

MATH 111: Calculus I

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: 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 111-031	Professor P. Rana Concepcion
Math 111-131	Professor P. Rana Concepcion

Office Hours for All Math Instructors: [Office Hours and Emails](#)

Required Textbook:

Title	<i>Thomas' Calculus: Early Transcendentals</i>
Author	Thomas
Edition	14th
Publisher	Pearson
ISBN #	978-0134768496 (bound) 9780134768762 (looseleaf)

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.

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%
Midterm Exam I	15%
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.

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

Homework Policy: Calculus is learned by solving problems. In Math 111, Online homework will be completed at **WWW.MYMATHLAB.COM**. In order to access the online assignments you need to have a student access code.

Access codes are included with a 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**

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. 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 three common midterm exams held during the semester and one comprehensive common final exam. Common Midterm Exams will be held on the following days:

Midterm Exam 1	June 15, 2022
Midterm Exam 2	July 13, 2022
Final Exam	August 8, 2022

The time of the midterm exams is **4:15pm - 5:40 PM** for daytime students and **6:00 - 7:25 PM** for evening students. 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: 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

Mandatory Tutoring Policy: Based upon academic performance indicating a significant gap in understanding of the course material, students may receive a notice of being assigned to mandatory tutoring to assist in filling the gap. A student will have 2 points deducted from the course average for each instance in which the required tutoring is not completed by the stated deadline.

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 25, 2022	Wednesday	Last Day to Add/Drop for First Summer Session
May 27, 2022	Friday	Last Day to Add/Drop for Middle Summer Session
May 30, 2022	Monday	Last Day to Add/Drop for Full Summer Session
May 30, 2022	Monday	Memorial Day - University Closed/No Classes Scheduled
June 11, 2022	Saturday	Last Day to Withdraw from First Summer Session
June 17, 2022	Friday	Last Day to Withdraw from Middle Summer Session
June 27, 2022	Monday	Last Day of Classes for First Summer Session
July 1, 2022	Friday	Last Day to Withdraw from Full Summer Session
July 3, 2022	Sunday	Independence Day - University Closed/No Classes Scheduled
July 4, 2022	Monday	Independence Day - Holiday Observance/No Classes
July 5, 2022	Tuesday	Second Summer Session Begins
July 6, 2022	Wednesday	Last Day to Add/Drop for Second Summer Session
July 18, 2022	Monday	Last Day of Classes for Middle Summer Session
July 21, 2022	Thursday	Last Day to Withdraw for Second Summer Session
August 8, 2022	Monday	Last Day of Classes for Full and Second Summer Session

Course Outline

Section #	Subject Topic
2.1	<i>Rates of Change and Tangents to Curves</i>
2.2	<i>Limit of a Function and Limit Laws</i>
2.4	<i>One-Sided Limits</i>
	<i>Memorial Day Holiday - School Closed</i>
2.5	<i>Continuity</i>
2.6	<i>Limits Involving Infinity; Asymptotes of Graphs</i>
3.1	<i>Tangents and the Derivative at a Point</i>
3.2	<i>The Derivative as a Function</i>
3.3	<i>Differentiation Rules</i>
3.4	<i>The Derivative as a Rate of Change</i>
3.5	<i>Derivatives of Trigonometric Functions</i>
	<i>REVIEW FOR MIDTERM EXAM I</i>
	<i>MIDTERM EXAM I: June 15</i>
3.6	<i>The Chain Rule</i>
3.7	<i>Implicit Differentiation</i>
3.8	<i>Derivatives of Inverse Functions and Logarithms</i>
3.9	<i>Inverse Trigonometric Functions</i>
3.10	<i>Related Rates</i>
3.11	<i>Linearization and Differentials</i>
4.1	<i>Extreme Values of Function</i>
4.2	<i>The Mean Value Theorem</i>
4.2	<i>The Mean Value Theorem (Cont'd)</i>
4.3	<i>Monotone Functions and the First Derivative Test</i>
4.4	<i>Concavity and Curve Sketching</i>
4.5	<i>Indeterminate Forms and L'Hopital's Rule</i>
4.6	<i>Applied Optimization</i>
4.7	<i>Newton's Method</i>
	<i>REVIEW FOR MIDTERM EXAM II</i>

	<i>MIDTERM EXAM II: July 13, 2022</i>
4.8	<i>Antiderivatives</i>
5.1 5.2	<i>Area and Estimating with Finite Sums Sigma Notation and Limits of Finite Sums</i>
5.3	<i>The Definite Integral</i>
5.4	<i>The Fundamental Theorem of Calculus</i>
5.5	<i>Indefinite Integrals and the Substitution Method</i>
5.6	<i>Substitution and Area Between Curves</i>
	<i>FINAL EXAM August 8, 2022</i>

*Updated by Professor P. Rana Concepción - 04/25/2022
Department of Mathematical Sciences Course Syllabus, Summer 2022*