MATH 309: Mathematical Analysis for Technology
Summer 2022 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 R. Bouayad

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 2022 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.

A	88 - 100	**C**	62 - 68
B+	83 - 87	**D**	55 - 61
B	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 will sometimes be assigned through webassign or Canvas and students will be 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	June 22, 2022 (Subject to Change)
Midterm Exam II	July 20, 2022 (Subject to Change)
Final Exam	August 8, 2022

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 2022 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/studentsuccess/accessibility/

Important Dates (See: Summer 2022 Academic Calendar, Registrar)

Date	Day	Event
May 23, 2022	Monday	**Full, First, and Middle** Summer Session Begins
May 30, 2022	Monday	Last Day to Add/Drop for **Full Summer** Session
May 30, 2022	Monday	Memorial Day - University Closed/No Classes Scheduled
July 1, 2022	Friday	Last Day to Withdraw from **Full Summer** Session
July 4, 2022	Monday	Independence Day - Holiday Observance/No Classes
August 8, 2022	Monday	Last Day of Classes for Full and 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*	