College Algebra

Meeting Information

Meeting Times	MWF 12:00 - 12:50
Location	Hirt 209
Website	math.mercyhurst.edu/~lwilliams/math111
Prerequisite(s)	ALEKS score of 46 (freshmen only)
Instructor	Lauren Williams, PhD
Email	lwilliams@mercyhurst.edu
Office Phone	(814) 824-2226
Office	Old Main 404
Office Hours	Mon 4:30 - 5:15
	Tues 10:00 - 10:45
	Wed 10:00 - 11:00
	Thurs 2:00 - 4:00
	Fri 10:00 - 11:45

Course Description

This is a course in algebra, similar to high school courses in algebra except that the pace will be faster. We will begin with some review of real-number concepts, and proceed into linear equations in one variable, mathematical modeling, polynomials, rational expressions, functions, lines, exponents, and radicals, equations, inequalities, and polynomial and rational functions.

Course Objectives

By the end of this course, you will have acquired many mathematical tools which include the ability to:

- identify, distinguish, perform algebraic operations and find solutions to equations using the integer, rational, real and complex number systems.
- use common algebraic methods to solve linear, quadratic, polynomial, radical, and absolute value equations and inequalities.
- translate the written problem and create algebraic models to solve real-life problems.
- use and create algebraic functions.
- demonstrate your understanding of introductory language of mathematics through the use of proper mathematics notation.

Required Materials

Intermediate Algebra for College Students, 7 Edition, by Robert Blitzer. Be sure to check the edition when purchasing your textbook; other editions have similar material, but the assigned problems may be different. No other materials are required for this class.

Important Dates

January	18	First Class Meeting
	23	Last Day to Add/Drop
February	8	Exam I
March	1	Exam II
	6-11	Mid-Semester Break - No Class
April	5	Exam III
	7	MAA Meeting - No Class
	11	Advising Day - No Class
	14-17	Easter Break - No Class
	21	Last Day to Withdraw
May	3	Exam IV
	5	Last Class Meeting
	8	Reading Day - No Class
	11	Final Exam 10:30 - 12:30

Grading

60%	**Average of In Class Exam Grades**
15%	**Average of Quiz Grades**
25%	**Final Exam**

F	D	D+	C	C+	B	B+	A
0-59	60-64	65-69	70-77	78-83	84-89	90-93	94-100

Grading Policies

Your lowest quiz grade will be dropped when calculating your quiz average.

Your lowest exam grade (including a missed exam) will be replaced by your final exam grade, if your final exam grade is better. A second missed exam will receive a grade of 0, so please check your schedules carefully and ensure that you can attend all exams.

Your grades will be posted on Blackboard, so you can see your progress at any time. Please notify me immediately if you are not able to access the course Blackboard site.

Calculators

You are not required to purchase a calculator for this course, and you will not be permitted to use a calculator or other electronic device on any quizzes or exams. You are strongly encouraged to avoid using a calculator while working on homework, with the exception of problems that specifically state a calculator is required. If you'd like to use a calculator to check your work, there are many free (and often better) alternatives to graphing calculators, such as Wolfram Alpha.

Tutoring

The Department of Mathematics offers free tutoring for all students enrolled in this course. No appointments are needed, just drop by Zurn 213.

Monday	**6-8 pm**	Jenna, Hayley, Zifang
Tuesday	**6-8 pm**	Jenna, Katie
Thursday	**6-8 pm**	Hayley, Zifang

Quizzes

You will be given quizzes on the material regularly. Keeping up with the homework will ensure that you are prepared for the quizzes, which will feature problems very similar to those in the homework. Quizzes dates will be announced in class; there will be no unannounced (pop) quizzes given.

Quiz grades will not be based strictly on whether or not you found the correct answer. Your work must also be written clearly, and with proper notation, to receive full credit. Make up quizzes will only be given for excused absences. **All make ups must be completed before the graded quiz is returned to the class**; this will typically be the next class meeting.

Exams

We will have four midterm exams, in addition to the final exam. The material on the exams will be similar to topics covered on quizzes and homework. You will be given review guides for each exam. All exams are cumulative; each exam will include some material from the previous exams. Mathematics is a cumulative effort, and mastering each topic is only possible if you have mastered earlier concepts. Use of notes, textbooks, calculators, electronic devices, or other materials will not be permitted during an exam.

If you need to miss class during a scheduled exam for a documented, excused reason (illness, family emergency, athletics), **you must schedule a time to retake any exam within one week of the day the exam was given in class.**

Homework

When we finish a section in the book, you should immediately begin working on the homework problems, listed in this syllabus. Stay up to date with homework, and get help if you cannot understand a problem after trying it on your own. Do not ignore a problem that you are struggling with. A weak spot in this foundation will lead to a bigger problem in the future.

Your work will not be collected. However, actually working through these problems is the key to your success in this class. Mathematics can only be learned through practice. You should plan to spend at least 9 hours per week studying the material outside our class meetings, according to the common 3-4 hour per credit rule of thumb.

If you are having trouble with a topic, please come talk to me during office hours, ask questions in class, seek help from a classmate, or go to the department tutors for assistance. You are expected to try to work on all problems on your own first; when coming to my office, be prepared to show me what you've already tried.

Course Calendar

Jan	18	1.1 Algebraic Expressions, Real Numbers
	20	1.2 Operations with Real Numbers
	23	1.3 Graphing Equations
	25	1.4 Solving Linear Equations
	27	1.5 Problem Solving and Using Formulas
	30	1.6 Properties of Integral Exponents
Feb	1	2.1, 2.2 Functions and Their Graphs
	3	2.3 The Algebra of Functions
	6	Review
	8	Exam I
	10	2.4, 2.5 Linear Functions
	13	3.1 Systems of Linear Equations
	15	4.1 Solving Linear Inequalities
	17	4.2 Compound Inequalities
	20	4.3 Equations, Inequalities with Abs Value
	22	5.1 Polynomials and Polynomial Functions
	24	5.2 Multiplication of Polynomials
	27	Review
March	1	Exam II
	3	5.3 GCF and Factoring by Grouping
	4-12	Mid Semester Break
	13	5.4 Factoring Trinomials
	15	5.5 Factoring Special Forms
	17	5.6 A General Factoring Strategy
	20	5.7 Polynomial Equations and Applications
	22	6.1 Rational Expressions and Functions
	24	6.2 Adding Rational Expressions
	27	6.3 Complex Rational Expressions
	29	6.4 Division of Polynomials
	31	6.6 Rational Equations
April	3	Review
	5	Exam III
	7	MAA Meeting - No Class
	10	7.1 Radical Expressions and Functions
	12	7.2 Rational Exponents
	14	Easter Break - No Class
	17	Easter Break - No Class
	19	7.3 Multiplying, Simplifying Radical Exp
	21	7.4 Adding, Dividing Radical Expressions
	24	7.5 Multiplying with More than One Term
	26	7.6 Radical Equations
	28	7.7 Complex Numbers
May	1	Review
	3	Exam IV
	5	Review
	8	Reading Day - No Class
	11	Final Exam 10:30 - 12:30

Learning Differences

In keeping with college policy, any student with a disability who needs academic accommodations must call Learning Differences Program secretary at 824-3017, to arrange a confidential appointment with the director of the Learning Differences Program during the first week of classes.

Suggested Homework Problems

1.1	17, 21, 23, 25, 29, 31, 37, 47, 51, 53, 57, 65, 67, 71, 77
1.2	1, 3, 11, 59, 61, 71, 75, 77, 83, 85, 89, 93, 97, 113, 121, 123, 125, 129
1.3	1, 3, 5, 7, 9, 11, 15, 19, 25, 57-60
1.4	1, 3, 7, 11, 15, 21, 23, 25, 27, 33, 59, 63, 65
1.5	1, 29, 31, 35, 41, 43, 47, 51, 57, 63, 65
1.6	17, 21, 23, 27, 35, 37, 39, 47, 55, 61, 71, 81, 87, 97, 103, 109, 111, 119, 121, 123
2.1	1, 3, 7, 9, 13, 15, 21, 25, 31
2.2	3, 5, 7, 11, 13, 19, 23, 25, 27, 29, 31, 35, 37, 73
2.3	1, 3, 5, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 51, 53
2.4	1, 7, 9, 13, 15, 17, 21, 25, 27, 31, 35, 39, 41, 45, 69, 75
2.5	3, 7, 11, 15, 21, 25, 27, 29, 35, 41, 49, 51, 57, 61
3.1	1, 3, 5, 7, 17, 25, 31, 33, 41, 43, 47, 53, 59, 63, 67, 69, 81, 87, 89
4.1	1, 7, 11, 13, 19, 21, 25, 31, 37
4.2	1, 3, 7, 11, 17, 21, 23, 27, 31, 33, 35, 39, 45, 51
4.3	5, 9, 13, 19, 27, 33, 39, 43, 45, 53, 55, 63, 67, 71
5.1	3, 5, 9, 11, 13, 15, 21-24, 25-28, 29, 33, 37, 41, 45
5.2	3, 5, 9, 13, 19, 23, 29, 33, 35, 37, 55, 61, 75, 91, 93, 95, 99, 107
5.3	3, 9, 13, 19, 21, 27, 31, 33, 45, 49, 53, 55, 59, 61, 67
5.4	1, 5, 11, 15, 17, 21, 29, 31, 33, 37, 41, 45, 47, 51, 59, 61, 69, 73
5.5	1, 7, 11, 19, 23, 27, 39, 49, 55, 63, 75, 81, 87
5.6	1, 3, 7, 9, 15, 21, 27, 33, 37, 43, 53, 59
5.7	1, 3, 5, 7, 9, 13, 15, 21, 27, 31, 35
6.1	3, 9, 13, 27, 33, 37, 43, 49, 51, 55, 61, 65, 73, 77, 81, 85, 89
6.2	3, 7, 10, 15, 17, 21, 27, 31, 35, 41, 47, 55, 61, 67, 71
6.3	1, 7, 9, 13, 21, 27, 33, 39, 43, 47, 49
6.4	3, 13, 17, 21, 27, 33, 35, 43, 47
6.5	3, 7, 11, 13, 17, 21, 27, 35, 39, 41, 47
7.1	1, 3, 5, 9, 17, 21, 33, 35, 39, 45, 47, 51, 55, 81, 85, 89
7.2	3, 5, 7, 13, 17, 23, 27, 31, 37, 39, 45, 49, 55, 59, 67, 75, 81, 85, 89, 97, 103
7.3	1, 3, 9, 11, 15, 19, 23, 29, 41, 47, 52, 57, 63, 67, 73, 77, 83, 85, 87
7.4	1, 5, 9, 11, 17, 21, 25, 33, 35, 43, 47, 59, 67, 71, 75
7.5	1, 3, 7, 13, 17, 19, 25, 29, 37, 39, 45, 53, 61, 65, 75, 81, 97, 103
7.6	3, 7, 9, 13, 19, 21, 23, 27, 33, 39, 43, 45
7.7	1, 7, 13, 17, 19, 23, 29, 33, 41, 51, 57, 85

Tutoring Information

Free tutoring is available for all students in this course. No appointments are necessary, just come to Zurn 213 on Monday, Tuesday, or Thursday evening from 6-8 pm.

- Bring your textbook, notebook, pencils, and paper. You will be asked to sign in when you arrive, so you should know your instructor's name.

- You are welcome to come even if you don't have any immediate questions. The tutoring sessions can be a quiet, productive place to work on your own or with a group of students.

- The tutors are not there to do your homework for you, or merely show you how to get the right answer, they will help you discover how to solve the problem. Their goal is help you see the pattern and hopefully enable you to work independently.

- The tutors will emphasize that you write mathematics, please pay special attention to that aspect of their instruction. Keep in mind that in college it is your write up of the solution that gets graded, not simply an answer. The ability to write mathematics is required.

- Be aware that at certain times all the tutors may be engaged helping other students, in other words you may have to wait until a tutor comes to you. Use that time to work on other problems, look to form a study group, or look at examples in the text to see if you can figure out how to solve the problem on your own. Again, your goal is to achieve the ability to work independently, since that is how you will be tested.