MATH 110: University Mathematics B II - Trigonometry
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. In the event of online assessments (exams, quizzes, etc) please refer to the online exam policy.

COURSE INFORMATION

Course Description: Intended for students whose major requires MATH 111. Trigonometric functions and identities, laws of sines and cosines, logarithmic equations, systems of nonlinear equations, polar coordinates.

Number of Credits: 4

Prerequisites: MATH 108 or placement by performance on standardized entrance examinations.

Course-Section and Instructors:

Course-Section	Instructor
Math 110-001	Professor M. Bengali
Math 110-003	Professor M. Bengali
Math 110-005	Professor H. McKenzie
Math 110-007	Professor E. Ikheloa
Math 110-009	Professor E. Ikheloa
Math 110-011	Professor P. Rodriguez
Math 110-013	Professor P. Rodriguez

Office Hours for All Math Instructors: Fall 2022 Office Hours and Emails

Required Textbook:

Title	*Precalculus - A Right Triangle Approach*
Author	Ratti and McWaters

Edition	4th
Publisher	Pearson
ISBN #	9780134851013
Notes	w/ MyMath Lab

REQUIRED TEXTBOOK #2 : *Precalculus*, by Abramson: https://openstax.org/details/books/precalculus

University-wide Withdrawal Date: The last day to withdraw with a **M** is **Monday, November 14, 2022**. It will be strictly enforced.

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 and Quizzes	25%
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 scale.

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 Policy: Homework is an expectation of the course. All homework for the fall session is listed, by section, below. Online homework will be in the MyMathLab section listed in conjunction with your text. All Hand in Homework is mandatory. Problems marked with an asterisk, *, will be graded for accuracy, while the other assignments will be graded for completeness, unless otherwise noted by your instructor. The extra problems listed may be assigned by your instructor, but it is highly recommended that you complete extra problems regardless of whether they are assigned or not.

Quizzes Policy: Quizzes will be given approximately once a week throughout the semester. They will be based on the lecture, homework and the in-class discussions.

Exams: There will be three common midterm exams during the semester and one comprehensive final exam during the final exam week. 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 Period	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	Sections	Topics	Hand-In Homework Problems	Additional Practice Problems
1	4.1	Exponential Functions	24, 26, 37, 56, 61, 65, 69, 80, 85, 95, 96	4.1: 25,31,45- 49,51
2	4.2	Logarithmic Functions	40, 50, 52, 58, 92, 104, 96, 112, 119	4.2: 33,37,45,49,55,61,75,85,91
3	4.3	Rules of Logarithms	17, 19, 38, 54, 82, 84, 97	4.3: 13,15,33,41,67,69,89
4	4.4	Exponential and Log Equations	24, 26, 38	4.4: 21,29,33,39
5	4.4	Exponential and Log Equations	47, 48, 68, 78	53-63 odd
6	5.1	Angles and their Measures	32, 65, 68, 72, 90, 91, 96 Application Problem 5.1*	5.1: 9,13,35,39,55,57,61, 69,73,77
7		Project 1: PULLEY SYSTEM PROJECT	Problems in Packet*	
8	5.2	Right Triangle Trigonometry	12, 16, 34, 42, 46, 52, 90, 92	5.2: 7,9,17,27,33,39,43,49, 55,59,89
9	CATCH UP AND REVIEW		Application Problem	

			5.2*	
	COMMON EXAM 1 - September 28, 2022			
10	5.3	Trigonometric Functions of any Angle	16, 24, 36, 41, 45, 47, 59	5.3: 19,23,65,75
11	5.3	Trigonometric Functions of any Angle	79, 91, 102	5.3: 44,47,57,88,89
12	5.4	Graphs of Sine and Cosine	20, 21, 38, 45, 49, 60	5.4:24,52,56,59
13	5.4	Graphs of Sine and Cosine	64, 83, 84 Application Problem 5.4*	70,79,87,91
14	5.5	Graphs of Other Trig. Functions	26, 46, 51, 53	5.5: 29,37, 54, 58
15	5.6	Inverse Trigonometric Functions	12, 20, 22, 40, 44, 46, 64 Application Problems 5.6*	5.6: 9,11,17,21,27,33,35,37,47,51, 65,69,81,85
16	6.1	Verifying Identities	12, 16, 22, 24, 32, 38, 48	6.1:13,23,25-35 odd
17	6.1	Verifying Identities	61, 83 Application Problems 6.1*	59,63,71,81,95,96, 97
18	CATCH UP AND REVIEW			
	COMMON EXAM 2 - October 19, 2022			
19	6.2	Sum and Difference Formulas	24, 30, 44, 70 Application Problems 6.2*	6.2: 9,11,15,22,25,29 ,41,51, 63,113
20		APPLICATION 2: ROLLING WHEEL PROBLEM	Problems in Packet*	
21	6.3	Double Angle/Half Angle Formulas	18, 27, 28, 41, 43, 49, 52, 56 Application Problem 6.3*	6.3: 7,13,23,33,35,37,45,47,55,57, 59,91
22	6.4	Product to Sum and Sum to Product Formulas	18, 20, 22, 30, 36, 42	6.4: 10, 12, 14, 16, 26, 28, 32, 34, 38, 40, 44, 46, 48, 50, 52
23	6.5	Trig Equations I	16, 42, 50	6.5: 7-15 odd,17,23,46,47
24	6.5, 6.6	Trig Equations I, II	6.5: 64, 76	6.5: 52,55,61,67,77,81

25	6.6	Trig Equations II	14, 20, 78, 84	6.6: 7-25 odd,85
26	7.1	Law of Sines	44, 73, 89 Application Problems 7.1*	7.1: 17, 21-29 odd,61
27	7.2	Law of Cosines	10, 16, 22, 63, 66 Application Problems 7.2*	7.2: 9,11,18,19,35 (HW may require calculator)
28	7.3	Areas of Polygons Using Trigonometry	10, 12, 40, 54 Application Problems 7.3*	7.3:27,35,56 (HW may require calculator)
29	CATCH UP AND REVIEW			
	COMMON EXAM 3 - November 16, 2022			
30	2.2	Circles	80, 84, 86, 88, 90	2.2: 75,77,79,81,85,92
31	10.3	The Ellipse	10, 18, 30, 36, 58	10.3: 13,19,27,31,41,45,49
32	7.6	Polar Coordinates	12, 32, 40, 41, 49, 51,53, 60	7.6: 13,19,25,29,31,37,43,46
33	7.6	Polar Coordinates	72, 74, 76, 78	7.6: 57,61,63,65,67,71,73
34	Open Stax Section 12.1	Finding Limits – Numerical and Graphical Approaches	Assignment 12.1*	
35	Open Stax Section 12.2	Finding Limits: Properties of Limits	Assignment 12.2*	
36	8.1	Systems of Linear Equations in Two Variables	62, 66, 76, 78 Application Problem 8.1*	8.1:39,45,51,55,57,69,71, 95, 99
37	8.2	Systems of Linear Equations in Three Variables	22, 26 Application Problem 8.2*	8.2: 9,11, 23, 29
38	CATCH UP AND REVIEW			
39	8.3	Partial Fraction Decomposition	20, 22, 32, 56	8.3: 17,19,21,25,39
40	8.3	Partial Fraction Decomposition	78, 84	8.3: 59,61,69
41	8.4	Systems of Non-Linear Equations	20, 34, 46, 50, 62, 68, 72 Application Problems 8.4*	8.4:15,21,31,41,45,65,69
42	CATCH UP AND REVIEW			

	FINAL EXAM WEEK - December 16 - December 22, 2022