MATH 110: University Mathematics B II - Trigonometry
Fall 2025 Course Syllabus

NJIT Academic Integrity Code: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

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 H. McKenzie
Math 110-003	Professor I. Peltekov
Math 110-005	Professor M. Cadet
Math 110-007	Professor M. Cadet
Math 110-009	Professor A. DeBarros
Math 110-011	Professor A. DeBarros
Math 110-013	Professor J. Porus
Math 110-017	Professor E. Hall

Office Hours for All Math Instructors: 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 (Free Access Online- Do NOT purchase) : *Precalculus*, by Abramson: https://openstax.org/details/books/precalculus

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 10, 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 textbook section, below. All online homework is mandatory and will be in the Pearson My Math Lab homework portal 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:

Common Exam I	October 1, 2025
Common Exam II	October 29, 2025
Common Exam III	December 3, 2025
Final Exam Period	December 14 - December 20, 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: Fall 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:Fall 2025 Academic Calendar, Registrar)

Course Outline

Date	Day	Event
September 1, 2025	Monday	Labor Day
September 2, 2025	Tuesday	First Day of Classes
September 8, 2025	Monday	Last Day to Add/Drop Classes
October 2, 2025	Thursday	Wellness Day
November 10, 2025	Monday	Last Day to Withdraw
November 25, 2025	Tuesday	Thursday Classes Meet
November 26, 2025	Wednesday	Friday Classes Meet
November 27 to November 30, 2025	Thursday and Sunday	Thanksgiving Recess - Closed
December 11, 2025	Thursday	Last Day of Classes
December 12, 2025	Friday	Reading Day
December 13, 2025	Saturday	Saturday Classes Meet

December 14 to December 20, 2025	Sunday to Saturday	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*, 126*	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 Application Problem 5.2*	5.2: 7,9,17,27,33,39,43,49, 55,59,89
9	5.3	Trigonometric Functions of any Angle	16*, 24*, 36, 41, 45, 47*, 59*	5.3: 19,23,65,75
10	5.3	Trigonometric Functions of any Angle	79*, 91*, 102	5.3: 44,47,57,88,89
11	5.4	Graphs of Sine and Cosine	20*, 21, 38*, 45, 49*, 60	5.4:24,52,56,59
12	CATCH UP AND REVIEW			
13	5.4	Graphs of Sine and Cosine	64, 83, 84 Application Problem 5.4*	70,79,87,91
	COMMON EXAM 1 - October 1, 2025			

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	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
22	6.5	Trig Equations I	16*, 42*, 50	6.5: 7-15 odd,17,23, 46,47
23	CATCH UP AND REVIEW			
24	6.5, 6.6	Trig Equations I, II	6.5: 64*, 76*	6.5: 52,55,61,67,77,81
	COMMON EXAM 2 - October 29, 2025			
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,	10.3: 13,19,27,31,41,45,49

			58*	
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	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
34	8.2	Systems of Linear Equations in Three Variables	22, 26* Application Problem 8.2*	8.2: 9,11, 23, 29
35	8.3	Partial Fraction Decomposition	20, 22*, 32, 56*	8.3: 17,19,21,25,39
36	8.3	Partial Fraction Decomposition	78, 84*	8.3: 59,61,69
37	CATCH UP AND REVIEW			
38	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
	COMMON EXAM 3 - December 3, 2025			
39	Open Stax Section 12.1	Finding Limits – Numerical and Graphical Approaches	Assignment 12.1*	
40	Open Stax Section 12.2	Finding Limits: Properties of Limits	Assignment 12.2*	
41	CATCH UP AND REVIEW			
42	CATCH UP AND REVIEW			
	FINAL EXAM WEEK - December 14 - December 20, 2025			