NJIT
New Jersey's Science &
Technology University

**THE COLLEGE OF SCIENCE
AND LIBERAL ARTS**

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 111: Calculus I
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.

DMS Online Exam Policy Summer 2021: Exams will be proctored using both Respondus LockDown Browser+Monitor and Webex. Students will be required to join a Webex meeting from their phone with their cameras on, and to access the exam through LockDown Browser on a Mac or Windows PC with webcam. Students must follow all instructions related to environment checks and camera positioning.

COURSE INFORMATION

Course Description: Topics include limits, differentiation, applications of differentiation, and integration.

Number of Credits: 4

Prerequisites: MATH 110 or placement by performance on standardized entrance examinations.

Course-Section and Instructors

Course-Section	Instructor
Math 111-030	Professor P. Rana Concepcion
Math 111-130	Professor P. Rana Concepcion

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

Required Textbook:

Title	*Thomas' Calculus: Early Transcendentals*
Author	Thomas
Edition	14th
Publisher	Pearson
ISBN #	ISBN
Notes	978-0134768496 (bound) 9780134768762 (looseleaf)

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 Objectives

- Students should (a) learn about limits and their central role in calculus, (b) learn about derivatives and their relationship to instantaneous rates of change, (c) understand many practical applications of derivatives, (d) gain experience in the use of approximation in studying mathematical and scientific problems, (e) learn about integrals: their origin in the area problem and their relationship to derivatives.
- Students should gain an appreciation for the importance of calculus in scientific, engineering, computer, and other applications.
- Students should gain experience in the use of technology to facilitate visualization and problem solving.

Course Outcomes

- Students have improved logical thinking and problem-solving skills.
- Students have a greater understanding of the importance of calculus in science and technology.
- Students are prepared for further study in mathematics as well as science, engineering, computing, and other areas.

Course Assessment: The assessment of objectives is achieved through homeworks, quizzes, and common examinations with common grading.

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	25%
Common Midterm Exam I	15%
Common Midterm Exam II	15%
Final Exam	30%

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

A	88 - 100	C	65 - 71
B+	83- 87	D	60 - 64
B	77 - 82	F	0 - 59
C+	72 - 76		

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 all classes whether in person or online. The course will be offered in Converged Learning mode. Each class is a learning experience that cannot be replicated through simply "getting the notes."

Required Technology: High speed internet, computer or laptop, and webcam.

Lectures: Lectures will be delivered online during scheduled class times using WebEx conferencing tool with recording facility.

Office Policy: Office hours will be offered online using WebEx.

Homework Policy: Calculus is learned by solving problems. In Math 111, there are two kinds of homework assignments: 1) assignments which are written out by hand and turned in, and 2) assignments which are completed online. The homework assignments are listed on the syllabus; the * superscript denotes those problems which constitute the hand-in assignments while the remaining problems constitute the online assignments.

The online assignments can be completed at **WWW.MYMATHLAB.COM**. In order access the online assignments you need to have a student access code. Access codes are included with new book that is bundled with MyMathLab; codes can be purchased separately from the textbook at the campus bookstore or online at the course website. If you buy a new book from another source **make sure it is bundled with MyMathLab.** In addition, on the first day of class your course instructor will give you an additional code needed to access the online assignments. **NOTE: Homework Assignments are DUE frequently (at least weekly) at the dates and times specified online and by your instructor.**

How to Get Started with MyMathLab:

- **GETTING STARTED**
- **TECHNOLOGY TIPS**

MATLAB Assignments: MATLAB is a mathematical software program that is used throughout the science and engineering curricula. One MATLAB assignment will be given during the semester.

Quiz Policy: A quiz based on the homework problems and topics covered will be given online each week. **Quizzes will be posted on Canvas using Lockdown Browser.** The quiz questions will be in open ended, and numerical answer format with the requirement of student work submission immediately after quiz completion. The homework and quizzes are intended to develop your problem-solving skills and to prepare you for the exams. The quiz and homework grades will be a significant component of your course grade.

Exams: There will be two common online exams held during the semester and one comprehensive common online final exam. Exams will be on Canvas using online proctoring tool Lockdown Browser with Respondus. The exam questions will be in multiple-choice and numerical answer format with the requirement of student work submission immediately after exam completion. Exams will be held on the following days:

Common Midterm Exam I	June 16, 2021
Common Midterm Exam II	July 14, 2021
Final Exam	August 2, 2021

Makeup Exam Policy: To properly report your absence from a midterm or final exam, please review and follow the required steps under the DMS Examination Policy found here:

- http://math.njit.edu/students/policies_exam.php

The time of the midterm exams will be determined by the instructor and/or the Math Department. 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.

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: 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 or via email at lyles@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibilty 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/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**
June 29, 2021	First Day of **FTF AND 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

Section #	
2.1:	Rates of Change and Tangents to Curves
2.2	Limit of a Function and Limit Laws
2.4:	One-Sided Limits
	Memorial Day Holiday – School Closed
2.5	Continuity
2.6:	Limits Involving Infinity; Asymptotes of Graphs
3.1:	Tangents and the Derivative at a Point
3.2:	The Derivative as a Function
3.3:	Differentiation Rules
3.4:	The Derivative as a Rate of Change

3.5:	Derivatives of Trigonometric Functions
	REVIEW FOR MIDTERM EXAM I
	MIDTERM EXAM I: WEDNESDAY, JUNE 16
3.6:	The Chain Rule
3.7:	Implicit Differentiation
3.8:	Derivatives of Inverse Functions and Logarithms
3.9:	Inverse Trigonometric Functions
3.10:	Related Rates
3.1	Linearization and Differentials
4.1:	Extreme Values of Function
4.2:	The Mean Value Theorem
4.2:	The Mean Value Theorem (Cont'd)
4.3:	Monotone Functions and the First Derivative Test
4.4:	Concavity and Curve Sketching
4.5:	Indeterminate Forms and L'Hopital's Rule
4.6:	Applied Optimization
4.7:	Newton's Method
	REVIEW FOR MIDTERM EXAM II
	MIDTERM EXAM II: WEDNESDAY, JULY 14
4.8:	Antiderivatives
5.1: 5.2:	Area and Estimating with Finite Sums Sigma Notation and Limits of Finite Sums
5.3:	The Definite Integral
5.4:	The Fundamental Theorem of Calculus
5.5:	Indefinite Integrals and the Substitution Method
5.6	Substitution and Area Between Curves
»	Catch Up and Review
FINAL EXAM: AUGUST 2, 2021	