

MATH 108: University Mathematics I-B Summer 2023 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: Linear functions, equations, inequalities, systems of linear equations, quadratic equations, polynomials, rational expressions, expressions involving radicals, partial fraction decomposition, conic sections. Effective From: Summer 2013

Number of Credits: 4

Prerequisites: None.

Course-Section and Instructors:

Course-Section	Instructor
Math 108-FTF	Professor J. Porus

Office Hours for All Math Instructors: Office Hours and Emails

Required:

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

University-wide Withdrawal Date: Please see the Summer 2023 Academic Calendar for the last day to withdraw based on the summer session you are registered for.

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	e determined as	follows:
-----------------	-----------	---------------	----------------	-----------------	----------

Midterm	30%
Quizzes	15%
Homework	15%
Final Cumulative Exam	40%

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

А	90 - 100	С	66 - 74
B+	85 - 89	D	60 - 65
В	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: Students will be expected to complete online homework for each section.

Exams: There will be three exams during the semester and a cumulative final exam:

Midterm Exam	July 26, 2023
Final Exam	August 14, 2023

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: Summer 2023 Hours)

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/accessibility/

Important Dates (See: Summer 2023 Academic Calendar, Registrar)

Date	Day	Event
July 4, 2023	Tuesday	Independence Day - University Closed/No Classes Scheduled
July 5, 2023	Wednesday	Second Summer Session Begins
July 6, 2023	Thursday	Last Day to Add/Drop for Second Summer Session
July 20, 2023	Thursday	Last Day to Withdraw for Second Summer Session
August 14, 2023	Tuesday	Final Exam / Last Day of Classes for FTF Second Summer Session

Course Outline

Day	Sections	Торіс	Assignment
1		Introduction to Math108	
	P1	Real Numbers & Their Properties (During Rec.)	P1: ex. 82, 84, 86, 116, 122, 126, 128, 130, 140
	P2	Integer Exponents	P2: ex. 18 20, 24, 28, 32, 36, 38, 42, 48, 50, 66, 72, 76, 80, 82
	1.1	Linear Equations in One Variable	1.1: ex. 9-13, 23-25, 53, 63, 76 ex 1.1: ex. 37-47, 77, 82-83
	P6	Rational Exponents and Radicals: Square Roots only	P6: ex 25, 31, 51, 61, 69, 71
3	P3	Polynomials	P3: ex. 15-23, 31, 39, 54, 72

	P4	Factoring	P4: ex. 23, 25, 28, 31, 52, 54, 55, 61, 65, 94-106 even
4	1.3	Quadratic Equations: Factoring, Quadratic Formula, Completing the Square	1.3: ex. 9-15, 21, 25, 47, 53-63 odd, 91, 95 1.3: ex. 19, 31, 39, 43, 67-77 odd, 93, 97
5	1.4	Complex Numbers	1.4: ex. 11-33 odd, 41
	P5	Rational Expressions	P5: ex. 24, 34, 36, 47, 53, 58, 69, 73, 83, 85 87, 91
6	8.1	Systems of Equations	8.1: ex. 59-75 odd 97, 99, 101
	1.5	Solving Other Types of Equations	1.5: ex. 17-20, 27-37 odd, 41-55 odd, 61, 67, 6 9,75, 77
7	1.6	Inequalities	1.6: ex.12, 20, 24, 32, 51, 57, 59, 65-77 odd, 9 5-105 odd
	1.7	Absolute Value Equations and Inequalities	1.7: ex. 11, 13, 23, 25, 33, 53-59 odd
8	2.1	The Coordinate Plane	2.1: ex. 15-23 odd, 35, 37
	2.2	Graphs	2.2: ex. 25, 35, 37-46, 53, 57, 67, 70, 81, 83, 89
9		Catch up & Review for Midterm Exam	
10		MIDTERM EXAM	
11	2.3	Lines	2 3 ex 9 13 27 36-46 even 79-87 odd 94
			2.3. ex.7, 13, 27, 30 40 even, 77 07 odd, 74
	2.4	Functions	2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70
	2.4 2.5	Functions Properties of Functions	2.3: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109
12	2.4 2.5 2.6	Functions Properties of Functions Library of Functions	2.3: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41
12	2.4 2.5 2.6 2.7	Functions Properties of Functions Library of Functions Transformations of Functions	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105
12	2.4 2.5 2.6 2.7 2.8	Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class
12	2.4 2.5 2.6 2.7 2.8 2.9	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions	 2.3. ex. 7, 13, 27, 36 46 even, 77 67 6dd, 74 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd
12 13 14	2.4 2.5 2.6 2.7 2.8 2.9 3.1	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions	 2.3. ex. 7, 13, 27, 36 46 even, 77 67 odd, 74 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55
12 13 14	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions	 2.3. ex. 7, 13, 27, 36 46 even, 77 67 odd, 74 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9.16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87
12 13 14 15	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2 3.3	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions Dividing Polynomial	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87 3.3: ex. 9-19, 17-29 odd, 35-41 odd
12 13 14 15	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2 3.3 3.6	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions Dividing Polynomial Rational Functions	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87 3.3: ex. 9-19, 17-29 odd, 35-41 odd 3.6: ex.9-26, 35-51 odd, 53-59, 67, 71
12 13 14 15 16	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2 3.3 3.6 10.2	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions Dividing Polynomial Rational Functions Parabolas	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87 3.3: ex. 9-19, 17-29 odd, 35-41 odd 3.6: ex.9-26, 35-51 odd, 53-59, 67, 71 10.2: ex. 45-57 odd
12 13 14 15 16	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2 3.3 3.6 10.2 10.4	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions Dividing Polynomial Rational Functions Parabolas Ellipses	 2.3. ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87 3.3: ex. 9-19, 17-29 odd, 35-41 odd 3.6: ex.9-26, 35-51 odd, 53-59, 67, 71 10.2: ex. 45-57 odd 10.3: ex. 23-41 odd
12 13 14 15 16	2.4 2.5 2.6 2.7 2.8 2.9 3.1 3.2 3.3 3.6 10.2 10.4 3.7	Functions Functions Properties of Functions Library of Functions Transformations of Functions Combining Functions; Composite Functions Inverse Functions Quadratic Functions Polynomial Functions Dividing Polynomial Rational Functions Parabolas Ellipses Variation	 2.3. ex. 7, 13, 27, 36 46 even, 77 67 odd, 74 2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70 2.5: ex. 9.16, 35-39 odd, 57-67 odd, 108, 109 2.6: ex. 9, 11, 17, 31, 35, 41 2.7: ex. 9-19 odd, 23-34, 41, 63, 69, 75-82, 101, 105 Given in class 2.9: ex. 15, 17, 25, 29, 33, 55, 57, 67-77 odd 3.1: ex. 9-16, 21, 29, 31, 51, 55 3.2: ex. 9-14, 29-34, 37, 87 3.3: ex. 9-19, 17-29 odd, 35-41 odd 3.6: ex.9-26, 35-51 odd, 53-59, 67, 71 10.2: ex. 45-57 odd Given in class

18	FINAL EXAM	

Updated by Professor J. Porus - 06/06/2023 Department of Mathematical Sciences Course Syllabus, Summer 2023