

Fall 2019

# MATH 113-001: Finite Mathematics and Calculus I

S. Erfani

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## MATH 113-001: Finite Mathematics and Calculus I

### *Fall 2019 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

Course-Section	Instructor
Math 113-001	Professor S. Erfani

**Office Hours for All Math Instructors:** [Fall 2019 Office Hours and Emails](#)

#### Required Textbook:

Title	<i>Calculus and Its Applications</i>
Author	Bittinger
Edition	11th
Publisher	Cengage
ISBN #	978-0133862386

**University-wide Withdrawal Date:** The last day to withdraw with a **W** is **Monday, November 11, 2019**. 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:

Quizzes	15%
Midterm Exam I	15%
Midterm Exam II	20%
Midterm Exam III	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 Policy:** Homework problems will be assigned in class and should be handed in on the due date.

**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	September 26, 2019
Midterm Exam II	October 24, 2019
Midterm Exam III	November 21, 2019
Final Exam Period	December 14 - 20, 2019

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.

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## **ADDITIONAL RESOURCES**

**Math Tutoring Center:** Located in the Central King Building, Lower Level, Rm. G11 (See: [Fall 2019 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](#).

All students must familiarize themselves with and adhere to the Department of Mathematical Sciences Course

Policies, in addition to official university-wide policies. The Department of Mathematical Sciences takes these policies very seriously and enforces them strictly.

**Accommodation of Disabilities:** Disability Support Services (DSS) 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 Chantonette Lyles, Associate Director of Disability Support Services at [973-596-5417](tel:973-596-5417) or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support 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 Disability Support Services (DSS) website at:

- <https://www.njit.edu/studentsuccess/accessibility/>

**Important Dates** (See: [Fall 2019 Academic Calendar](#), [Registrar](#))

Date	Day	Event
September 3, 2019	T	First Day of Classes
September 13, 2019	F	Last Day to Add/Drop Classes
November 11, 2019	M	Last Day to Withdraw
November 26, 2019	T	Thursday Classes Meet
November 27, 2019	W	Friday Classes Meet
November 28-29, 2019	R-F	Thanksgiving Recess
December 11, 2019	W	Last Day of Classes
December 12, 13 2019	R & F	Reading Days
December 14-20, 2019	F - R	Final Exam Period

## Course Outline

Week #	Section #	Topic
1	Appendix A	Prerequisite Skills/Review of Basic Algebra
2	R.3	Finding Domain and Range
	R.4	Slope and Linear Functions
	R.5	Nonlinear Functions Models
3	1.1	Limits: A Numerical and Graphical Approach
	1.2	Algebraic Limits and Continuity
	1.3	Average Rate of Change
4		REVIEW FOR MIDTERM EXAM #1
		MIDTERM EXAM #1, SEPTEMBER 26, 2019
5	1.4	Differentiation Using Limits of Difference Quotients
	1.5	The Power and Sum and Difference Rules
	1.6	The Product and Quotient Rules

6	1.7	The Chain Rule
	1.8	Higher Order Derivatives
7	2.1	First Derivatives to Classify Maximum and Minimum Values
	2.2	Second Derivative and Curve Sketching
	2.3	Asymptotes and Rational Functions
8		REVIEW FOR MIDTERM EXAM II
		MIDTERM EXAM II, OCTOBER 24, 2019
9	2.4	Using Derivatives to find Maximum and Minimum Values of Functions
	2.5	Maximum and Minimum Problems
10	2.8	Implicit Differentiation and Related Rates Problems
	3.1	Exponential Functions
	3.2	Logarithmic Functions
11	3.3	Applications of Exponential and Logarithmic Functions
	3.5	Derivatives of Logarithmic Functions
12		REVIEW FOR MIDTERM EXAM III
		MIDTERM EXAM III, NOVEMBER 21, 2019
13	4.1	Anti-Differentiation
	4.2	Antiderivatives as Areas
14	4.3	Area and Definite Integrals
	4.4	Properties of Definite Integrals
	4.5	Integration Techniques: The Substitution Rule
15		Review for Final Exam
		FINAL EXAM WEEK DEC. 14 - 20

*Updated by Professor S. Erfani 7/16/2019  
Department of Mathematical Sciences Course Syllabus, Fall 2019*

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