NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 108: University Mathematics I B
Fall 2020 Coordinated 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.

DMS Online Exam Policy Fall 2020: Exams will be proctored using both Respondus LockDown Browser+Monitor and Webex. Students will be required to join a Webex meeting from their phone with their cameras on, and to access the exam through LockDown Browser on a Mac or Windows PC with webcam. Students must follow all instructions related to environment checks and camera positioning.

Please be sure you read and fully understand our DMS Online Exam Policy.

COURSE INFORMATION

Course Description: Intended for students whose major requires MATH 111. Linear functions, equations, inequalities, systems of linear equations, quadratic equations, polynomials, rational expressions, expressions involving radicals, partial fraction decomposition, conic sections, graphing functions.

Number of Credits: 4

Prerequisites: None.

Course-Section and Instructors

Course-Section	Instructor
Math 108-001	Professor C. Oton
Math 108-003	Professor Y. Nejatbakhsh
Math 108-009	Professor Y. Nejatbakhsh
Math 108-019	Professor J. Arnette

Office Hours for All Math Instructors: Fall 2020 Office Hours and Emails

Required Textbook:

Title	*Precalculus - A Right Triangle Approach*
Author	Ratti and McWaters
Edition	4th
Publisher	Pearson

ISBN #	9780134851013
Notes	w/ MyMathLab

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 9, 2020**. It will be strictly enforced.

COURSE GOALS

Course Objectives: Students should (a) learn algebra and its applications to science and engineering (b) learn about slope and its relationship to average rates of change, (c) understand how to recognize functions, operations on functions and graph of functions, (d) understand many practical applications of systems of equations.

Course Outcomes

- Students have improved logical thinking and problem-solving skills.
- Students have a greater understanding of the importance of algebra in science and technology.
- Students are prepared for further study in mathematics as well as science, engineering, and other areas.

Course Assessment: The assessment of objectives is achieved through homework, quizzes, and common examinations with common grading.

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	10%
Quizzes	15%
Common Midterm Exam I	15%
Common Midterm Exam II	15%
Common Midterm Exam III	15%
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**	55 - 69
B	80 - 84	**F**	0 - 54
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. Students are expected to attend class. Each class is a learning experience that cannot be replicated through simply "getting the notes."

Homework Policy: Homework is an expectation of the course. All written homework for the session is listed, by

section, above. On line, homework will also be assigned through the portal, My Math Lab. All students are expected to obtain a subscription to My Math Lab for successful completion of the class.

How to Get Started with MyMathLab

- http://m.njit.edu/Undergraduate/UG-Files/MML_Getting_Started.pdf
- http://m.njit.edu/Undergraduate/UG-Files/Technology_Tips.pdf

Quiz Policy: Quizzes will be given at the professor's discretion approximately once a week during recitation throughout the semester. They will be based on the lecture, homework and the in-class discussions. There will be 8-12 assessments given throughout the semester.

Exams: There will be three common midterm exams held during the semester and one comprehensive common final exam. Each exam will test the material taught since the beginning of the semester.

Exams are held on the following days:

Common Midterm Exam I	September 23, 2020
Common Midterm Exam II	October 21, 2020
Common Midterm Exam III	Novemeber 18, 2020
Final Exam Period	December 15 - 21, 2020

The time of the midterm exams is **4:15-5:40 PM** for daytime students and **5:45-7:10 PM** for evening students. 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: To properly report your absence from a midterm or final exam, please review and follow the required steps under the DMS Examination Policy found here:

- http://math.njit.edu/students/policies_exam.php

Mandatory Tutoring Policy: Based upon academic performance indicating a significant gap in understanding of the course material, students may receive a notice of being assigned to mandatory tutoring to assist in filling the gap. A student will have 2 points deducted from the course average for each instance in which the required tutoring is not completed by the stated deadline.

Cellular Phones: All cellular phones and other electronic devices must be switched off and put away during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Fall 2020 Hours)

Accommodation of Disabilities: The Office of Accessibilty and Servuces (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 Chantonette Lyles, Associate Director of Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services 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 2020 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2020	T	First Day of Classes
September 5, 2020	S	Saturday Classes Begin
September 7, 2020	M	Labor Day
September 8, 2020	T	Monday Classes Meet
September 8, 2020	T	Last Day to Add/Drop Classes
November 9, 2020	M	Last Day to Withdraw
November 25, 2020	W	Friday Classes Meet
November 26-29, 2020	R - Su	Thanksgiving Recess - University Closed
December 10, 2020	R	Last Day of Classes
December 11 & 14, 2020	F & M	Reading Days
December 15 - 21, 2020	T - M	Final Exam Period

Course Outline

Lecture	Section #	Topic	Assignment
1	P1	Real Numbers and their Properties	P1: ex. 82, 84, 86, 102, 104, 106, 108, 130-160 even
2	P2	Integer Exponents, and Scientific Notation	P2: ex. 10-94 even, 101-110
3	1.1	Linear equations in one variable	1.1: ex. 9-13, 15,17, 23-35 odd, 49-55 odd, 61, 63, 37-47, 65, 68
4	8.1	Systems of Equations	8.1: ex. 59-75 odd 97, 99, 101
5	1.2	Applications of Linear Equations	1.2: ex. 9-12, 20-34 evens, 37-46, 47-59 odd, 60, 63, 67, 69
6	P6	Rational Exponents and Radicals	P6: ex. 26-62 even, 86-94 even, 64-74 even, 78, 80, 82, 96-112 even
7	P3	Polynomials	P3: ex. 18-28 even, 32-42 even, 54, 72, 95
8	P4	Factoring Polynomials	P4: ex. 28-34 even, 38-48 even, 66-84 even, 94-106 evens
9	P4	Factoring Polynomials (continue)	P4: ex. 28-34 even, 38-48 even, 66-84 even, 94-106 evens
10		*CATCH UP AND REVIEW*	
		EXAM #1	
11	1.3	Quadratic Equations (Factoring/Quadratic Formula)	1.3: ex. 20-30 even, 48-52 even, 91, 93
12	1.3	Quadratic Equations (Completing the square)	1.3: ex. 32-38 even,42-46 even, 54-64 even, 68-78 even, 97, 104
13	1.4	Complex Numbers	1.4: ex 10-36 even, 40-50 even

14	P5	Rational Expressions	P5: ex. 26, 30, 34, 36, 38, 48, 50, 56, 60, 70-76 even, 86, 88, 90, 92
15	1.5	Solving other types of equations	1.5: ex. 20-24 even, 30-36 even,
16	1.5	Solving other types of equations	1.5: ex. 40-58 even, 64,66, 70-80 even
17	1.6	Inequalities	1.6: ex. 12, 20, 24, 32, 51, 57, 59, 65, 67-77 odd, 95-105 odd
18	1.7	Absolute Value Equations and Inequalities	1.7: ex: 14, 16, 26, 28, 34, 36, 38-52 even
19	1.7	Absolute Value Equations and Inequalities	1.7: ex. 54-72 even, 79
20	2.1	The Coordinate Plane	2.1: ex. 15-21 odd, 35, 37, 41
21	2.2	Graphs	2.2: ex. 22-28 even, 35, 37-46, 53, 57, 67, 70, 76, 81, 83, 89, 91
22		*CATCH UP AND REVIEW*	
		EXAM #2	
23	2.3	Lines	2.3: ex. 9, 13, 27, 34-46 evens, 51-54, 79-87 odd, 93, 96-104 even
24	2.4	Functions	2.4: ex. 9, 12, 14, 15, 20, 32, 43, 44, 51-54, 70, 79-84
25	2.5	Properties of Functions	2.5: ex. 9-16, 35-39 odd, 57-67 odd, 107-110
26	2.6	Library of Functions	2.6: ex. 9, 11, 17, 25, 31, 35, 41
27	2.7	Transformations of Functions	2.7: ex. 9-19 odd, 23-34, 36-58 even, 63, 69
28	2.7	Transformations of Functions	2.7: ex. 75-82, 83-94, 95-105
29	2.8	Combining Functions; Composite Functions	2.8: ex. 9-20, 23, 32, 39, 47, 49, 62, 67, 69, 73, 76, 77
30	2.9	Inverse Functions	2.9: ex. 9-16, 17, 25, 26, 29, 33, 55, 57,67-77 odd
31	3.1	Quadratic Functions	3.1: ex. 9-16, 21, 27, 29, 31, 51, 55, 65, 67, 79, 81
32	3.2	Polynomial Functions	3.2: ex. 9-14, 29-34, 37, 48, 64, 65, 87
33	3.3	Dividing Polynomials (Long Division)	3.3: ex. 9-16
34	3.3	Dividing Polynomial (synthetic division)	3.3: ex. 17-29 odd, 35-41 odd, 49, 51
35	3.6	Rational Functions	3.6: ex. 9-26, 28, 32, 35-51 odd, 53-58
	3.6	Rational Functions	3.6: ex. 59-73 odd
36		*CATCH UP AND REVIEW*	
		EXAM #3	
37	3.7	Variation	3.7: ex. 9-13, 29-41 odd
38	10.2	Parabolas	10.2: ex. 17-31 odd, 37-47 odd
39	10.3	Ellipses	10.3: ex. 9-35 odd, 45-53 odd, 59
40	10.4	Hyperbolas	10.4: ex. 17-27 odd, 29-53 odd, 69, 71-75 odd
41-42		*CATCH UP AND REVIEW*	
		FINAL EXAM	