MATH 138: General Calculus I
Spring 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.

Please be sure you read and fully understand our DMS Online Exam Policy.

COURSE INFORMATION

Course Description: Intended for students who are not in Science or in Engineering. An introduction to differential and integral calculus of a single variable.

Number of Credits: 3

Prerequisites: MATH 107 with a grade of C or better, or MATH 110 with a grade of C or better or NJIT placement.

Course-Section and Instructors:

Course-Section	Instructor
Math 138-006	Professor J. H. Ro

Office Hours for All Math Instructors: Spring 2022 Office Hours and Emails

Required Textbook:

Title	*Calculus: Concepts and Contexts bundled w/ WebAssign*
Author	Stewart
Edition	4th
Publisher	Cengage
ISBN #	978-0495557425

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 4, 2022**. It will be strictly enforced.

COURSE GOALS

Course Objectives

a. Understand the notion of infinity and how useful it is for calculating areas between plane curves and the instantaneous rate of change, mainly. On the other hand, students will understand how the derivative and the integral are related.
b. Students should learn the Derivative Criterions to maximize (or minimize) a differentiable function.
c. Students should be familiar with various integration (and derivation and limits) techniques.

Course Outcomes

a. Students are prepared for General Calculus II and further study in the relevant technological disciplines.
b. Students can apply their knowledge of Calculus I to solve problems (reduced to one variable) in engineering and the natural sciences.
c. Students understand that calculus is a necessary foundation for science, technology, and logic in general.

Course Assessment: The assessment of objectives is achieved through homework assignments, weekly quizzes, and the midterm and final examinations.

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 (WebAssign)	10%
Quizzes (Every Week)	10%
Midterm Exam I	25%
Midterm Exam II	25%
Final Exam	30%

Your final letter grade will be based on the following tentative curve. **NOTE:**This course needs to be passed with a grade of C or better in order to proceed to Math 238 or Math 246.

A	90 - 100	C	70 - 74
B+	85 - 89	D	60 - 69
B	80 - 84	F	0 - 59
C+	75 - 79		

Attendance Policy: Attendance at all classes (both lecture and recitation) will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. Students are expected to attend class. Each class is a learning experience that cannot be replicated through simply "getting the notes." This policy will be strictly enforced.

Homework: Homework is an expectation of the course. The problems listed in the syllabus are to be handed in. There will be additional homework on WebAssign is expected to be completed by the deadlines set forth in the web portal. If you have any difficulties with registering and getting an account with web assign please see the professor immediately.

Quizzes: There will be 8-12 quizzes given throughout the semester. They will be based on the lecture, homework and the in-class discussions.

Exams: There will be two exams during the semester and a cumulative final exam during the final exam week. Each exam will test the material taught since the beginning of the semester:

Midterm Exam I	Friday February 25, 2022
Midterm Exam II	Friday April 8, 2022
Final Exam Period	May 6 - May 12, 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: Spring 2022 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

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: Spring 2022 Academic Calendar, Registrar)

Date	Day	Event
January 18, 2022	Tuesday	First Day of Classes
January 22, 2022	Saturday	Saturday Classes Begin
January 24, 2022	Monday	Last Day to Add/Drop Classes
March 14, 2022	Monday	Spring Recess Begins
March 19, 2022	Saturday	Spring Recess Ends
April 4, 2022	Monday	Last Day to Withdraw
April 15, 2022	Friday	Good Friday - No Classes
April 17, 2022	Sunday	Easter Sunday - No Classes
May 3, 2022	Tuesday	Friday Classes Meet
May 3, 2022	Tuesday	Last Day of Classes
May 4 - May 5, 2022	Wednesday and Thursday	Reading Days
May 6 - May 12, 2022	Friday to Thursday	Final Exam Period

Course Outline

Lecture	Sections	Topic	Assignment
1	2.2	The Limit of a Function	2.2 ex: 4, 6, 14, 16
2	2.3	Calculating Limits using Limit Laws	2.3 ex: 12, 16, 18, 20
3	2.5	Limits Involving Infinity	2.5 ex: 4, 16, 20, 22, 24
4	2.6	Derivatives and Rates of Change	2.6 ex: 6, 8, 11, 13
5	2.7	The Derivative as a Function	2.7 ex: 4, 14, 19, 21, 26
6	3.1	Derivatives of Polynomials and Exponential Functions	3.1 ex: 4, 8, 12, 50
7	Appendix C	Trigonometry	Appendix C: ex: 21, 23, 25
8	3.2	Product and Quotient Rules	3.2 ex: 3, 5, 15, 17
9	3.3	Derivatives of Trigonometric Functions	3.3 ex: 3, 5, 11, 15, 16
10	3.4	Chain Rule	3.4 ex: 3,4,12,16.
11		**Review for Exam I**	
12		Exam I	Friday February 25th
13	3.5	Implicit Differentiation	3.5 ex: 6, 8, 22, 24
14	3.7	Derivatives of Log Functions	3.7 ex: 4, 8, 10, 12
15	3.8	Rates of Change in the Natural	3.8 ex: 8, 12a, 14

		and Social Sciences	
16	4.1	Related Rates	4.1 ex: 11, 12, 13, 14
17	4.2	Max and Min Values	4.2 ex: 4, 6, 24, 26
18	4.3	Derivatives and Shapes of Curves	4.3 ex: 8, 12, 22, 24
19	4.5	Indeterminate forms and L'Hopital's Rule	4.5 ex: 5, 8, 31, 34
20	4.6	Optimization Problems	4.6 ex: 10, 14, 18, 40
21		**Review for Exam II**	
22		Exam II	Friday April 8th
23	4.8	Antiderivatives	
24	5.1	Areas and Distances	5.1 ex: 1-2
25	5.2	The Definite Integral	5.2 ex: 5
26	5.3	Evaluating Definite Integrals	5.3 ex: 4, 10, 14, 24
27	5.4	The Fundamental Theorem of Calculus	5.4 ex: 8, 24
28	Catch up and	**Review for Final Exam**	
		Final Exam	