

# MASSASOIT COMMUNITY COLLEGE

## INTERMEDIATE ALGEBRA MATH012-XX

**Instructor:**

**Office:**

**EMAIL:**

**Office Hours:**

**Final Exam:**

**Text:** Introductory Algebra: An Applied Approach, Aufmann and Lockwood, 9th edition.

### Course Description

This course is a continuation of Introductory Algebra (MATH 011). Topics include properties of exponents, polynomials, factoring, rational expressions, radicals and rational exponents, and quadratic equations. Note: Credits earned in this course cannot be applied toward graduation. Prerequisite: C- or higher in Introductory Algebra (MATH 011) or waiver by placement testing results or Departmental Approval.

### Attendance

Attendance will be taken each class. The student is expected to attend all classes. If the student misses a class, it is the student's responsibility to complete missed assignments.

### Assignments

The student is expected to read the sections in the text that correspond to the topics discussed in class. Homework will be assigned in class (answers are at the back of the book). Homework will not be collected or graded.

### Exams

There will be five in-class exams given approximately every 3 weeks during the semester (no make-ups given once exams have been returned to the class) as well as a cumulative final exam given during finals week.

### Final Grade

The four best exams will count for 80% of the final grade and the final exam will count for 20% of the final grade.

Letter grades will be assigned as follows:

A = 94-100	B- = 80-83	D+ = 67-69
A- = 90-93	C+ = 77-79	D = 64-66
B+ = 87-89	C = 74-76	D- = 60-63
B = 84-86	C- = 70-73	F = Below 60

Note: *All cell phones and pagers must be turned off during class time.*

### Accommodations Statement:

Massasoit's Disability Services office provides accommodations to students who qualify for services based on a documented disability. Students interested in accessing classroom or testing accommodations must contact Disability Services directly. In an effort to avoid any lapse in services, new and returning students are encouraged to contact Disability Services at the beginning of each semester to receive an Accommodation Letter for the current semester. Students on all campuses can contact Disability Services at 508-588-9100 X 2132 or by e-mail at [DisabilityServices@massasoit.edu](mailto:DisabilityServices@massasoit.edu) for further information or questions.

### Title IX Statement:

Massasoit Community College is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, stalking, or retaliation, we encourage you to report it to *Yolanda Dennis, Chief Diversity Officer and Title IX Coordinator, Office of Diversity and Inclusion, at 508-588-9100, x1309 or [ODI@massasoit.edu](mailto:ODI@massasoit.edu)*. While you may talk to a faculty member, understand that as a "responsible employee" of the College, the faculty member must report what you share to the College's Title IX Coordinator. On and off campus resources and interim measures are available to assist you. Information about both of these policies can be found at [www.massasoit.edu/title-ix](http://www.massasoit.edu/title-ix) and [www.massasoit.edu/eoo](http://www.massasoit.edu/eoo). We are here to support you.

### Teaching Procedure

Each class will begin with a discussion of previously assigned homework problems followed by the daily quiz. New material will be introduced using a variety of methods: lecture, discussion, and sample problems. Homework will be assigned to further strengthen new concepts.

### Tentative Course Outline

Week	Topics
1	4.1 Addition and Subtraction of Polynomials
2	4.2 Multiplication of Monomials 4.3 Multiplication of Polynomials
2	4.3 Multiplication of Polynomials 4.4 Integer Exponents and Scientific Notation
3	4.4 Integer Exponents and Scientific Notation
3	4.5 Division of Polynomials
4	<b>Chapter 4 Test</b>
4	5.1 Common Factors
5	5.2 Factoring Polynomials of the form $x^2+bx+c$
5	5.3 Factoring Polynomials of the form $ax^2+bx+c$
6	5.4 Special Factoring 5.5 Factoring Polynomials Completely
6	5.6 Solving Equations
7	<b>Chapter 5 Test</b>
7	6.1 Multiplication and Division of Rational Expressions
8	6.2 Expressing Fractions in Terms of the LCM of the Denominators 6.3 Addition and Subtraction of Rational Expressions
8	6.4 Complex Fractions 6.5 Solving Equations Containing Fractions
9	6.5 Solving Equations Containing Fractions 6.8 Application problems
9	6.8 Application Problems
10	<b>Chapter 6 Test</b>
10	Expressions Involving Rational Exponents
11	10.1 Intro to Radical Expressions
11	10.2 Additions and Subtraction of Radical Expressions Multiplication and Division of Radical Expressions
12	10.3 Multiplication and Division of Radical Expressions
13	10.4 Solving Equations Containing Radical Expressions
13	<b>Chapter 10 Test</b>
14	11.1 Solving Equations by Factoring and Taking Square Roots
14	11.3 Solving Equations Using the Quadratic Formula
15	<b>Chapter 11 Test</b>
15	Final Review
	<b>Final Exam</b>

Effective Fall 2012

COURSE OUTCOMES	OUTCOMES ACTIVITIES
At the end of this course, students will be able to	
Apply the properties of rational exponents in order to facilitate the use of these properties in further topics and problems in mathematics.	<ol style="list-style-type: none"> <li>1. Simplify exponential expressions using:               <ol style="list-style-type: none"> <li>a. <math>b^n \cdot b^m = b^{n+m}</math></li> <li>b. <math>(b^n)^m = b^{nm}</math></li> <li>c. <math>(ab)^n = a^n b^n</math></li> <li>d. <math>\frac{b^n}{b^m} = b^{n-m}</math> when <math>b \neq 0</math></li> <li>e. <math>\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}</math> when <math>b \neq 0</math></li> <li>f. <math>b^0 = 1</math> when <math>b \neq 0</math></li> <li>g. <math>b^{-n} = \frac{1}{b^n}</math> when <math>b \neq 0</math> (CT, QS)</li> </ol> </li> <li>2. Translate between exponential and radical forms using:               <ol style="list-style-type: none"> <li>a. <math>b^{\frac{1}{n}} = \sqrt[n]{b}</math> when <math>n</math> is a positive integer greater than 1</li> <li>b. <math>b^{\frac{m}{n}} = \sqrt[n]{b^m} = (\sqrt[n]{b})^m</math> when <math>n</math> is a positive integer greater than 1 and <math>m</math> is any integer. (CT, QS)</li> </ol> </li> <li>3. Scientific notation (CT, QS)</li> </ol>
Perform the operations of addition, subtraction, multiplication, and division on polynomials in order to apply these skills to factoring, solving equations, and problem solving.	<ol style="list-style-type: none"> <li>1. Find sums and differences of polynomial expressions. (W, R, CT, QS)</li> <li>2. Multiply polynomial expressions including: monomial by monomial, monomial by polynomial, and polynomial by polynomial. (W, R, CT, QS)</li> <li>3. Find special products including: square of a binomial and binomial times conjugate. (W, R, CT, QS)</li> <li>4. Divide a polynomial by a monomial. (W, R, CT, QS)</li> <li>5. Solve applied problems using operations on polynomials. (W, R, CT, QS)</li> </ol>
Solve various types of factoring problems in order to apply these skills to further topics and problems in mathematics.	<ol style="list-style-type: none"> <li>1. Factor a monomial from a polynomial. (W, R, CT, QS)</li> <li>2. Factor by grouping. (W, R, CT, QS)</li> <li>3. Factor a trinomial of the form <math>x^2 + bx + c</math>. (W, R, CT, QS)</li> <li>4. Factor a trinomial of the form <math>ax^2 + bx + c</math>. (W, R, CT, QS)</li> <li>5. Factor the difference of two perfect squares. (W, R, CT, QS)</li> <li>6. Factor a perfect square trinomial. (W, R, CT, QS)</li> <li>7. OPTIONAL: Factor the sum or difference of two cubes. (W, R, CT, QS)</li> <li>8. Use multiple factoring techniques to factor completely any expression. (W, R, CT, QS)</li> <li>9. Solve equations by factoring. (W, R, CT, QS)</li> <li>10. Solve applied problems using factoring. (W, R, CT, QS)</li> </ol>
Simplify and perform operations on rational expressions in order to apply these skills to further topics and problems in mathematics.	<ol style="list-style-type: none"> <li>1. Simplify rational expressions (reduce to lowest terms). (CT, QS, R)</li> <li>2. Multiply and divide rational expressions. (CT, QS, R)</li> <li>3. Add and subtract rational expressions with like denominators and with unlike denominators. (CT, QS, R)</li> <li>4. Solve rational equations. (CT, QS, R)</li> </ol>

	<ol style="list-style-type: none"> <li>5. Simplify complex fractions. (CT, QS, R)</li> <li>6. Solve applied problems. (CT, QS, R)</li> </ol>
Demonstrate the ability to simplify and perform operations with radicals in order to apply these skills to further topics and problems in mathematics.	<ol style="list-style-type: none"> <li>1. Simplify radical expressions. (CT, QS, R)</li> <li>2. Add, subtract, and multiply radical expressions. (CT, QS, R) subtraction and multiplication. (W, R, CT, QSS)</li> <li>3. Rationalize denominators (monomial square root denominators and binomial square root denominators). (W, R, CT, QS)</li> <li>4. Solve radical equations. (W, R, CT, QS)</li> <li>5. Solve applied problems. (W, R, CT, QS)</li> </ol>
Solve quadratic equations in order to apply these skills to further topics and problems in mathematics.	<ol style="list-style-type: none"> <li>1. Solve by factoring. (CT, QS)</li> <li>2. Solve by the square root method. (CT, QS)</li> <li>3. Solve by the quadratic formula. (CT, QS)</li> <li>4. OPTIONAL: Solve by completing the square. (CT, QS)</li> <li>5. Solve applied problems. (CT, QS, W, R)</li> </ol>
Strengthen Core Competencies** in order to increase success in this and other courses and in the workplace.	Referenced above

\*\*Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Critical Thinking (CT); Technology Skills (TS); Oral Communications (OC); Quantitative Skills (QS); Reading (R); Writing (W)