MATH 113: Finite Mathematics and Calculus I
Fall 2021 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 E. Gulistan

Office Hours for All Math Instructors: Fall 2021 Office Hours and Emails

Required Textbook:

Title	*Calculus and Its Applications*
Author	Bittinger
Edition	12th
Publisher	Pearson
ISBN #	978-0135164884

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Wednesday, November 10, 2021**. 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: 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	Tuesday, October 12, 2021
Midterm Exam II	Tuesday, November 16, 2021
Final Exam	December 15 - 21, 2021

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 2021 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: Fall 2021 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2021	Wednesday	First Day of Classes
September 4, 2021	Saturday	Saturday Classes Begin
September 6, 2021	Monday	Labor Day
September 8, 2021	Wednesday	Monday Classes Meet
September 8, 2021	Wednesday	Last Day to Add/Drop Classes
November 10, 2021	Wednesday	Last Day to Withdraw
November 25 to November 28, 2021	Thursday to Sunday	Thanksgiving Recess - Closed
December 10, 2021	Friday	Last Day of Classes
December 13 and December 14, 2021	Monday and Tuesday	Reading Days
December 15 to December 21, 2021	Wednesday to Tuesday	Final Exam Period

Course Outline

Week/ Date	Sec.	& Topic	#	Chapter	Additional Problems

1 9/3	Diag. Test	* Review of Basic Algebra	1	Diag. Test	#1-23 ODD (page xvii right before page 1)
2 9/7	Apdx A	* Exponents, Factoring, Solving Equations		Apdx A.	# 43,49,115,117,123,127,131,139,140,151 (page 595)
9/7	R.1 R.4	* Graphs of Lines		R.4	# 5-15 ODD, 31-39 ODD
3 9/10	R.2	* Functions	2	R.2	# 21,35, 57-65 ODD
9/10	R.3	* Domain and Range		R.3	# 33-37 ALL, 49
4 9/14	R.5	* Nonlinear functions and solving systems of equations		R.5	# 2,3,25,27,30,45,46,55,57,61,65,72,75,77,78, 87,89,93, graph y=|x|
5 9/17	1.1	* Limits (graphically)	3	1.1	# 23-40 ALL, 52, 56, 58, 61, 67
6 9/21	1.2	* Limits (algebraically)		1.2	# 9, 11, 19
7 9/24	1.3	* Average Rate of Change		1.3	# 11-29 ODD
8 9/28	1.4	* Definition of the Derivative	4	1.4	# 1,7,18,19,23,24,45,55
9 10/1	1.5	* Power and Sum Rules		1.5	# 5-29 ODD, 51,58,61,69,91
10 10/5	1.6	* Product and Quotient Rules		1.6	# 3,5,7,13,15,27
11 10/8	1.7	* Chain Rule	5	1.7	# 1-13 ODD, 17,57,58,62
10/8	1.8	* Higher Order Derivatives		1.8	# 3-19 ODD, 38,45,49
12 10/12	**EXAM #1, October 12TH, 2021**				
13 10/15	2.1	* Exponential and Logarithmic Functions	7	2.1	# 2-16 EVEN, 27, 28, 30, 35
14 10/19	2.2-2.3	Derivatives of Exponential Functions (Base e), and Natural Logarithmic Functions		2.2 2.3	# 5-19 ODD, 25, 29, 35, 39 # 1-23 ODD, 26-28

15 10/22	2.4	* Applications of Exponential and Log Functions		2.4	# 1-25 ODD
16 10/26	2.6	* Derivatives of Log Functions of Other Bases	8	2.6	# 1, 5, 11, 15 – 27 ODD
17 10/29	3.1	* First Derivative Test for Extrema		3.1	# 1,3,7,11,69,71,73
18 11/2	3.2	* Second Derivative Test	9	3.2	# 9,11,15,23,65
19 11/5	3.3-3.4	* Graphing Rational Functions * Absolute Max and Mins		3.3 3.4	# 1-17 ODD, 25,27,52 # 9,13,16,18,25,97,103
20 **11/9**	3.5	* Applied Optimization	10	3.5	# 3,11,13,19,31,34,38
21 11/12	3.8-3.9	* Implicit Diff./Related Rates		3.8 3.9	# 1,7,17,38,48 # 1, 8, 18, 21 - 30
22 11/16	**EXAM #2, November 16TH, 2021**				
23 11/19	4.1	* Anti-Differentiation	12	4.1	# 1-27 ODD, 71
24 11/23	4.2	* Antiderivatives as Areas		4.2	# 18,29,33,38
25 11/30	4.3	* Area and Definite Integrals		4.3	# 1-13 ODD, 43,80,85
26 **12/3**	4.4	* Fundamental Theorem of Calc.	13	4.4	# 15,17,22,36,40
27 12/7	4.5	* Integration by Substitution		4.5	# 1,3,11,15,18,21,32,44,93,98
28 12/10		Review for Final Exam			
29		**FINAL EXAM - December 15-21**			