

Massasoit Community College
Preparing for College Math III
MATH003- XX
Spring 2018

INSTRUCTOR:

PHONE:

EMAIL:

OFFICE:

OFFICE HOURS:

CLASS TIME & LOCATION:

REQUIRED MATERIALS: Aleks access code

headphones (to be used every day as you work on the computer)

3 ring binder and dividers *or* notebook

Pencil or pen

Scientific calculator

If you need to buy one, a couple of good (and reasonably priced) calculators are CASIO fx-300MS Plus and Texas Instrument TI-30X IIS

COURSE DESCRIPTION:

This is a continuation of MATH002 for students who need to complete additional modules. This is a computer-based learning course designed to provide the fundamental concepts of arithmetic and algebra and examine some application of these concepts, i.e. word problems. Students are required to complete a minimum of 5 modules, but are encouraged to complete as many of the 15 modules as possible. Students who begin at module 12 or higher are required to finish through module 15. The modules cover whole numbers, signed numbers, fractions, decimals, ratios and proportions, percentages, descriptive statistics, algebraic expressions, linear equations and inequalities, graphing lines and inequalities, systems of equations, exponents, polynomials, factoring, rational expressions, quadratic equations, and related applications. Credits earned in this course cannot be applied towards graduation. Prerequisite: C- or higher in Preparation for College Math II (MATH002) or Introductory Algebra (MATH011) or waiver by placement testing results or departmental approval.

ACCOMODATIONS 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 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*. 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 and www.massasoit.edu/eoo. We are here to support you.

ATTENDANCE:

Attendance will be taken each class. Regular class attendance is absolutely essential.

- You will be allowed to miss the equivalent of one week of class without penalty to your grade
- You will be required to make up all other absences in as arranged with your instructor). Failure to do so will decrease your semester average by six percentage points for each equivalent of a week that you miss.

TESTING POLICY:

Academic dishonesty will not be tolerated. Please see the Statement on Academic Honesty for more information on the college's policies on academic integrity:

<http://www.massasoit.edu/academics/policies/academic-honesty/index>.

- Students are required to justify their answers in the blue book.
- Students should complete the test in one session.
- Students are expected to complete all tests without the use of cell phones, notes, websites, or other external resources.

Any violation of this will lead to a minimum loss of one letter grade from the final course grade. Further violations will result in a grade of F for the course.

GRADING POLICY

You are expected to complete through Module 15 in this course. To complete a module, you must:

- master all topics in the module
- pass the test with a grade of 70% or higher.

A course percentage will be calculated where:

1. The average of your test grades will account for 80%
2. Your work on Aleks and your notebook will account for 20%

The final grade you earn in this class is dependent on two factors: successful completion of Module 15, and your course percentage, outlined above.

Number of Modules Completed	Grade Earned
Through Module 15	A, B or C range based on your course percentage
4	D range, based on course percentage
3	D range if significant progress is made towards completion of a fourth module and based on your course percentage F if significant progress is not made towards completion of a fourth module and based on your course percentage
less than 3	F

Your semester grade will be based on the following:

$B+ = 87 - 89\%$	$A = 94 - 100\%$	$A- = 90 - 93\%$
$C+ = 77 - 79\%$	$B = 84 - 86\%$	$B- = 80 - 83\%$
$D+ = 67 - 69\%$	$C = 74 - 76\%$	$C- = 70 - 73\%$
$F = \text{below } 60\%$	$D = 64 - 66\%$	$D- = 60 - 63\%$

ASSIGNMENTS:

Homework assignments will be to continue your work to complete your ALEKS pie in order to meet all deadlines.

TEACHING PROCEDURE:

During each class, students will work on ALEKS at their own pace. I will work individually with students on math skills and study skills. When a student has a question he/she should ask for help. Periodically some students who are approaching a difficult topic may be taken in small groups for a mini-lecture.

RECOMMENDED STUDY APPROACH:

- ❖ Attend all classes on time and work independently on your ALEKS pie. Spend at least 5 hours per week working in ALEKS.
- ❖ Notes should be kept in a notebook.
- ❖ Your notebook can be used for all ALEKS work **with the exception of TESTS**.
- ❖ Do all problems from ALEKS neatly on paper so when you ask for help, the professor can see where you made the error.
- ❖ Check the pacing guide to make sure you are on track (or ahead of schedule).
- ❖ If you are behind schedule or need extra help, work extra time using the computers in the ARC.

Course Outline

This schedule allows you approximately 3 weeks for each unit. Some units take longer than others so you should try to always stay ahead of this schedule so you will not run into problems at the end of the semester.

SUGGESTED DUE DATE	TOPIC	TEST GRADE
February 8	First Test	
March 2	Second Test	
March 29	Third Test	
April 19	Fourth Test	
May 9	Fifth Test	

Required Course Topics**Module 11**

- Exponents
- Product rule of exponents
- Power rule of exponents
- Quotient rule of exponents
- Evaluating expressions with zero exponents
- Evaluating expressions with negative exponents
- Rewriting expressions containing negative exponents without negative exponents
- Scientific notation

Module 12

- Degree and leading coefficient of a polynomial
- Simplifying a sum or difference of polynomials
- Multiplying polynomials
- Multiplying binomials
- Dividing a polynomial by a monomial

Module 13

- Greatest common factor of two monomials
- Factoring out a monomial from a polynomial
- Factoring out a binomial from a polynomial
- Factoring a polynomial by grouping
- Factoring trinomials
- Factoring a perfect square trinomial
- Factoring a binomial using difference of squares
- Solving a quadratic equation using the factoring method

Module 14

- Restriction on a variable in the denominator
- Simplifying a ratio of polynomials
- Multiplying rational expressions
- Dividing rational expressions
- Adding and subtracting rational expressions
- Simplifying complex fractions
- Solving a rational equation
- Solving an application problem using rational equations

Module 15

- Estimating a square root
- Pythagorean theorem
- Square root of a perfect square monomial
- Cube root of an integer
- Simplifying a square root
- Simplifying a radical expression
- Simplifying a sum or difference of radical expressions
- Simplifying a product of radical expressions
- Conjugates
- Simplifying a quotient involving radical expressions
- Solving a radical equation
- Converting between radical form and exponential form
- Rational exponents
- Solving a quadratic equation using the square root method
- Solving a quadratic equation using the quadratic formula
- Solving an application problem using quadratic equations

COURSE OUTCOMES	OUTCOMES ACTIVITIES
<p>At the end of this course, students will be able to</p> <p>Apply the properties of rational exponents in order to facilitate the use of these properties in further topics and problems in mathematics.</p>	<ol style="list-style-type: none"> 1. Simplify exponential expressions using: <ol style="list-style-type: none"> a. $b^n \cdot b^m = b^{n+m}$ b. $(b^n)^m = b^{nm}$ c. $(ab)^n = a^n b^n$ d. $\frac{b^n}{b^m} = b^{n-m}$ when $b \neq 0$ e. $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ when $b \neq 0$ f. $b^0 = 1$ when $b \neq 0$ g. $b^{-n} = \frac{1}{b^n}$ when $b \neq 0$ (CT, QS) 2. Translate between exponential and radical forms using: <ol style="list-style-type: none"> a. $b^{\frac{1}{n}} = \sqrt[n]{b}$ when n is a positive integer greater than 1 b. $b^{\frac{m}{n}} = \sqrt[n]{b^m} = (\sqrt[n]{b})^m$ when n is a positive integer greater than 1 and m is any integer. (CT, QS) 3. Scientific Notation (CT, QS)
<p>Perform the operations of addition, subtraction, multiplication, and division on polynomials in order to apply these skills to factoring, solving equations, and problem solving.</p>	<ol style="list-style-type: none"> 1. Find sums and differences of polynomial expressions. (W,R,CT, QS) 2. Multiply polynomial expressions including: monomial by monomial, monomial by polynomial, and polynomial by polynomial. (W,R,CT, QS) 3. Find special products including: square of a binomial and binomial times conjugate. (W,R,CT, QS) 4. Divide a polynomial by a monomial. (W,R,CT, QS) 5. Solve applied problems using operations on polynomials. (W,R,CT, QS)
<p>Solve various types of factoring problems in order to apply these skills to further topics and problems in mathematics.</p>	<ol style="list-style-type: none"> 1. Factor a monomial from a polynomial. (W,R,CT, QS) 2. Factor by grouping. (W,R,CT, QS) 3. Factor a trinomial of the form $x^2 + bx + c$. (W,R,CT, QS) 4. Factor a trinomial of the form $ax^2 + bx + c$. (W,R,CT, QS)

	<ol style="list-style-type: none"> 5. Factor the difference of two perfect squares. (W,R,CT,QS) 6. Factor a perfect square trinomial. (W,R,CT,QS) 7. OPTIONAL: Factor the sum or difference of two cubes. (W,R,CT,QS) 8. Use multiple factoring techniques to factor completely any expression. (W,R,CT,QS) 9. Solve equations by factoring. (W,R,CT,QS) 10. Solve applied problems using factoring. (W,R,CT,QS)
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"> 1. Simplify rational expressions (reduce to lowest terms). (CT, QS, R) 2. Multiply and divide rational expressions. (CT, QS, R) 3. Add and subtract rational expressions with like denominators and with unlike denominators. (CT, QS, R) 4. Solve rational equations. (CT, QS, R) 5. Simplify complex fractions. (CT, QS, R) 6. Solve applied problems. (CT, QS, R)
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"> 1. Simplify radical expressions. (CT, QS, R) 2. Add, subtract, and multiply radical expressions. (CT, QS, R) 3. Rationalize denominators (monomial square root denominators and binomial square root denominators). (W, R, CT, QS) 4. Solve radical equations. (W, R, CT, QS) 5. Solve applied problems. (W, R, CT, QS)
Solve quadratic equations in order to apply these skills to further topics and problems in mathematics.	<ol style="list-style-type: none"> 1. Solve by factoring. (CT, QS) 2. Solve by the square root method. (CT, QS) 3. Solve by the quadratic formula. (CT, QS) 4. OPTIONAL: Solve by completing the square. (CT, QS) 5. Solve applied problems. (CT, QS, W, R)
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)