MATH 309: Mathematical Analysis for Technology
Spring 2025 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.

Please be sure you read and fully understand our DMS Online Exam Policy.

COURSE INFORMATION

Course Description: Emphasis on partial derivatives; vector calculus, and multiple integrals.

Number of Credits: 4

Prerequisites: MATH 112 with a grade of C or better, or MATH 133 with a grade of C or better or MATH 238 with a grade of C or better.

Course-Section and Instructors:

Course-Section	Instructor
Math 309-002	Professor I. Cohanoschi

Office Hours for All Math Instructors: Spring 2025 Office Hours and Emails

Required Textbook:

Title	*Calculus: Concepts and Contexts*
Author	Stewart
Edition	5th
Publisher	Cengage Learning
ISBN #	9780357756911

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 7, 2025**. It will be strictly

enforced.

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:

Exam 1	15%
Exam 2	15%
Exam 3	15%
Homework	10%
Quizzes	15%
Final Exam	30%

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

A	90 - 100	**C**	65 - 74
B+	85 - 89	**D**	55 - 64
B	80 - 84	**F**	0 - 54
C+	75 - 79		

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: Homework is an expectation of the course. All homework assignments are online using WebAssign. The online assignments can be completed at www.webassign.net . You need to have a student access code. Access codes are included with the new book that is bundled with WebAssign; codes can be purchased separately from the bookstore or online. WebAssign gives you free access for two weeks after the start of class. If you have any difficulties with registering and getting an account with WebAssign please see the professor immediately.

Quiz Policy: Quizzes will be given weekly throughout the semester. They will be based on the lecture, Homework and in-class discussions.

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

Exam I	Week 4
Exam II	Week 9
Exam III	Week 11
Final Exam Period	May 10 - May 16, 2025

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.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 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: Spring 2025 Academic Calendar, Registrar)

Date	Day	Event
January 21, 2025	Tuesday	First Day of Classes
January 27, 2025	Monday	Last Day to Add/Drop Classes
March 16, 2025	Sunday	Spring Recess Begins

March 22, 2025	Saturday	Spring Recess Ends
April 3, 2025	Thursday	Wellness day
April 7, 2025	Monday	Last Day to Withdraw
April 18, 2025	Friday	Good Friday - No Classes
April 20, 2025	Sunday	Easter Sunday - No Classes Scheduled
May 6, 2025	Tuesday	Thursday Classes Meet
May 7, 2025	Wednesday	Friday Classes Meet
May 7, 2025	Wednesday	Last Day of Classes
May 8, 2025	Thursday	Reading Day 1
May 9, 2025	Friday	Reading Day 2
May 10 - May 16, 2025	Friday to Thursday	Final Exam Period

Course Outline

Week	Section & Topic		Lecture and Homework Assignments	
1	**9.1:**	Three Dimensional Coordinate Systems	**1**	12, 13, 14, 15, 24, 25, 29, 32
	9.2:	Vectors	**1**	5, 7, 9, 11, 12, 15, 17, 19, 20, 21, 23, 25, 27
	9.3:	The Dot Product	**2**	2, 3, 4, 5, 9, 13, 20, 21, 23, 25, 33, 43, 45, 48
2	**9.4:**	The Cross Product	**3**	7, 8, 9, 10, 11, 24, 27, 29, 34, 35, 38, 39
	9.5: **10.1:**	Vector Functions and Space Curves	**4**	**9.5** : 3, 4, 6, 7, 14, 23, 24, 31, 38, 69, 71 **10.1** : 1, 6, 10, 23, 24, 25, 26
3	**10.2:**	Derivatives of Vector Functions	**5**	1, 13, 15, 19, 21, 23, 29, 30
	10.2:	Integrals of Vector Functions	**5**	42, 43, 44, 45, 46, 47, 49
4		Review for Examination 1		Study for Examination 1
		Examination 1		
5	**10.3:**	Arc Length and Curvature	**7**	1, 2, 3, 4, 17, 19(a), 21(a)
	9.6: **11.1:**	Functions of Several Variables	**8**	**9.6** : 6, 8, 9, 19 **11.1** : 7, 8, 9, 10, 23, 24, 27
6	**H.1:**	Polar and Cylindrical Coordinates	**9**	**H.1** : 1, 3, 5, 9, 11, 13, 15, 17, 25, 29, 49, 51

	H.2:			**H.2** : 3, 5, 7, 15, 31, 35
	11.3: **11.4:**	Partial Derivatives and Tangent Planes	**10**	**11.3** : 13, 15, 16, 17, 18, 19, 22, 25, 26, 27, 31, 32, 37, 41, 45, 47, 51, 55, 57, 59, 63, 75, 79 **11.4** : 1, 2, 3, 4, 5, 7, 14, 15, 17, 19
7	**11.5:**	Chain Rule	**11**	1, 2, 3, 5, 7, 9, 10, 11, 15, 17, 27, 28, 29, 31
	11.6:	Directional Derivatives and the Gradient Vector	**12**	5, 6, 7, 9, 11, 12, 15, 21, 27, 29, 31
8	**11.7:**	Maximum and Minimum Values	**13**	5, 7, 9, 10, 11, 27, 29, 37
		Review for Examination 2		Study for Examination 2
9		Examination 2		
	12.1: **12.2:**	Double Integration over Rectangles	**14**	**12.1** : 13, 14, 15 **12.2** : 1, 3, 5, 7, 8, 12, 16, 17, 19, 21
10	**12.3:**	Double Integrals over General Regions	**15**	1, 3, 4, 5, 7, 9, 10, 17, 20, 21, 49, 51, 53, 55, 57
	12.4:	Double Integrals in Polar Coordinates	**16**	7, 9, 11, 13, 27, 32, 33
11	**12.7:**	Triple Integrals	**20**	3, 4, 5, 9, 11, 19
		Examination 3		
12	**13.1:** **13.2:**	Vector Fields and Line Integrals	**21**	**13.1** : 1, 3, 5, 25, 27, 29 **13.2** : 1, 3, 5, 7, 21, 23
13	**13.3:**	The Fundamental Theorem for Line Integrals	**23**	3, 5, 11, 12
	13.4:	Green's Theorem	**23**	1, 3, 5, 7, 9
14		Review for Final Examination		
Final	May 10 - May 16, 2025			

Updated by Professor I. Cohanoschi - 2025
Department of Mathematical Sciences Course Syllabus, Spring 2025