NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 110: University Mathematics B II - Trigonometry
Spring 2021 Coordinated 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.

DMS Online Exam Policy Spring 2021: Exams will be proctored using both Respondus LockDown Browser+Monitor and Webex. Students will be required to join a Webex meeting from their phone with their cameras on, and to access the exam through LockDown Browser on a Mac or Windows PC with webcam. Students must follow all instructions related to environment checks and camera positioning.

Please be sure you read and fully understand our DMS 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 coodinates.

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 H. Mckenzie
Math 110-004	Professor T. Autushka
Math 110-010	Professor K. Kniaziewicz
Math 110-016	Professor A. Flax
Math 110-102	Professor N. Mitrov

Office Hours for All Math Instructors: Spring 2021 Office Hours and Emails

Required Textbook:

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

Publisher	Pearson
ISBN #	9780134851013
Notes	w/ MyMathLab

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

University-wide Withdrawal Date:The last day to withdraw with a **W** is **Monday, April 5, 2021**. 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	30%
Common Midterm Exam I	15%
Common Midterm Exam II	15%
Common Midterm Exam III	15%
Final Exam	25%

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

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 My Math Lab sections listed will be in conjunction with your text.
- Hand – In Homework Problems: Only the exercises with an asterisk, *, will be graded for homework. All other problems that are listed are not required for submission, but it is strongly suggested that they be completed for practice and preparation for exams.

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 three common midterm exams held during the semester and one comprehensive common final exam. Exams are held on the following days:

Common Midterm Exam I	February 10, 2021

Common Midterm Exam II	March 10, 2021
Common Midterm Exam III	April 21, 2021
Final Exam Period	May 7 - 13, 2021

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

Mandatory Tutoring Policy: Based upon academic performance indicating a significant gap in understanding of the course material, students may receive a notice of being assigned to mandatory tutoring to assist in filling the gap. A student will have 2 points deducted from the course average for each instance in which the required tutoring is not completed by the stated deadline.

Cellular Phones: All cellular phones and other electronic devices must be switched off and put away during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 2021 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 Chantonette Lyles, Associate Director of the Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services 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 (OARS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Spring 2021 Academic Calendar, Registrar)

Date	Day	Event
January 19, 2021	T	First Day of Classes
January 23, 2021	S	Saturday Classes Begin
January 25, 2021	M	Last Day to Add/Drop Classes
March 14 - March 21, 2021	Su - Su	Spring Recess - No Classes
April, 2, 2021	F	Good Friday - No Classes
April 5, 2021	M	Last Day to Witdraw
May 4, 2021	T	Friday Classes Meet
May 4, 2021	T	Last Day of Classes
May 5 & May 6, 2021	W & R	Reading Days
May 7 - May 13, 2021	F - R	Final Exam Period

Course Outline

Lecture	Sections	Topics	Hand-In Homework Problems	Additional Practice Problems
1	P.1,P.2, P.3, P.4, P5, P.6, 1.1, 1.2, 1.3, 1.5	Introduction to the course Algebra Review		Textbook Problems
2	P.1,P.2, P.3, P.4, P5, P.6, 1.1, 1.2, 1.3, 1.5	Algebra Review Continued		
3	4.1	Exponential Functions	24*, 26, 37*, 56, 61, 65*, 69, 80, 85, 95, 96	4.1: 25,31,45- 49,51
4	4.2	Logarithmic Functions	40*, 50, 52*, 58, 92, 104*, 96, 112, 119	4.2: 33,37,45,49,55,61,75,85,91
5	4.3	Rules of Logarithms	17, 19, 38, 54, 82*, 84*, 97	4.3: 13,15,33,41,67,69,89
6	4.4	Exponential and Log Equations	24*, 26, 38, 47*, 48, 68, 78*	4.4: 21,29,33,39, 53-63 odd
7	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
8		APPLICATION 1: PULLEY SYSTEM PROJECT	Problems in Packet*	
9	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
10	CATCH UP AND REVIEW		Application Problem 5.2*	
	COMMON EXAM 1 - FEBRUARY 10, 2021			
11	5.3	Trigonometric Functions of any Angle	16*, 24*, 36*, 41, 45, 47, 59*	5.3: 19,23,65,75
12	5.3	Trigonometric Functions of any Angle	79*, 91, 102*	5.3: 44,47,57,88,89
13	5.4	Graphs of Sine and Cosine	20, 21, 38*, 45, 49*, 60*, 64, 83, 84 Application Problem 5.4*	5.4:24,52,56,59,70,79,87,91
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*, 61, 83 Application Problems 6.1*	6.1:13,23,25-35 odd, 59,63,71,81,95,96, 97
17	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
18		APPLICATION 2:	Problems in Packet*	

		ROLLING WHEEL PROBLEM		
19	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
20	CATCH UP AND REVIEW			
	COMMON EXAM II - MARCH 10, 2021			
21	6.5	Trig Equations I	16*, 42, 50*, 64, 76*	6.5: 7-15 odd,17,23, 46,47,52,55,61,67,77,81
22	6.6	Trig Equations II	14*, 20, 78*, 84	6.6: 7-25 odd,85
23	7.1	Law of Sines	44, 73*, 89 Application Problems 7.1*	7.1: 17, 21-29 odd,61
24	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)
25	7.3	Areas of Polygons Using Trigonometry	10, 12*, 40*, 54* Application Problems 7.3*	7.3:27,35,56 (HW may require calculator)
26	2.2	Circles	80, 84, 86*, 88, 90*	2.2: 75,77,79,81,85,92
27	10.3	The Ellipse	10, 18*, 30, 36*, 58*	10.3: 13,19,27,31,41,45,49
28	7.6	Polar Coordinates	12, 32, 40, 41, 49*, 51, 53*, 60*	7.6: 13,19,25,29,31,37,43,46
29	7.6	Polar Coordinates	72, 74*, 76, 78*	7.6: 57,61,63,65,67,71,73
30	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
31	8.2	Systems of Linear Equations in Three Variables	22, 26* Application Problem 8.2*	8.2: 9,11, 23, 29
32	CATCH UP AND REVIEW			
	COMMON EXAM III - APRIL 21, 2021			
33	8.3	Partial Fraction Decomposition	20, 22, 32*, 56 Application Problems 8.3*	8.3: 17,19,21,25,39
34	8.3	Partial Fraction Decomposition	78, 84*	8.3: 59,61,69
35	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
36	Open Stax Section 12.1	Finding Limits – Numerical and Graphical Approaches	Assignment 12.1*	
37	Open Stax Section 12.2	Finding Limits: Properties of Limits	Assignment 12.2*	
38	CATCH UP AND REVIEW			
39	**FINAL EXAM WEEK: MAY 7 - 13, 2021**			