MATH 108: University Mathematics I B
Spring 2024 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 108-002	Professor S. Gupta
Math 108-004	Professor S. Gupta

Office Hours for All Math Instructors: Spring 2024 Office Hours and Emails

Required Textbook:

Title	*Precalculus - A Right Triangle Approach*
Author	Ratti and McWaters
Edition	5th
Publisher	Pearson
ISBN #	Print:9780137519354 MyLab Math with Pearson eText: 9780137519255
Notes	w/ MyMathLab

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 1, 2024**. 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 Exam	15%
Common Exam	15%
Common Exam	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**	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. 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. 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.

Recitation Problems: Recitation problems for the session are listed, by section. These problems are to be done during weekly recitations. Recitation assignments will be graded for accuracy.

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 Exam I	February 7, 2024
Common Exam II	March 6, 2024
Common Exam III	April 17, 2024
Final Exam Period	May 3 - May 9, 2024

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: Spring 2024 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.

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If you are in need of accommodations due to a disability please If you need an accommodation due to a disability please contact the Office of Accessibility Resources and Services at oars@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/accessibility/

Important Dates (See: Spring 2024 Academic Calendar, Registrar)

Date	Day	Event
January 16, 2024	Tuesday	First Day of Classes
January 22, 2024	Monday	Last Day to Add/Drop Classes
March 10, 2024	Sunday	Spring Recess Begins
March 16, 2024	Saturday	Spring Recess Ends
March 29, 2024	Friday	Good Friday - No Classes
April 1, 2024	Monday	Last Day to Withdraw
April 30, 2024	Tuesday	Friday Classes Meet
April 30, 2024	Tuesday	Last Day of Classes
May 1, 2024	Wednesday	Reading Day 1
May 2, 2024	Thursday	Reading Day 2
May 3 - May 9, 2024	Friday to Thursday	Final Exam Period

Course Outline

Lect.	Sect.	Topic	Online Assignments (eoo = every other odd)	Recitation Problems (Hand-in)
1	P1	Real Numbers and their Properties	*P1: ex. 81, 83, 89, 91, 101, 103, 105, 107, 129, 135, 141, 143, 151, 155*	*92, 102, 138, 146, 156*
2	P2	Integer Exponents, and Scientific Notation	*P2: ex. 29, 37, 45, 65, 69, 73, 81, 85, 89, 93, 105-111 odd*	*40, 46, 76, 92*

3	1.1	Linear equations in one variable	*1.1: ex. 9, 15, 31, 35, 39, 43, 47, 63, 65, 67*	*38, 40, 54, 64*
4	8.1	Systems of Equations	*8.1: ex. 45, 47, 55, 57, 69, 79,* 93, 101-109 odd	*48, 58, 80, 98, 104, 106, 110*
5	1.2	Applications of Linear Equations	1.2: ex. 23, 31, 37, 39, 41, 45, 49, 53, 57, 59, 63	24, 44, 60
6	P6	Rational Exponents and Radicals	*P6: ex. 25, 33, 37, 41, 47, 51, 53, 59, 63, 69, 73, 89, 93, 95, 99, 103, 107, 111*	*32, 38, 46, 56*
7	P6	Rational Exponents and Radicals	*P6: ex. 25, 33, 37, 41, 47, 51, 53, 59, 63, 69, 73, 89, 93, 95, 99, 103, 107, 111*	*60, 70, 92, 104*
8	P3	Polynomials	*P3: ex. 17, 19, 21, 23, 31, 35, 39, 53, 71, 95*	*20, 28, 54*
9	P4	Factoring Polynomials	*P4: ex. 11, 19, 29, 33, 37-45 odd, 49, 51, 59, 67-81 odd, 95-111 eoo= every other odd*	*12, 34, 40, 50, 52*
10		*CATCH UP AND REVIEW*		
		EXAM #1		
11	P4	Factoring Polynomials (continue)	*P4: ex. 11, 19, 29, 33, 37-45 odd, 49, 51, 59, 67-81 odd, 95-111 eoo*	*60, 70, 82, 102, 112*
12	1.3	Quadratic Equations (Factoring/Quadratic Formula)	1.3: ex. 19-33 odd, 45-55 odd, 61-85 eoo, 99, 101, 105	24, 34, 48, 56
13	1.3	Quadratic Equations (Completing the square)	1.3: ex. 19-33 odd, 45-55 odd, 61-85 eoo, 99, 101, 105	62, 64, 100, 102
14	1.4	Complex Numbers	1.4: ex 9, 11-23 eoo, 31, 35, 37, 39-51 eoo, 53, 55, 57	22, 32, 46, 56
15	P5	Rational Expressions	P5: ex. 21, 31, 33, 37, 39, 49, 55, 59, 71, 73, 79, 87, 89, 91	22, 32, 40, 48, 56
16	P5	Rational Expressions	P5: ex. 21, 31, 33, 37, 39, 49, 55, 59, 71, 73, 79, 87, 89, 91	60, 72, 80, 92
17	1.5	Solving other types of equations	1.5: ex. 19, 21, 25, 31-55 eoo, 63-79 eoo	20, 26, 30, 34
18	1.5	Solving other types of equations	1.5: ex. 19, 21, 25, 31-55 eoo, 63-79 eoo	50, 52, 72, 74
19	1.6	Inequalities	1.6: ex. 25, 33, 37, 51, 53, 57, 61, 63, 65, 69, 73, 77, 89, 93, 97, 101, 105, 109	34, 52, 60, 78
20	1.6	Inequalities	1.6: ex. 25, 33, 37, 51, 53, 57, 61, 63, 65, 69, 73, 77, 89, 93, 97, 101, 105, 109	90, 96, 106
21	1.7	Absolute Value Equations and Inequalities	1.7: ex: 19, 23, 27, 31, 37-61 eoo	16, 28, 38, 50, 56
22		*CATCH UP AND REVIEW*		
		EXAM #2		
23	2.1	The Coordinate Plane	2.1: ex. 15, 17, 19, 35, 37, 41-47 odd	16, 18, 44
24	2.2	Graphs	2.2: ex. 23, 27, 35, 41, 43, 45, 53, 57, 69, 71, 73, 75, 77, 81, 83, 89, 91	28, 58, 90
25	2.3	Lines	2.3: ex. 11-14, 29, 33, 35, 37, 41, 42, 51-54, 83, 85, 87, 101, 103	52, 86, 102, 103

26	2.4	Functions	2.4: ex. 9, 12-20, 31-32, 41-53 odd, 65, 69, 79-84	26, 42, 44
27	2.5	Properties of Functions	2.5: ex. 35, 37, 39, 49-51, 53, 57, 61, 67, 71, 77, 81, 109, 111	36, 62, 76
28	2.6	Library of Functions	2.6: ex. 11, 21, 23, 25, 31, 35, 43, 45 and A Library of Basic Functions p. 252	24, 28, 36
29	2.7	Transformations of Functions	2.7: ex.11-17 odd, 18, 37-61 eoo, 65, 67, 71, 75, 79, 87, 89, 91 97, 98, 99, 103, 105	64, 70, 93
30	2.7	Transformations of Functions	2.7: ex.11-17 odd, 18, 37-61 eoo, 65, 67, 71, 75, 79, 87, 89, 91 97, 98, 99, 103, 105	115
31	2.8	Combining Functions; Composite Functions	2.8: ex. 9-19 odd, 23, 25, 29, 39, 45, 49, 55, 59, 61, 67, 69, 73, 77	28, 50, 76
32	2.9	Inverse Functions	2.9: ex. 9, 11, 25, 27, 29, 33, 55, 57, 59 67, 69, 79	26, 34, 60
33	3.1	Quadratic Functions	3.1: ex. 11, 15, 27, 33, 39, 43, 45, 49, 61, 65, 67, 79, 81	42, 50, 70
34	3.2	Polynomial Functions	3.2: ex. 9, 29, 33, 35, 37, 39, 45, 47, 65, 67, 71, 87	48, 64, 70
35	3.3	Dividing Polynomials	3.3: ex. 9-15 odd, 19, 21, 29, 35, 39, 41, 49, 51	12, 32, 50
36		*CATCH UP AND REVIEW*		
		EXAM #3		
37	3.6	Rational Functions	3.6: ex. 9, 13, 17, 21, 25, 27, 39-67 odd	42, 48, 58
38	3.6	Rational Functions	3.6: ex. 9, 13, 17, 21, 25, 27, 39-67 odd	68, 70
39	3.7	Variation	3.7: ex. 15, 19, 21, 23, 29, 33, 35, 37	18, 24, 43
40	10.2	Parabolas	10.2: ex. 37-51 odd	50, 52
41	10.4	Hyperbolas	10.4: ex. 29, 33, 37, 41, 43-51 odd, 73, 75	44, 50
42		*REVIEW*		
		FINAL EXAM		