

THE DEPARTMENT OF MATHEMATICAL SCIENCES

## MATH 138: General Calculus I

### *Fall 2023 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:** 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 138-101	Professor M. Hercules

**Office Hours for All Math Instructors:** [Fall 2023 Office Hours and Emails](#)

**Required Textbook:**

Title	<i>Calculus: Concepts and Contexts bundled w/ WebAssign</i>
Author	Stewart
Edition	5th
Publisher	Cengage
ISBN #	9780357632499 (Book Only) 9780357756911 (Bundle with Webassign)

**University-wide Withdrawal Date:** The last day to withdraw with a W is **Monday, November 13, 2023**. It will be strictly enforced.

## 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	5%
Quizzes	5%
Midterm Exam I	20%
Midterm Exam II	20%
Midterm Exam III	20%
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 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.

**Exams:** There will be three exams during the semester and a cumulative final exam during the final exam week:

Midterm Exam I	Week 4
Midterm Exam II	Week 8
Midterm Exam III	Week 12
Final Exam Period	December 17 - December 23, 2023

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: [Fall 2023 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 need an accommodation due to a disability, please contact the Office of Accessibility Resources and Services at [oars@njit.edu](mailto:oars@njit.edu), or visit Kupfrian Hall 201 to discuss your specific needs. A Letter of Accommodation Eligibility from the office authorizing student accommodations is 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/accessibility/>

**Important Dates** (See: [Fall 2023 Academic Calendar, Registrar](#))

Date	Day	Event
September 4, 2023	Monday	Labor Day
September 5, 2023	Tuesday	First Day of Classes
September 11, 2023	Monday	Last Day to Add/Drop Classes
November 13, 2023	Monday	Last Day to Withdraw
November 21, 2023	Tuesday	Thursday Classes Meet
November 22, 2023	Wednesday	Friday Classes Meet
November 23 to November 26, 2023	Thursday and Saturday	Thanksgiving Recess - Closed
December 13, 2023	Wednesday	Last Day of Classes
December 14, 2023	Thursday	Reading Day 1
December 15, 2023	Friday	Reading Day 2
December 17 to December 23, 2023	Sunday to Saturday	Final Exam Period

## Course Outline

Week	Section	Title	Homework
1	1.1, 1.2 and 1.3	Prerequisites review, functions, Algebra, Trigonometry	ex. 5 - 8, 29 - 33 ex. 1, 2 ex. 1, 2, 3
	2.1	The Tangent and Velocity Problems	ex. 5, 6, 7
2	2.2	The Limit of a Function	ex. 3, 4, 5, 6, 13, 14, 15, 16
	2.3	Calculating Limits Using the Limit Laws	ex. 1, 2, 9 - 24
3	2.5	Limits Involving Infinity	ex. 3, 4, 5, 7, 15, 16, 17, 19, 20, 22, 23, 24
	2.6	Derivatives and Rates of Change	ex. 5, 7, 9ab, 13, 15, 43ab, 45, 47
	2.7	The Derivative as a Function	ex. 3, 4, 5, 6, 14, 15, 16
4		<b>Midterm I</b>	
5	3.1	Derivatives of Polynomials and Exponential Functions	ex. 3 - 28, 45, 49, 50,
6	3.2	The Product and Quotient Rules	ex. 3 - 15, 29, 30, 33a, 35a, 39,
7	3.3	Derivatives of Trigonometric Functions	ex. 1 - 14, 19 - 22, 23a, 25a, 27, 28, 31
	3.4	Chain Rule	ex. 7 - 30, 37, 38
8		<b>MIDTERM II</b>	
9	3.5	Implicit Differentiation	ex. 3 - 16, 21 - 28
10	3.7	Derivatives of Logarithmic Functions	ex. 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14
	3.8	Rates of Change in the Natural and Social Sciences	ex. 1, 4, 7, 8, 9, 10, 11a, 12a, 13ab, 14, 15, 16ab
11	4.1	Related Rates	ex. 2 - 23 odd
12		<b>MIDTERM III</b>	
13	4.2	Minimum and Maximum Values	ex. 3, 5, 23, 25, 27, 29, 41 - 51 odd
	4.3	Derivatives and Shapes of Curves	Ex. 7 - 16, 21 - 26
14	4.6	Optimization Problems	Ex. 5, 6, 9 - 12, 14, 15, 18, 23, 40
	4.8	Antiderivatives	ex. 1 - 16, 19 - 26
15	5.1	Definite Integral	
	5.2	FTC	
		Review for final exam	

Updated by Professor M. Hercules - 8/11/2023  
Department of Mathematical Sciences Course Syllabus, Fall 2023