

**Southern Illinois University**  
**Math 107: Intermediate Algebra**  
**Sections 7 and 17**  
**Fall 2007**

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**Instructor:** Austin Mohr  
**Text:** Intermediate Algebra  
8th Custom Edition  
Lial, Hornsby, McGinnis  
**Time:** 2:00pm - 2:50pm MWF  
**Office:** Neckers 262  
**Office Hours:** 3:00pm - 4:00pm MW  
1:00pm - 2:00pm F  
(or any day by appointment)  
**Email:** austinmohr@gmail.com  
**Website:** <http://www.austinmohr.com/math107>

## 1 Course Description

Properties and operations of the number system. Elementary operations with polynomials and factoring. Elementary operations with algebraic fractions. Exponents, roots, and radicals. First and second degree equations and inequalities. Functions and graphing. Systems of equations and inequalities. Exponential and logarithmic functions. This course does not satisfy the University Core Curriculum mathematics requirement and it does not count toward the 120 hours needed for graduation. Prerequisite: one year of high school algebra.

## 2 Course Objectives

Upon completion of the course, students should be able to:

- simplify algebraic expressions
- perform algebraic operations on rational and radical expressions
- factor quadratic polynomials and simple higher degree polynomials
- solve linear equations and inequalities
- apply elementary algebra principles to solve real-life problems
- graph straight lines; determine the intercepts and the slope of a given straight line
- determine the equation of a straight line from verbal or geometric information about the line
- solve quadratic equations
- graph quadratic functions
- use function language and notation; interpret a function as it relates to a graph (e.g. understand that the  $x$ -intercepts of the graph  $y = f(x)$  are the solutions of the equation  $f(x) = 0$ )

### 3 Grading Scale

100-90	A
89-80	B
79-70	C
69-60	D
59-	F

### 4 Assignments

Homework	150 points total
3 Exams	100 points each
Final	200 points
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Total	650 points

### 5 Homework

There will be a total of 37 homework assignments over the course of the semester. The assignments are numbered and located in the back of the text on perforated sheets. You may turn the assignment in on the printed page from the book or on a separate sheet of paper. **You must show all your work to receive credit for a problem.** Each assignment is worth 5 points and only the best 30 homeworks will count toward your final grade. Late assignments will not be accepted.

### 6 Extra Credit

There will be a total of 25 extra credit points available by completing the following assignments. Each assignment is worth 5 points and is due by the beginning of class on the specified date. Excluding the MathXL Demo, any extra credit assignment may be submitted via MathXL or turned in on paper. The MathXL Demo must be submitted through MathXL. Note that due dates for the practice exams coincide with the date of the in-class exam.

<b>Assignment</b>	<b>Due Date</b>
MathXL Demo	9-14
Exam 1 Practice	9-14
Midterm Exam Practice	10-10
Exam 3 Practice	11-9
Final Exam Practice	12-11

### 7 Course Website

The course website is located at <http://www.austinmohr.com/math107>. The site will serve to host homework assignments (which will also be given during class), handouts (including the extra credit assignments), announcements, and some helpful links.

## 8 MathXL

MathXL is an online tutorial system provided by the publishers of the class text. In addition to providing step-by-step instructions for hundreds of examples directly from the text (including many homework problems), MathXL can also be used to submit the extra credit practice exams. Your text should have come packaged with an insert containing a student access code used to activate your account at <http://www.mathxl.com>. Visit [http://www.pearsoncustom.com/il/siuc\\_math](http://www.pearsoncustom.com/il/siuc_math) for installation and usage assistance.

## 9 Calculators

As per University regulations, calculators are not permitted on any exam. The use of calculators for checking homework solutions is encouraged, however.

## 10 Course Outline

Date	Textbook Sections	Practice Problems
8-20	1.1: Basic Concepts	17,33,35,47,61,65,71
	1.2: Operations on Real Numbers	5,7,9,15,27,37,41,51,57,65,67,69
	1.3: Exponents, Roots, Order of Ops	7,11,27,29,33,45,49,53,55,61,79,87
	1.4: Properties of Real Numbers	1,3,23,31,37,39
8-22	Pre-Test	
8-24	2.1: Linear Equations in One Variable	4,7,17,21,31,39,51,52,57,71
	2.2: Formulas	11,15,17,19,21,23,25,27,29,31,35,39
		Additional Reading: p. 43-44
8-27	2.3: Applications of Linear Equations	1,3,7,9,19,25,26,27,35,43,47,51,53
8-29	2.4: More Applications	3,6,7,13,21,22,27,35,37
8-31	3.1: Linear Inequalities in One Variable	1-6,7,11,13,19,25,29,39,45,53,57
	3.2: Set Ops and Compound Inequalities	5,11,13,16,23,27,37,41,45,49,55
9-3	Labor Day (no class)	
9-5	4.1: The Rectangular Coordinate System	5-9,11,13,25,29,31,35,39,52
	4.2: Slope	1,3-6,11,12,15,23-26,31,36,41,45,59,63
		Chapter 2 Review (p. 105): 4,15,25,29,33,41,46
9-7	4.3: Linear Equations in Two Variables	1,4,5,6,17,21,25,29,35,41,45,53,63,65
9-10	4.5: Introduction to Functions	3,5,7,15,19,20,23,24,31,32,33,37,39,42
		Additional Reading: p. 239-240
		Cumulative Review (p. 249): 4,7,10,12,18,19,20,21,22,25,31,34,37,38
9-12	4.5: Introduction to Functions	45,51,53,57,61,63,65,71
9-14	<b>Exam 1 (Chapters 1-4)</b>	
9-17	6.1: Integer Exponents	11,18,25,27,33,35,41,49,53,59,67,77,79,89,99,103,109,115
9-19	6.2: Adding and Subtracting Polynomials	5,9,21,25,29,35,47,51,54
	6.3: Polynomial Functions	8,15,19,21,23,28,29,31,33,34
9-21	6.4: Multiplying Polynomials	7,9,11,25,33,34,43,45,47,53,55,57,59,61,65,69,81,83,84,85,87,90,91
9-24	6.5: Dividing Polynomials	5,7,13,17,23,29,33,35,37,39,41,43,47,48
		Additional Reading: p. 359-361

<b>Date</b>	<b>Textbook Sections</b>	<b>Practice Problems</b>
9-26	7.1: GCF; Factoring by Grouping	3,5,8,19,25,29,31,33,37,39,43,49,53,57
9-28	7.2: Factoring Trinomials	1,3,7,9,15,18,25,26,31,33,37,39,41,45,47
10-1	7.3: Special Factoring	1,2,3,6,9,13,15,23,31,37,39,41 Additional Reading: p. 405
10-3	7.4: Solving Equations by Factoring	2,5,11,13,17,21,27,31,33,37,39,40,45,49
10-5	Summary of Factoring	p. 393-394: 1,3,7,8,10,11,15,17,19,23,29,37,40,51,53 Additional Reading: Quick Review (p. 405-406)
10-8	8.1: Intro to Rational Expressions	7,8,11,15,17,21,22,23,29,31,35,40,45 Midterm Review (p. 411-412): 6,7,9,10,11, 12,18-24,27-40
<b>10-10</b>	<b>Midterm Exam (Chapters 1-7)</b>	
10-12	8.1: Mult./Div. of Rational Expressions	49,51,53,57,61,67,69,73,79
10-15	8.2: Finding LCD	5,9,13,15,19,25,29,31,32,33,35,41
10-17	8.2: Adding Rational Expressions	37,45,52,55,59,60,64
10-19	8.3: Complex Fractions	2,6,9,13,15,19,20,27
10-22	8.4: Equations with Rational Expressions	1,3,13,15,23,31,33,35,39,41,42,44
10-24	8.5: Applications of Rational Expressions	1,3,5,7,11,15,19,25,39,41,43,49,51 Additional Reading: p. 465-468
10-26	9.1: Radicals and Graphs	1-6,9-11,17,25,31,33,37,38,39,41,45,49 Chapter 8 Review (p. 469): 2,5,6,9,11,16,19, 22,23,26,28,29,32,34,35
10-29	9.2: Rational Exponents	2-6,25,27,29,35,41,45,53,55,63,69,73,81,85,91,99
10-31	9.3: Simplifying Radical Expressions	5,11,17,25,29,33,37,39,40,43,47,51,53,59,61,65, 75,79,83,91
11-2	9.4: Adding/Subt. Radical Expressions	2,4,5,7,9,13,21,27,37,39,42,51,54
11-5	9.5: Mult./Div. Radical Expressions	1-6,9,11,13,21,23,25,29,37,39,43,45,47,53,61,65, 71,77,78
11-7	9.6: Equations with Radicals	1,3,13,19,27,29,35,39,63,65,67 Additional Reading: p. 546-548 Exam 3 Review (p. 556): 20-40
<b>11-9</b>	<b>Exam 3 (Chapters 8-9)</b>	
11-12	10.1: Square Root Property; Completing the Square	1,4,5,9,13,15,19,23,25,26,29,31,33,37,39,41
11-14	10.2: The Quadratic Formula	1,2,3,7,13,15,17
11-16	10.3: Graphs of Quadratic Functions	1-6,9,11,17,19,21,25,27,29,37,39,41 Cumulative Review (p. 647-650): 9,11,13,16,22, 23,25,27,29,31,32,34,35-40
11-19	Thanksgiving Break (no class)	
11-21	Thanksgiving Break (no class)	
11-23	Thanksgiving Break (no class)	
11-26	Summary of Quadratic Equations	p. 589-590: 8,9,10,11,15,16,17,18
11-28	10.4: More Quadratic Applications	1,2,3,9,11,13,17,19,21,23,25,27,29
11-30	10.5: Graphs of Quadratic Functions	1,2,3,5,9,11,17,19,21,23,25,29 Additional Reading: p. 633-635
12-3	Review for Final Exam	
12-5	Review for Final Exam	
12-7	Review for Final Exam	
<b>12-11</b>	<b>Final Exam @ 10:10-12:10</b>	