MATH 110: University Mathematics B II - Trigonometry
Spring 2025 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. 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 110-002	Professor M. Cirillo
Math 110-004	Professor A. DeBarros
Math 110-006	Professor P. Rodriguez
Math 110-008	Professor P. Rodriguez
Math 110-010	Professor P. Correia
Math 110-012	Professor A. DeBarros

Office Hours for All Math Instructors: Spring 2025 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

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

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 7, 2025**. 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	88 - 100	**C**	66 - 71
B+	83 - 87	**D**	60 - 65
B	77 - 82	**F**	0 - 59
C+	72 - 76		

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."

Religious Observance: NJIT is committed to supporting students observing religious holidays. Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence.

Homework Policy: Homework is an expectation of the course. All assigned hand-written homework for the semester is required and listed, by section, below. All online homework is mandatory and will be in the My Math Lab section listed in conjunction with your text as well as multiple Algebra Readiness assignments throughout the semester. All Hand in Homework should be completed to assist in the learning, but only problems marked with an asterisk, *, will be graded for accuracy. 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.

Generative AI: This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted in this course for solving problems in class, on homework assignments, or any form of assessment.

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. There will be 8-12 assessments given throughout the semester.

Exams: There will be 3 common midterm exams during the semester and one comprehensive final exam during the final exam week. Exams are held on the following days:

Midterm Exam I	February 12, 2025
Midterm Exam II	March 12, 2025
Midterm Exam III	April 16, 2025
Final Exam Period	May 10 - May 16, 2025

The time of the midterm exams is **4:15-5:40 PM** for daytime students and **6:00-7:25 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: 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 2025 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 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 2025 Academic Calendar, Registrar)

Date	Day	Event
January 21, 2025	Tuesday	First Day of Classes
January 27, 2025	Monday	Last Day to Add/Drop Classes
March 16, 2025	Sunday	Spring Recess Begins
March 22, 2025	Saturday	Spring Recess Ends
April 3, 2025	Thursday	Wellness Day - No Classes
April 7, 2025	Monday	Last Day to Withdraw
April 18, 2025	Friday	Good Friday - No Classes
April 20, 2025	Sunday	Easter Sunday - No Classes Scheduled
May 6, 2025	Tuesday	Thursday Classes Meet
May 7, 2025	Wednesday	Friday Classes Meet
May 7, 2025	Wednesday	Last Day of Classes
May 8, 2025	Thursday	Reading Day 1
May 9, 2025	Friday	Reading Day 2
May 10 - May 16, 2025	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, 89*, 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 - February 12, 2025			
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	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
19		APPLICATION 2: ROLLING WHEEL PROBLEM*	Problems in Packet*	
20	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
21	CATCH UP AND REVIEW			
	COMMON EXAM 2 - March 12, 2025			
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*, 46*, 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	2.2	Circles	80, 84*, 86, 88*, 90*	2.2: 75,77,79,81,85,92
30	10.3	The Ellipse	10*, 18*, 30*, 36, 58*	10.3: 13,19,27,31,41,45,49
31	7.6	Polar Coordinates	12, 32*, 40*, 41, 49, 51,53*, 60	7.6: 13,19,25,29,31,37,43,46
32	7.6	Polar Coordinates	72*, 74, 76, 78	7.6: 57,61,63,65,67,71,73
33	CATCH UP AND REVIEW			

	COMMON EXAM 3 - April 16, 2025			
34	8.1	Systems of Linear Equations in Two Variables	45*, 62, 66*, 76, 78 Application Problem 8.1*	8.1:39,45,51,55,57,69,71, 95, 99
35	8.2	Systems of Linear Equations in Three Variables	22, 26* Application Problem 8.2*	8.2: 9,11, 23, 29
36	8.3	Partial Fraction Decomposition	20, 22*, 32, 56*	8.3: 17,19,21,25,39
37	8.3	Partial Fraction Decomposition	78, 84*	8.3: 59,61,69
38	CATCH UP AND REVIEW			
39	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
40	Open Stax Section 12.1	Finding Limits – Numerical and Graphical Approaches	Assignment 12.1*	
41	Open Stax Section 12.2	Finding Limits: Properties of Limits	Assignment 12.2*	
42	CATCH UP AND REVIEW			
	FINAL EXAM WEEK - May 10 - May 16, 2025			