

THE DEPARTMENT OF MATHEMATICAL SCIENCES

# MATH 309: Mathematical Analysis for Technology Summer 2023 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: 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 309-131	Professor Victor Barreto-Aranda	

### Office Hours for All Math Instructors: Office Hours and Emails

**Required Textbook:** 

Title	Calculus: Concepts and Contexts
Author	Stewart
Edition	4th
Publisher	Cengage
ISBN #	978-1337877367 (WebAssign w/ e-book)

**University-wide Withdrawal Date:** Please see the Summer 2023 Academic Calendar for the last day to withdraw based on the summer session you are registered for.

# 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	15 %
Midterm Exam I	20 %
Midterm Exam II	20 %
Final Exam	30 %

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

Α	88 - 100	С	62 - 68
B+	83 - 87	D	55 - 61
В	76 - 82	F	0 - 54
C+	69 - 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.

**Homework:** Homework is a requirement for this class. All homework assignments are online through WebAssign, which is linked directly from Canvas, therefore you don't need a class key to enroll on WebAssign. You need to buy a student access code. Access codes are included with a 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.

**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 may sometimes be assigned through webassign or Canvas. In that case students are expected to complete the quiz online. There are no make-up quizzes; average will be calculated after dropping the lowest two scores.

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

Midterm Exam I	Wednesday, Jun 21, 2023
Midterm Exam II	Wednesday, Jul 19, 2023
Final Exam	Monday, Aug 07, 2023

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: Summer 2023 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 contact Scott Janz, Associate Director of Disability Support Services at 973-596-5417 or via email at scott.p.janz@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: Summer 2023 Academic Calendar, Registrar)

Date	Day	Event
May 22, 2023	Monday	Full, First, and Middle Summer Session Begins
May 24, 2023	Wednesday	Last Day to Add/Drop for <b>First</b> <b>Summer</b> Session
May 26, 2023	Friday	Last Day to Add/Drop for <b>Middle</b> Summer Session
May 29, 2023	Monday	Last Day to Add/Drop for <b>Full Summer</b> Session
May 29, 2023	Monday	Memorial Day - University Closed/No Classes Scheduled
June 10, 2023	Saturday	Last Day to Withdraw from <b>First</b> <b>Summer</b> Session
June 16, 2023	Friday	Last Day to Withdraw from <b>Middle</b> Summer Session
June 16, 2023	Friday	Juneteenth - University Closed/No Classes Scheduled
June 26, 2023	Monday	Last Day of Classes for <b>First</b> Summer Session
June 30, 2023	Friday	Last Day to Withdraw from <b>Full</b> Summer Session

July 4, 2023	Tuesday	Independence Day - University Closed/No Classes Scheduled
July 5, 2023	Wednesday	Second Summer Session Begins
July 6, 2023	Thursday	Last Day to Add/Drop for <b>Second</b> Summer Session
July 17, 2023	Monday	Last Day of Classes for <b>Middle</b> Summer Session
July 20, 2023	Thursday	Last Day to Withdraw for <b>Second</b> Summer Session
August 8, 2023	Tuesday	Last Day of Classes for <b>Full and</b> Second Summer Session

# **Course Outline**

This outline is subject to change throughout the semester. A weekly Outline will be posted on Canvas homepage.

All homework assignments are online using WebAssign.

Lecture #	Section #	Subject Topic
1	9.1	Three Dimensional Coordinates
2	9.2	Vectors
3	9.3	The Dot Product
4	9.4	The Cross Product
5	9.5	Equations of Lines and Planes
6	1.7	Parametric Curves
7	10.1	Vector Functions
8	10.2	Derivatives/Integral of Vectors
9	3.4	Tangents to Parametric Curves
10	6.4	Arc Length
11	10.3	Arc Length and Curvature
12	Review for Exam I	
13	MIDTERM EXAM I	
14	11.1	Functions of Several Variables
15	9.7	Cylindrical & Spherical Coordinates
16	11.3	Partial Derivatives

17	11.4	Tangent Planes
18	11.5	The Chain Rule
19	11.7	Max and Min Values
20	12.1 - 12.2	Double Integrals; Iterated Integrals
21	12.3	Double Integrals over General Regions
22	12.4	Double Integrals in Polar Coordinates
23	Review for Exam II	
24	MIDTERM EXAM II	
25	12.7 Triple Integrals	
26	12.8	Triple Integrals in Cylindrical and Spherical Coordinates
27	13.1	Vector Fields
28	13.2	Line Integrals
29	13.3	Fundamental Theorem of Line Integral
30	13.4	Green's Theorem
31	REVIEW FOR FINAL EXAM	
32	FINAL EXAM	

Updated by Professor Victor Barreto-Aranda - 5/16/2023 Department of Mathematical Sciences Course Syllabus, Summer 2023