NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 309: Mathematical Analysis for Technology
Summer 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.

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 309-130	Professor I. Cohanoschi

Office Hours for All Math Instructors: Summer 2021 Office Hours and Emails

Required Textbook:

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

Withdrawal Date: Please see the Summer 2021 Academic Calendar for the last day to withdraw based on the summer session you are registered for.

COURSE GOALS

Course Learning Outcomes:

Students will be able to obtain the same outcomes as they are in the campus. There will be variety online methods of instruction. Canvas will be used as a main tool to make announcements, posting online quizzes,

lecture notes, grades, and other purposes. Webex meeting application will be used to do virtual online lectures.

Course Requirements:

Online students must have system requirements, required software, and technology competency, and are required to take proctored exams, presenting the instructor with a valid photo ID. Students must complete an experiential learning activity that connect course content to career applications. This activity may be a content specific assignment or practical skill that is applied within a course assignment. This assignment supports the general education learning outcomes of scientific/critical thinking and quantitative reasoning; oral and written communication; and information literacy/technological competency.

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	10%
Quizzes	10%
Midterm Exam I	25%
Midterm Exam II	25%
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. 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 sometimes be assigned through webassign 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 midterm exams held during the semester and one comprehensive common final exam. Exams are held on the following days:

Midterm Exam I	June 17, 2021
Midterm Exam II	July 15, 2021
Final Exam	August 2, 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.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Room G11 (See: Summer 2021 Hours)

Accommodation of Disabilities: Disability Support Services (DSS) 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 Disability Support Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Disability Support Services (DSS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Summer 2021 Academic Calendar, Registrar)

Date	Event
May 24, 2021	First Day of Classes for **FIRST, MIDDLE, AND FULL SUMMER SESSIONS**
May 26, 2021	Last Day to Add/Drop Classes for **FIRST SUMMER SESSION**
May 28, 2021	Last Day to Add/Drop Classes for **MIDDLE SUMMER SESSION**
May 31, 2021	Last Day to Add/Drop Classes for **FULL SUMMER SESSION**
May 31, 2021	University Closed for Memorial Day
June 28, 2021	Last Day of **FIRST SUMMER SESSION**
July 4, 2021	University Closed for Independence Day
July 5, 2021	University Closed for Independence Day
July 7, 2021	First Day of **FTF SUMMER SESSION**
July 19, 2021	Last Day of **MIDDLE SUMMER SESSION**
August 2, 2021	Last Day of **FULL SUMMER SESSION**
August 16, 2021	Last Day of **FTF SUMMER SESSION**

Course Outline

Lecture	Section	Topics	Homework Assignments
1	9.1	Three Dimensional Coordinates	7,8,10,11,12
2	9.2	Vectors	7,11,13,15,16,17,19,24
3	9.3,4	The Dot and Cross Product	9.3.1,3,4,10,15,16,29, 9.4.7,8,19,20
4	9.5	Equations of Lines	2,3,19
5	1.7	Parametric Curves	5,22,31
6	10.1	Vector Functions	1,2,4,5,15
7	10.2	Derivatives/Integral of Vectors	9,11,12,15,33,34,35
8	6.1	Parametric Integrals	34,34SA
9	3.4	Tangents to Parametric Curves	33,79
10	6.4	Arc Length	1,7,16
11	10.3	Arc Length and Curvature	1,3,17,23,25
12	9.5	Equations of Planes	14,23
13	11.1	Functions of Several Variables	5,12,15,16,18,19
14	9.7	Cylindrical & Spherical Coordinates	3,25
15	11.3	Partial Derivatives	15,16,17,18,21,39,51,54
16	11.4	Tangent Planes	2,3,5
17	11.5	The Chain Rule	2,3,5,7,9,21,22
18	11.7	Max and Min Values	7,9,11,39,42
19	12.1	Double Integrals	1,11,12
20	12.2	Iterated Integrals	3,4,5,15
21	12.3	Double Integrals over General Regions	1,5,6,7,8,17,47,50
22	12.4	Double Integrals in Polar Coordinates	15
23	12.7	Triple Integrals	3,6,11,13
24	12.8	Triple Integrals in Cylindrical and Spherical Coordinates	7,9,10,35
25	13.1	Vector Fields	11,21,33
26	13.2	Line Integrals	L15.2.8,14,30,60
27	13.3	Fundamental Theorem of Line Integral	3,12,13,14,17
28	13.4	Green's Theorem	1,4,5,6
		REVIEW FOR FINAL EXAMINATION	

Updated by Professor I. Cohanoschi - 5/11/2021
Department of Mathematical Sciences Course Syllabus, Summer 2021