MATH 108: University Mathematics I B
Winter 2021-2022 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. Effective From: Spring 2009.

Number of Credits: 4

Prerequisites: Students MUST have passed the same course at NJIT with a grade of "D" or better and are

repeating the course to improve their grade.

Course-Section and Instructors:

Course-Section	Instructor
Math 108-W01	Professor M. Potocki-Dul

Days, Times, and Locations:

Days	Times	Locations
M, T, W, R, F	9:00 AM - 11:45 PM	Synchronous Online
M, T, W, R, F	12:45 PM - 3:15 PM	Synchronous Online

Required Textbook:

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

ISBN #	978-0134851013
Notes	w/ MyMathLab

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Wednesday, January 5, 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 many practical applications of systems of equations, (d) gain experience in the use of partial fraction decomposition, (e) learn about logarithmic and exponential functions and understand their application in the areas of science and engineering. (f) Students should gain an appreciation for the importance of trigonometry in scientific, engineering, and other applications.

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	20%
Midterm Exam	30%
Final Exam	40%

Your final letter grade will be based on the following tentative curve.

A	90 - 100	**C**	70 - 74
B+	85 - 89	**D**	55 - 64
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.

Homework Policy: Homework is an expectation of the course. All written homework for the session is listed, by section, above. Online 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 daily. 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 one exam held during the semester and a cumulative final exam. Exams will be held on the following days:

Midterm Exam	TBA
Final Exam	January 14, 2022

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

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.

Important Dates (See: Winter 2021-2022 Academic Calendar, Registrar)

Date	Day	Event
December 27, 2021	Monday	Winter Session Classes Begin
December 28, 2021	Tuesday	Last Day to Add/Drop Classes
December 31, 2021	Friday	New Years Eve - Classes still in Session

January 1, 2022	Saturday	New Year's Day - No Classes
January 5, 2022	Wednesday	Last Day to Withdraw
January 14, 2022	Friday	Last Day of Winter Session/Final Exams
January 15, 2022	Saturday	Inclement Weather Make-Up Day, if necessary

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*
	P2	Integer Exponents, and Scientific Notation	*P2: ex. 10-94 even, 101-110*
	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*
2	8.1	Systems of Equations	*8.1: ex. 59-75 odd 97, 99, 101*
	1.2	Applications of Linear Equations	*1.2: ex. 9-12, 20-34 even, 37-46, 47-59 odd, 60, 63, 67, 69*
	P6	Rational Exponents and Radicals	*P6: ex. 26-62 even, 86-94 even, 64-74 even, 78, 80, 82, 96-112 even*
3	P3	Polynomials	*P3: ex. 18-28 even, 32-42 even, 54, 72, 95*
	P4	Factoring Polynomials	*P4: ex. 28-34 even, 38-48 even, 66-84 even, 94-106 even*
	P4	Factoring Polynomials (continue)	*P4: ex. 28-34 even, 38-48 even, 66-84 even, 94-106 even*
4	1.3	Quadratic Equations (Factoring/Quadratic Formula)	*1.3: ex. 20-30 even, 48-52 even, 91, 93*
	1.3	Quadratic Equations (Completing the square)	*1.3: ex. 32-38 even,42-46 even, 54-64 even, 68-78 even, 97, 104*
	1.4	Complex Numbers	*1.4: ex 10-36 even, 40-50 even, 54-62 even*
5	P5	Rational Expressions	*P5: ex. 26, 30, 34, 36, 38, 48, 50, 56, 60, 70-76 even, 86, 88, 90, 92*
	1.5	Solving other types of equations	*1.5: ex. 20-24 even, 30-36 even,*
	1.5	Solving other types of equations	*1.5: ex. 40-58 even, 64,66, 70-80 even*
6	1.6	Inequalities	*1.6: ex. 12, 20, 24, 32, 51, 57, 59, 65, 67-77 odd, 85-105 odd*
	1.7	Absolute Value Equations and Inequalities	*1.7: ex: 14, 16, 26, 28, 34, 36, 38-52 even*

	1.7	Absolute Value Equations and Inequalities	*1.7: ex. 54-72 even, 79*
7		Catch up and Review	
		EXAM #1	
8	2.1	The Coordinate Plane	*2.1: ex. 15-21 odd, 35, 37, 41*
	2.2	Graphs	*2.2: ex. 22-28 even, 35, 37-46, 53, 57, 67, 70, 76, 81, 83, 89, 91*
	2.3	Lines	*2.3: ex. 9, 13, 27, 34-46 even, 51-54, 79-87 odd, 93, 96-104 even*
9	2.4	Functions	*2.4: ex. 9, 12, 14, 15, 20, 32, 43, 44, 51-54, 70, 79-84*
	2.5	Properties of Functions	*2.5: ex. 9-16, 35-39 odd, 57-67 odd, 107-110*
	2.6	Library of Functions	*2.6: ex. 9, 11, 17, 25, 31, 35, 41*
10	2.7	Transformations of Functions	*2.7: ex. 9-19 odd, 23-34, 36-58 even, 63, 69*
	2.7	Transformations of Functions	*2.7: ex. 75-82, 83-94, 95-105*
	2.8	Combining Functions; Composite Functions	*2.8: ex. 9-20, 23, 32, 39, 47, 49, 62, 67, 69, 73, 76, 77*
11	2.9	Inverse Functions	*2.9: ex. 9-16, 17, 25, 26, 29, 33, 57-60, 65-77 odd*
	3.1	Quadratic Functions	*3.1: ex. 9-16, 21, 27, 29, 31, 51, 55, 65, 67, 79, 81*
	3.2	Polynomial Functions	*3.2: ex. 9-14, 29-34, 37, 48, 64, 65, 87*
12	3.3	Dividing Polynomials (Long Division)	*3.3: ex. 9-16*
	3.3	Dividing Polynomials (Synthetic Division)	*3.3: ex. 17-29 odd, 35-41 odd, 49, 51*
	3.6	Rational Functions	*3.6: ex. 9-26, 28, 32, 35-51 odd, 53-58*
13	3.6	Rational Functions	*3.6: ex. 59-71 odd*
	3.7	Variation	*3.7: ex. 9-23 odd, 29-41 odd*
	10.2	Parabolas	*10.2: ex. 17-47 odd*
14	10.3	Ellipses	*10.3: ex. 9-35 odd, 45-53 odd, 59*
	10.4	Hyperbolas	*10.4: ex. 17-27 odd, 29-53 odd, 69, 71-75 odd*
15		Catch up and Review	
		FINAL EXAM	

Updated by Professor M. Potocki-Dul - 11/3/2021