



THE COLLEGE OF SCIENCE  
AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

## MATH 110-FTF: University Mathematics B II

### *Summer 2019 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. Prerequisite: Math 108 or placement by performance on standardized entrance examinations. 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-FTF	Professor J. Porus

**Office Hours for All Math Instructors:** [Summer 2018 Office Hours and Emails](#)

**Required Textbook:**

<b>Title</b>	<i>Precalculus: A Right Triangle Approach</i>
<b>Author</b>	Ratti and McWaters
<b>Edition</b>	3rd
<b>Publisher</b>	Pearson
<b>ISBN #</b>	978-0321912794

**Withdrawal Date:** Please see the [Summer 2019 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 determined as follows:

Common Midterm Exam I	24%
Common Midterm Exam II	24%
Quizzes	10%
Homework	10%
Final Exam	32%

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:** Homework is an expectation of the course. All homework for the summer session is listed, by section, below. On line homework will be in My Math Lab sections listed will be in conjunction with your text.

**Quiz 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 two common exams and a final. Dates for these exams are below:

Common Midterm Exam I	July 17, 2019
Common Midterm Exam II	July 31, 2019
Final Exam	August 14, 2019

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](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, Room G11.

**Accommodation of Disabilities:** Disability Support Services (DSS) 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 Disability Support Services at [973-596-5417](tel:973-596-5417) or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Fenster Hall Room 260. For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Disability Support Services (DSS) website at:

- <http://www5.njit.edu/studentsuccess/disability-support-services/>

**Important Dates** (See: [Summer 2019 Academic Calendar](#), Registrar)

Date	Event
July 1, 2019	First Day of FTF Classes
July 4-5, 2019	University Closed for Independence Day
July 17, 2019	First Common Exam
July 31, 2019	Second Common Exam
August 14, 2019	Last Day of FTF Classes

## Course Outline

Date	Sections	Topic	Assignment in MyMathLab	Assignment to Hand In
7/1		Introduction to the course Algebra Review	Initial Algebra Assessment in class	Recommended: 1.1 #30, 43, 52, 55. 1.2 #51, 52. 1.4 #15, 31, 42, 57, 59
	8.1	Systems of Linear Equations in Two Variables	8.1: ex.57-71 odd 95, 99, 103	In terms of a,b, and c, solve the following system of equations. Express x and y as single fractions: $x + by = 2$ $ax - cy = 0$
	8.2	Systems of Linear Equations in Three Variables	8.2: ex. 11, 13, 23, 25, 29	In terms of a, solve the following system of equations: $x+y = 3a$ $y+z = 3a+2$ $2x-y+z = a+2$
7/3	8.3	Partial Fraction	8.3: ex. 17-47 odd	
	8.3	Partial Fraction	8.3: ex. 61, 63, 69	
	8.4	Systems of Non-Linear Equations	8.4: ex.15-27 odd, 57	Graph $y=x^2 - 2$ and $y= x + 4$ . Find their intersection point(s) and clearly show it on the graph.
7/5	4.1	Exponential Functions	4.1: ex. 19, 20, 37, 41, 43, 45, 46, 47, 48, 100, 119	4.1: 49, 50, 51, 52, 55
	4.2	Logarithmic Functions	4.2: ex. 31-49 odd, 53,	4.2: 71, 77, 89

			57, 59, 61, 79, 85 125, 127	
7/8	4.3	Rules of Logarithms	4.3 ex. 9-15 odd, 27, 33, 43, 47, 67, 71, 91, 93	
	4.4	Exponential and Log Equations	4.4 ex. 9, 21, 33, 39, 53-63 odd	
	4.3, 4.5	Logarithmic Scales (Earthquakes) and Exponential Applications	4.5: ex. 9, 19, 21, 23	4.3: ex. 85, 86, 87, 88 (calculator will be necessary)
7/10	5.1	Angles and their measures	5.1: ex. 31-45 odd, 55, 57, 59, 63, 65, 67, 73	
		Pulley System Project	None	Lecture/HW packet given in class.
	5.2	Right Triangle Trigonometry	5.2: ex. 7, 9, 11, 17, 25, 27, 59, 61	
7/12	5.3	Trigonometric Functions of any angle	5.3: ex. 19-41 odd, 65, 67, 73, 75, 77, 79	
	5.3	Trigonometric Functions of any angle	5.3: ex. 45, 47, 48, 49, 51, 53, 55, 57, 59, 61, 63	
7/15	6.1	Trigonometric Identities	6.1: ex: 9, 11, 15, 19, 25, 27, 30, 31, 33, 37, 77, 79	Suppose that $\sin\theta = b/4$ (where $b$ is a nonzero constant). Find the following in terms of $b$ : a) $\csc\theta$ b) $\cos 2\theta - 1$ c) $\sin(\theta+4\pi)$ d) $\tan^2(\theta)$
7/17		REVIEW FOR EXAM		
7/19	5.4	Graphs of Sin and Cos	None	5.4: ex. 11, 21, 30, 31, 40, 41, 43, 49
	5.4	Graphs of Sin and Cos	None	5.4 ex. 65ac, 69, 70, 75, 78, 79, 87, 89, 91
7/22	5.5	Graphs of other Trigonometric Functions (tan/cot)	None	5.5: ex. 9, 11, 13, 27, 29, 31
	5.5	Graphs of other	5.5: ex. 35-	

		Trigonometric Functions (sec/csc)	43 odd	
	5.6	Inverse Trigonometric Functions	5.6: ex. 9-21 odd 31, 41, 63, 67, 75, 77, 81	
7/24	6.2	Sum and Difference Formulas	6.2: ex: 7, 13, 21, 27, 28, 29, 51, 53	
		APPLICATION 2: Rolling Wheel Problem	None	Lecture/HW packet given in class. Homework problems #1, 3, 5, 7
7/26	6.3	Double Angle/Half Angle Formulas	6.3: ex: 7, 9, 13, 15, 43	6.3: ex: 24, 91
	6.5	Trig Equations I	6.5: 7, 9, 11, 12, 13, 15, 39, 47, 49, 51, 55, 61, 63, 67, 69	
7/29	6.6	Trig Equations II	6.6: ex: 7, 9, 11, 13, 15, 17, 18, 25, 59, 61	
7/31		REVIEW FOR EXAM 2		
8/2	7.1	Law of Sines	(HW requires calculator) 7.1: ex: 17, 21, 23, 25, 27, 29, 37, 41, 43, 45, 53, 63, 64	
	7.1	Law of Sines	Same as above	
8/5	7.2	Law of Cosines	(HW requires calculator) 7.2: ex: 15 - 27 odd, 41, 46	
	7.3	Areas of Polygons Using Trigonometry	(HW requires calculator) 7.3: ex: 11, 13, 19, 27, 29	7.3: ex # 57 Also: In terms of $k$ , find the area of a triangle with side lengths of 6, $k-2$ , and $k+2$ . Then find the range of values of $k$ for which such a triangle can exist.
8/7	2.2	Circles	2.2: ex: 71-85 odd	8.4: 65 and 67 (include a graph of both the circle and the line, clearly showing the intersection point(s))

	10.3	The Ellipse	None	10.3: Graph, clearly showing vertices only, exs: 13, 15, 17, 19, 41, 43, 45, 49, 51
8/9	7.6	Polar Coordinates	7.6: ex: 9, 11, 13, 19, 29, 35, 39, 45, 49, 53	
	7.6	Polar Coordinates	None	7.6: 63-69 all, 72, 76
8/12	9.1	Matrices & Systems of equations	9.1: ex: 19, 21, 25, 29, 31, 49, 58, 61, 63, 65, 67	
	9.2	Matrix Algebra	9.2: ex: 15, 17, 23, 31, 33, 37	
		Catch Up and Review		
		FINAL EXAM		

*Updated by Professor J. Porus- 6/18/2019  
Department of Mathematical Sciences Course Syllabus, Summer 2019*

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