

## MATH 309-002: Mathematical Analysis for Technology *Spring 2021 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.

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:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

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](mailto:dos@njit.edu)

### 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 2021 Office Hours and Emails](#)

#### Required Textbook:

Title	<i>Calculus: Concepts and Contexts</i>
Author	Stewart
Edition	4th
Publisher	Cengage

ISBN #

978-0495557425

**Course Structure:**

This course is conducted entirely online, which means you do not have to be on campus to complete any portion of it. You will participate in the course using Webex and NJIT's learning management system called CANVAS (<https://canvas.njit.edu>).

**Computer Requirements:**

You will need to have an up-to-date browser, operating system and some additional software on your computer to take this class.

**University-wide Withdrawal Date:** The last day to withdraw with a W is **Monday, April 5, 2021**. 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:

Homework	15%
Quizzes	10%
Midterm Exam I	15%
Midterm Exam II	15%
Midterm Exam III	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.

Students are expected to attend class. Each class is a learning experience that cannot be replicated through simply "getting the notes."

**Homework Policy:** Homework is an expectation of the course. All homework assignments are online using WebAssign. The online assignments can be completed at [www.webassign.net](http://www.webassign.net). You need to have a student access code. Access codes are included with 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. In addition, on the first day of class your course instructor will give an additional code "Class key" needed to enroll to WebAssign.

**Quiz Policy:** Quizzes will be given approximately once a week throughout the semester. They will be based on the lecture, homework and the in-class discussions. Quizzes will be assigned through Canvas and students will be proctored via Webex. There are no make-up quizzes; average will be calculated after dropping the lowest score.

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

Midterm Exam I	Week 4
Midterm Exam II	Week 8
Midterm Exam III	Week 11
Final Exam Period	May 7 - 13, 2021

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.

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## ADDITIONAL RESOURCES

**Math Tutoring Center:** Located in the Central King Building, Lower Level, Rm. G11 (See: [Spring 2021 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](#).

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

**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 contact Chantonette Lyles, Associate Director of the Office of Accessibility Resources and Services at [973-596-5417](tel:973-596-5417) or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services 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/studentssuccess/accessibility/>

**Important Dates** (See: [Spring 2021 Academic Calendar, Registrar](#))

Date	Day	Event
January 19, 2021	T	First Day of Classes

January 23, 2021	S	Saturday Classes Begin
January 25, 2021	M	Last Day to Add/Drop Classes
March 14 - March 21, 2021	Su - Su	Spring Recess - No Classes
April, 2, 2021	F	Good Friday - No Classes
April 5, 2021	M	Last Day to Withdraw
May 4, 2021	T	Friday Classes Meet
May 4, 2021	T	Last Day of Classes
May 5 & May 6, 2021	W & R	Reading Days
May 7 - May 13, 2021	F - R	Final Exam Period

## Course Outline

Week	Section and Topic		Lecture and Homework Assignments	
1	9.1:	Three Dimensional Coordinate Systems	1	7,8,10,11,12
	9.2:	Vectors	2	7,11,13,15,16,17,19,24
	9.3:	The Dot Product	3	9.3.1,3,4,10,15,16,29
2	9.4:	The Cross Product	4	7, 8, 9, 10, 11, 19, 21, 27, 28, 29
	9.5	Equations of Lines	5	2,3,19
	1.7:	Parametric Curves	6	5,22,31
3	10.1	Vector Functions	7	1,2,4,5,15
	10.2	Derivatives/Integrals of Vector Functions	8	9,11,12,15,33,34,35
	6.1:	Parametric Integrals	9	34,34SA
4	3.4	Tangents to Parametric Curves	10	33,79
		<b>Review for Examination 1</b>	11	Study for Examination 1
		<b>EXAMINATION 1</b>	12	
5	6.4:	Arc Length	13	7, 13, 16
	10.3:	Arc Length and Curvature	14	1, 2, 3, 17, 21, 22, 23, 27, 41, 43
	9.5:	Equations of Planes	15	14,23
6	11.1	Functions of Several Variables	16	5,12,15,16,18,19
	9.7	Cylindrical and Spherical Coordinates	17	3,25
	11.3	Partial Derivatives	18	15,16,17,18,21,39,51,54
7	11.4	Tangent Planes	19	2,3,5
	11.5	The Chain Rule	20	2,3,5,7,9,21,22
	11.6	Directional Derivatives and the Gradient	21	
8	11.7:	Maximum and Minimum Values	22	5, 7, 9, 10, 11, 27, 29
		<b>Review for Examination 2</b>	23	
		<b>EXAMINATION 2</b>	24	Study for Examination 2

9	12.1	Double Integrals over Rectangles	25	1,11,12
	12.2	Iterated Integrals	26	3,4,5,15
	12.3	Double Integrals over General Regions	27	1,5,6,7,8,17,47,50
10	12.4	Double Integrals in Polar Coordinates	28	15
	12.7	Triple Integrals	29	3,6,11,13
11	13.1	Vector Fields	30	11,21,33
		<b>Review for Examination 3</b>	31	
		<b>EXAMINATION 3</b>	32	
12	13.1:	Line Integrals	33	L15.2.8,14,30,60
	13.2:		34	
13	13.3:	The Fundamental Theorem for Line Integrals	35	3,12,13,14,17
	13.4:	Green's Theorem	36	3,12,13,14,17
	13.4:		37	
14		Catch-Up	38	
		Catch-Up	39	
		<b>Review for Final Examination</b>	40	
<b>FINALS</b>				

*Updated by Professor I. Cohanoschi - 1/6/2021  
Department of Mathematical Sciences Course Syllabus, Spring 2021*

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