

## MATH 138: General Calculus I

### *Spring 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 138-102	Professor M. Hercules

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

**Required Textbook:**

Title	<i>Calculus: Concepts and Contexts bundled w/ WebAssign</i>
Author	Stewart
Edition	4th
Publisher	Cengage
ISBN #	978-1337877367 (WebAssign w/ e-book) 978-0357014356 (WebAssign w/ LL) 978-0357700006 (Cengage Unlimited)

**University-wide Withdrawal Date:** The last day to withdraw with a **W** is **Monday, April 3, 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	May 5 - May 11, 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: [Spring 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 are in need of accommodations due to a disability please contact Scott Janz, Associate Director of Disability Support Services at [973-596-5417](tel:973-596-5417) or via email at [scott.p.janz@njit.edu](mailto: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/accessibility/>

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

Date	Day	Event
January 17, 2023	Tuesday	First Day of Classes
January 23, 2023	Monday	Last Day to Add/Drop Classes
March 13, 2023	Monday	Spring Recess Begins
March 18, 2023	Saturday	Spring Recess Ends
April 3, 2023	Monday	Last Day to Withdraw
April 7, 2023	Friday	Good Friday - No Classes
May 2, 2023	Tuesday	Friday Classes Meet
May 2, 2023	Tuesday	Last Day of Classes
May 3 - May 4, 2023	Wednesday and Thursday	Reading Days
May 5 - May 11, 2023	Friday to Thursday	Final Exam Period

## Course Outline

Week	Section	Title	Homework
1	1.1	Four Ways to Represent a Function	ex. 5 - 8, 29 - 33
	1.2	A Catalog of Essential Functions	ex. 1, 2
	1.3	New Functions from Old Functions	ex. 1, 2, 3
2	2.1	The Tangent and Velocity Problems	ex. 5, 6, 7
	2.2	The Limit of a Function	ex. 3, 4, 5, 6, 13, 14, 15, 16
3	2.3	Calculating Limits Using the Limit Laws	ex. 1, 2, 9 - 24
<b>4</b>		<b>Midterm I</b>	
5	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
6	2.7	The Derivative as a Function	ex. 3, 4, 5, 6, 14, 15, 16
	3.1	Derivatives of Polynomials and Exponential Functions	ex. 3 - 28, 45, 49, 50,
7	3.2	The Product and Quotient Rules	ex. 3 - 15, 29, 30, 33a, 35a, 39,
	3.3	Derivatives of Trigonometric Functions	ex. 1 - 14, 19 - 22, 23a, 25a, 27, 28, 31
<b>8</b>		<b>MIDTERM II</b>	
9	3.4	Chain Rule	ex. 7 - 30, 37, 38
	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
<b>12</b>		<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 - 1/3/2023  
Department of Mathematical Sciences Course Syllabus, Spring 2023*