

## MATH 108: University Mathematics I B

### *Spring 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**. Linear functions, equations, inequalities, systems of linear equations, quadratic equations, polynomials, rational expressions, expressions involving radicals, partial fraction decomposition, conic sections, graphing functions.

**Number of Credits:** 4

**Prerequisites:** None.

**Course-Section and Instructors**

Course-Section	Instructor
Math 108-002	Professor K. Horwitz
Math 108-004	Professor J. Ratnaswamy

**Office Hours for All Math Instructors:** [Spring 2019 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>	4th
<b>Publisher</b>	Pearson
<b>ISBN #</b>	MyMathLab + Bound: 9780134851013
<b>Notes</b>	w/ MyMathLab

**University-wide Withdrawal Date:** The last day to withdraw with a **W** is **Monday, April 8, 2019**. It will be strictly enforced.

### COURSE GOALS

**Course Objectives:** Students should (a) learn algebra and its applications to science and engineering (b) learn about slope and its relationship to average rates of change, (c) understand how to recognize functions, operations on functions and graph of functions, (d) understand many practical applications of systems of equations.

### Course Outcomes

- Students have improved logical thinking and problem-solving skills.
- Students have a greater understanding of the importance of algebra in science and technology.
- Students are prepared for further study in mathematics as well as science, engineering, and other areas.

**Course Assessment:** The assessment of objectives is achieved through homework, quizzes, and common examinations with common grading.

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## 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	10%
Quizzes	15%
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 curve.

A	90 - 100	C	70 - 74
B+	85 - 89	D	55 - 69
B	80 - 84	F	0 - 54
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 written homework for the session is listed, by section, above. On line, homework will also be assigned through the portal, My Math Lab. All students are expected to obtain a subscription to My Math Lab for successful completion of the class.

### How to Get Started with MyMathLab

- [http://m.njit.edu/Undergraduate/UG-Files/MML\\_Getting\\_Started.pdf](http://m.njit.edu/Undergraduate/UG-Files/MML_Getting_Started.pdf)
- [http://m.njit.edu/Undergraduate/UG-Files/Technology\\_Tips.pdf](http://m.njit.edu/Undergraduate/UG-Files/Technology_Tips.pdf)

**Quiz Policy:** Quizzes will be given at the professor's discretion approximately once a week during recitation 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. Each exam will test the material taught since the beginning of the semester. Please note the third exam will be a computer-based exam.

Exams are held on the following days:

Common Midterm Exam I	February 13, 2019
Common Midterm Exam II	March 13, 2019
Common Midterm Exam III	April 24, 2019
Final Exam Period	May 10 - 16, 2019

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](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.

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## ADDITIONAL RESOURCES

**Math Tutoring Center:** Located in the Central King Building, Lower Level, Rm. G11 (See: **Spring 2019 Hours**)

**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** or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support 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 Disability Support Services (DSS) website at:

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

**Important Dates** (See: **Spring 2019 Academic Calendar, Registrar**)

Date	Day	Event
January 22, 2019	T	First Day of Classes
February 1, 2019	F	Last Day to Add/Drop Classes
March 17 - 24, 2019	Su - Su	Spring Recess - No Classes, NJIT Open
April 8, 2019	M	Last Day to Withdraw

April 19, 2019	F	Good Friday - No Classes, NJIT Closed
May 7, 2019	T	Friday Classes Meet/ Last Day of Classes
May 8 & 9, 2019	W & R	Reading Days
May 10 - 16, 2019	F - R	Final Exam Period

## Course Outline

Lecture	Section #	Topic	Assignment
1	P1	Real Numbers and their Properties	P1: ex. 82, 84, 86, 116, 122, 126, 128, 130, 140
2	P2	Integer Exponents, and Scientific Notation	P2: ex. 18 20, 24, 28, 34, 38, 41, 48, 50, 58, 72, 76, 101-110
3	1.1	Linear equations in one variable	1.1: ex. 9-13, 23-35 odd, 53, 63, 76
4	1.1	Linear equations in one variable	1.1 37-47, 77, 82-83
5	8.1	Systems of Equations	8.1: ex.57-71 odd 95, 99
6	1.2	Applications of Linear Equations	1.2: ex. 9-12, 20-30 evens, 47-59 odd
6	P6	Rational Exponents and Radicals	P6: ex 25, 31, 51, 57, 94, 96, 105
7	P6	Rational Exponents and Radicals	P6: ex 61, 69, 71, 95, 97
8	P3	Polynomials	P3: 15-23, 31, 39, 54, 72
9	P4	Factoring Polynomials	P4: ex. 23, 25, 28, 31, 52, 54, 55, 61, 65,
10	P4	Factoring	P4: ex. 94-106 evens
11		<b>CATCH UP AND REVIEW</b>	
		<b>EXAM #1</b>	
12	1.3	Quadratic Equations (Factoring/Quadratic Formula)	1.3: ex. 9-15, 21, 25, 47, 53-63 odd 91, 95
13	1.3	Quadratic Equations (Completing the square)	1.3: ex. 19, 31, 39, 43, 67-77 odd 93, 97
14	1.4	Complex Numbers	1.4: ex 11-33 odd, 41-51 odd
15	P5	Rational Expressions	P5: ex. 24, 34, 36, 47, 53, 58, 69, 73, 83,
16	1.5	Solving other types of equations	1.5: ex. 17, 19, 27, 31, 37, 41-55 odd
17	1.5	Solving other types of equations	1.5: ex. 18, 20, 28-34 odds 61, 67, 69, 75, 77,
18	1.6	Inequalities	1.6: ex. 12, 20, 24, 32, 51, 57, 59, 65, 67-77 odd, 95-105 odd
19	1.7	Absolute Value Equations and Inequalities	1.7: ex: 11, 13, 23, 25, 33
20	1.7	Absolute Value Equations and Inequalities	1.7: ex. 53-59 odd and 77
21	2.1	The Coordinate Plane	2.1: ex. 15-23 odd, 35, 37
	2.2	Graphs	2.2: ex. 25, 35, 37-46, 53, 57, 67, 70, 81, 83, 89
22		<b>CATCH UP AND REVIEW</b>	

		<b>EXAM #2</b>	
23	2.3	Lines	2.3: ex. 9, 13, 27, 36-46 evens, 79-87 odds 94
24	2.4	Functions	2.4: ex. 9, 12, 15, 20, 32, 43, 51-54, 70
25	2.5	Properties of Functions	2.5: ex. 9-16, 35-39 odd, 57-67 odd, 108, 109
26	2.6	Library of Functions	2.6: 9, 11, 17, 31, 35, 41
27	2.7	Transformations of Functions	2.7: ex. 9-19 odd, 23-34, 41, 63, 69
28	2.7	Transformations of Functions	2.7: ex. 75-82, 101, 105
29	2.8	Combining Functions; Composite Functions	2.8: ex. 9-12, 17, 23, 32, 39, 47, 49, 62
30	2.8	Combining Functions; Composite Functions	2.8: ex. 67, 69, 73, 76, 77
31	2.9	Inverse Functions	2.9: ex. 15, 17, 25, 29, 33, 55, 57
32	2.9	Inverse Functions	2.9: ex. 67-77 odd
33	3.1	Quadratic Functions	3.1:ex. 9-16, 21, 29, 31, 51, 55
34		<b>CATCH UP AND REVIEW</b>	
		<b>EXAM #3</b>	
35	3.2	Polynomial Functions	3.2: ex. 9-14, 29-34, 37, 87
36	3.3	Dividing Polynomials (Long Division)	3.3: ex. 9-19
37	3.3	Dividing Polynomial (synthetic division)	3.3: ex. 17-29 odd, 35-41 odd
38	3.6	Rational Functions	3.6: ex. 9-26, 35-51 odd 53-58
39	3.6	Rational Functions	3.6: ex. 59, 67, 71
40	3.7	Variation	3.7: ex. 9-13, 29-41 odd
41	10.2	Parabolas	10.2: ex. 17, 21, 23, 27, 29, 31, 41-47 odd
42	10.4	Hyperbolas	10.4: ex. 17-27 odd, 43-53 odd, 69, 71, 73
43		<b>CATCH UP AND REVIEW</b>	
		<b>EXAM</b>	

*Updated by Professor K. Horwitz - 1/15/2019  
Department of Mathematical Sciences Course Syllabus, Spring 2019*

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