

## **MATH 113: Finite Mathematics and Calculus I**

### *Fall 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:** An introduction to differential and integral calculus. Applications include area, volumes, curve lengths, surface area, centroids, and moments. Focus is on application throughout the course.

**Number of Credits:** 3

**Prerequisites:** (Intended for Architecture students.) **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:**

<b>Course-Section</b>	<b>Instructor</b>
Math 113	Professor R. Bouayad

**Office Hours for All Math Instructors:** [Fall 2022 Office Hours and Emails](#)

**Required Textbook:**

<b>Title</b>	<i>Calculus and Its Applications</i>
<b>Author</b>	Bittinger
<b>Edition</b>	12th
<b>Publisher</b>	Pearson
<b>ISBN #</b>	978-0135164884

**University-wide Withdrawal Date:** The last day to withdraw with a **M** is **Monday, November 14, 2022**. 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	15%
Quizzes	15%
Midterm Exam I	20%
Midterm Exam II	20%
Final Exam	30%

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

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.

**Homework:** All homework assignments are online using MyLab Math, which is linked directly from Canvas. They are DUE at the dates and times specified online. Students are required to work through the problems assigned for each section to gain a better understanding of the course material. You do not have to provide an access code or payment information when you enroll the first time, MyLab Math gives you free access to homework and the eBook for two weeks. Your 14-day free trial period begins on the day you click Start Free Trial on the Purchase Materials page.

**Quizzes:** Quizzes will be given approximately once a week throughout the semester. They will be based on the lecture, homework and the in-class discussions. Quizzes will sometimes be assigned through MyLab Math or Canvas and students will be expected to complete the quiz online.

**Exams:** There will be two midterm exams held in class during the semester and one comprehensive final exam. The following exam periods are tentative and therefore possibly subject to change:

Midterm Exam I	October 14, 2022
Midterm Exam II	November 18, 2022
Final Exam	December 16 - 22, 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: [Fall 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](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.

**Important Dates** (See: [Fall 2022 Academic Calendar, Registrar](#))

Date	Day	Event
September 5, 2022	Monday	Labor Day
September 6, 2022	Tuesday	First Day of Classes
September 12, 2022	Monday	Last Day to Add/Drop Classes
November 14, 2022	Monday	Last Day to Withdraw
November 22, 2022	Tuesday	Thursday Classes Meet
November 23, 2022	Wednesday	Friday Classes Meet
November 24 to November 25, 2022	Thursday and Friday	Thanksgiving Recess - Closed
December 14, 2022	Wednesday	Last Day of Classes

December 15, 2022	Thursday	Reading Day
December 16 to December 22, 2022	Friday to Thursday	Final Exam Period

## Course Outline

*This outline is subject to change throughout the semester. A weekly Outline will be posted on Canvas homepage.*

*All homework assignments are online using MyLab Math.*

Lecture	Section	Topic
1		* Review of Basic Algebra
2	Apdx A	* Exponents, Factoring, Solving Equations
	R.1 - R.4	* Graphs of Lines
3	R.2 - R3	* Functions - Domain and Range
4	R.5	* Nonlinear functions and solving systems of equations
5	1.1 - 1.2	* Limits (graphically & algebraically)
6	1.3 - 1.4	* Average Rate of Change - Definition of the Derivative
7	1.5	* Power and Sum Rules
8	1.6	* Product and Quotient Rules
9	1.7	* Chain Rule
10	1.8	* Higher Order Derivatives
11	<b>REVIEW</b>	
12	<b>EXAM #1</b>	
13	2.1	* Exponential and Logarithmic Functions
14	2.2 - 2.3	Derivatives of Exponential Functions (Base e) - Natural Logarithmic Functions
15	2.4 - 2.5	* Applications of Exponential and Log Functions
16	2.6	* Derivatives of Log Functions of Other Bases

17	3.1 - 3.2	* First Derivative Test for Extrema - Second Derivative Test
18	3.3-	* Graphing Rational Functions
19	3.4	* Absolute Max and Mins
20	3.5	* Applied Optimization
21	<b>REVIEW</b>	
22	<b>EXAM #2</b>	
23	3.8 - 3.9	* Implicit Diff. - Related Rates
24	4.1 - 4.2	* Anti-Differentiation
25	4.3	* Area and Definite Integrals
26	4.4	* Fundamental Theorem of Calc.
27	4.5	* Integration by Substitution
28		Review for Final Exam
29		<b>FINAL EXAM</b>

*Updated by Professor R. Bouayad - 8/19/2022*  
*Department of Mathematical Sciences Course Syllabus, Fall 2022*