

MATH 108: University Mathematics I B

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: 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 S. Gupta
Math 108-003	Professor S. Gupta
Math 108-005	Professor J. Arnette
Math 108-007	Professor D. Abadi
Math 108-009	Professor R. Dandan

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

Required Textbook:

Title	<i>Precalculus - A Right Triangle Approach</i>
Author	Ratti and McWaters
Edition	5th
Publisher	Pearson
ISBN #	Print:9780137519354 MyLab Math with Pearson eText: 9780137519255

Notes	w/ MyMathLab
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University-wide Withdrawal Date: The last day to withdraw with a M is **Monday, November 14, 2022**. 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: Homework is an expectation of the course. All written homework for the session is listed, by section. Online homework is 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 class time or 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 28, 2022
Common Midterm Exam II	October 19, 2022
Common Midterm Exam III	November 16, 2022
Final Exam	December 16 - 22, 2022

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

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** 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.

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
November 26, 2022	Saturday	Saturday Classes Meet
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

Lecture	Section #	Topic	Assignment
1	P1	Real Numbers and their Properties	<i>P1: ex. 81, 83, 89, 91, 101, 103, 105, 107, 129-159 odd</i>
2	P2	Integer Exponents, and Scientific Notation	<i>P2: ex. 9-93 eoo = every other odd, 103-111 odd</i>
3	1.1	Linear equations in one variable	<i>1.1: ex. 9, 11, 15, 17, 23-59 eoo=every other odd, 63, 65, 67, 70</i>
4	8.1	Systems of Equations	<i>8.1: ex. 45, 47, 55, 57, 63, 67, 77, 79, 93, 101-109 odd</i>
5	1.2	Applications of Linear Equations	<i>1.2: ex. 11-12, 19-23 odd, 37-57 eoo = every other odd, 63, 69</i>
6	P6	Rational Exponents and Radicals	<i>P6: ex. 25-45 eoo=every other odd, 47-71 eoo, 77, 81, 85-93 odd, 95-111 eoo</i>

7	P3	Polynomials	<i>P3: ex. 17, 19, 21, 27, 31, 35, 39, 53, 71, 95</i>
8	P4	Factoring Polynomials	<i>P4: ex. 11, 19, 29, 33, 37-45 odd, 49, 51, 69-81 odd, 95-111 eoo</i>
9		<i>CATCH UP AND REVIEW</i>	
		EXAM #1	
10	P4	Factoring Polynomials (continue)	<i>P4: ex. 11, 19, 29, 33, 37-45 odd, 49, 51, 69-81 odd, 95-111 eoo</i>
11	1.3	Quadratic Equations (Factoring/Quadratic Formula)	1.3: ex. 19-33 odd, 45-55 odd, 61-85 eoo, 99, 101, 105, 112
12	1.3	Quadratic Equations (Completing the square)	1.3: ex. 19-33 odd, 45-55 odd, 61-85 eoo, 99, 101, 105, 112
13	1.4	Complex Numbers	1.4: ex 9, 11-31 eoo, 33-37 odd, 39-51 eoo, 53-57 odd
14	P5	Rational Expressions	<i>P5: ex. 29-39 odd, 45, 47, 49, 55, 69, 71, 73, 79, 85-91 odd,</i>
15	1.5	Solving other types of equations	1.5: ex. 19, 21, 25, 31-55 eoo, 63-79 eoo
16	1.5	Solving other types of equations	1.5: ex. 19, 21, 25, 31-55 eoo, 63-79 eoo
17	1.6	Inequalities	1.6: ex. 9-33 eoo, 51, 53, 57, 59, 63, 65-77 eoo, 85-109 eoo
18	1.7	Absolute Value Equations and Inequalities	1.7: ex: 15-35 eoo, 37-61 eoo, 81
19		<i>CATCH UP AND REVIEW</i>	
		EXAM #2	
20	1.7	Absolute Value Equations and Inequalities	1.7: ex: 15-35 eoo, 37-61 eoo, 81
21	2.1	The Coordinate Plane	2.1: ex. 15-21 odd, 35, 37, 41-47 odd
22	2.2	Graphs	2.2: ex. 23, 27, 35, 41, 43, 45, 46, 53, 57, 69-83 odd, 89, 91
23	2.3	Lines	2.3: ex. 11-14, 27, 33, 35, 37, 41, 42, 51-54, 83-87 odd, 101, 103
24	2.4	Functions	2.4: ex. 9, 12-20, 31-32, 41-53 odd, 65, 69, 79-84
25	2.5	Properties of Functions	2.5: ex. 11, 13, 19, 21, 35, 37, 39, 57, 61, 67, 71, 75-81 odd, 109, 111
26	2.6	Library of Functions	2.6: ex. 11, 23, 25, 31, 35, 43, and A Library of Basic Functions p. 252
27	2.7	Transformations of Functions	2.7: ex. 9-61 eoo, 63-103 eoo
28	2.7	Transformations of Functions	2.7: ex. 9-61 eoo, 63-103 eoo

29	2.8	Combining Functions; Composite Functions	2.8: ex. 9-19 odd, 23, 32, 39, 47, 49, 62, 67, 69, 73, 76, 77
30	2.9	Inverse Functions	2.9: ex. 10-16 even, 17, 25, 26, 29, 33, 55, 57, 67, 69, 79
31	3.1	Quadratic Functions	3.1: ex. 9-16, 21, 27, 29, 31, 37, 41, 45, 49-67 odd, 79, 81
32	3.2	Polynomial Functions	3.2: ex. 9-14, 29-34, 36, 37, 46-48, 64, 65, 87
33		<i>CATCH UP AND REVIEW</i>	
		EXAM #3	
34	3.3	Dividing Polynomials	3.3: ex. 10-28 even, 35-41 odd, 49, 51
35	3.6	Rational Functions	3.6: ex. 10-16 even, 17-26, 28, 32, 36-52 even, 53-58
36	3.6	Rational Functions	3.6: ex. 59-73 odd
37	3.7	Variation	3.7: ex. 10-18 even, 29-41 odd
38	10.2	Parabolas	10.2: ex. 17-51 odd
39	10.4	Hyperbolas	10.4: ex. 17-53 odd, 69-75 odd
40		<i>CATCH UP AND REVIEW</i>	
41		<i>CATCH UP AND REVIEW</i>	
42		<i>REVIEW</i>	
		FINAL EXAM	

Updated by Professor M. Potocki-Dul - 8/15/2022
Department of Mathematical Sciences Course Syllabus, Fall 2022