Rectangular Coordinates</i>	15.5: #5,7,11,19,23,27,33,39,42,48
11/3	15.7	<i>Triple Integrals in Cylindrical Coordinates</i>	
11/5	15.7	<i>Triple Integrals in Spherical Coordinates</i>	15.7: #1,7,21,25,29,33,39,47,53,57,61
11/6	15.8	<i>Substitution in Multiple Integrals</i>	15.8: #3,7,10,13,19,21
11/10	16.1-16.2	<i>Line Integrals of scalar fields; Vector Fields, Work, Circulation, Flux</i>	16.1: #1,5,9,13,17,25,30,33
11/12	16.2	<i>Vector Fields, Work, Circulation, Flux</i>	16.2: #3,5,9,13,17,21,25,29,32,39,47,53
11/13	16.3	<i>Path Independence, Potential Functions, and Conservative Fields</i>	16.3: #1,3,8,11,17,21,27,33
11/17	REVIEW FOR COMMON EXAM III		
11/18	COMMON EXAM III		
11/19	16.4	<i>Green's Theorem in the Plane</i>	
11/20	16.4	<i>Green's Theorem in the Plane</i>	16.4: #1,7,11,15,23,25,27,32,36,44
11/24	16.5	<i>Surfaces and Area</i>	
11/25	16.5-16.6	<i>Surfaces and Area; Surface Integrals</i>	16.5: #1,5,9,13,19,21,29,43,45,47,55
12/1	16.6	<i>Surface Integrals</i>	16.6: #1,4,7,11,15,21,25,31,37,41,47
12/3	16.7	<i>Stokes' Theorem</i>	
12/4	16.7	<i>Stokes' Theorem</i>	16.7: #1,3,7,11,13,15,21,27,30
12/8	16.8	<i>Divergence Theorem</i>	
12/10	16.8	<i>Divergence Theorem</i>	16.8: #1,5,8,11,17,23,25,26
12/11	REVIEW FOR THE FINAL EXAM		

Updated by Professor V. Matveev - 2026
Department of Mathematical Sciences Course Syllabus, Fall 2026