

ARAPAHOE COMMUNITY COLLEGE SYLLABUS

Course Number: MAT 099 **Title:** Intermediate Algebra (Formerly MAT 106). **Credits:** 4

Instructor:

Phone:

E-mail:

Office Location (if applicable):

Office Hours (if applicable):

Important Dates:

Last day to drop with refund (include date):

Last day to withdraw without refund (include date):

Catalog Description: Emphasizes problem solving with further study of equations, slope, inequalities, systems of equations, polynomials, quadratic equations, rational expressions, rational exponents, radical expressions, graphing and applications. A graphing calculator or equivalent software may be utilized.

This course satisfies degree requirements for certain A.A.S. and A.G.S. degrees. It does not transfer to four year institutions, but serves as a prerequisite to transfer level courses MAT 120 Math for Liberal Arts, MAT 121 College Algebra, MAT 123 Finite Mathematics, MAT 135/179 Introduction to Statistics/Lab, and MAT 155 Integrated Math I.

Prerequisites: A student needs to have successfully completed (grade of C or better) MAT 090, Introductory Algebra, or achieved a CPT score of 61 to 84 in Elementary Algebra.

Text: *Bittinger, Ellenbogen, Johnson, Intermediate Algebra: Graphs and Models* 3rd Ed., Addison Wesley, 2008.

Supplemental Resources: Students may purchase the Student Solutions Manual from the Bookstore.

Required Course Material: Text and graph paper are required. If you plan to take College Algebra in the future, a TI-86 or comparable graphing calculator would be strongly recommended. If you plan to take Math for Liberal Arts, Finite Mathematics, Introduction to Statistics, or Integrated Math I in the future, a TI-83, TI-83+ or TI-84 graphing calculator would be strongly recommended. Access to MathXL is also required.

Course Competencies

- I. Demonstrate knowledge and usage of elementary algebra and problem solving. (Optional)
- II. Demonstrate knowledge and usage of functions, graphing linear equations and inequalities.
- III. Demonstrate knowledge and usage of systems of equations in two and three variables.
- IV. Demonstrate knowledge and usage of inequalities and absolute value.
- V. Demonstrate knowledge and usage of polynomials.

- VI. Demonstrate knowledge and usage of rational expressions.
- VII. Demonstrate knowledge and usage of exponents and radicals.
- VIII. Demonstrate knowledge and usage of quadratic equations and functions.
- IX. Demonstrate knowledge and usage of exponential and logarithmic functions. (Optional)

Grading Criteria:

Makeup Policy:

Attendance Policy:

Other Information:

Please note your Arapahoe.edu e-mail address is the official means of communication between you and the college. If you have not done so, please go to the ACC home page to activate your e-mail account.

All classes will be evaluated online (rather than by using paper and pencil) this year. Please provide feedback for all of your classes

Student Success Center for all ACC students: Student Success Center for all ACC students: Peer and professional tutoring in Room M2720 now includes student tutors, math support, and the Writing Center in one location to provide academic assistance for all your classes.

ACC math instructors provide help with concepts, homework, online resources and graphing calculator workshops. Students may watch course related videos and DVDs in the library. For information, contact the Student Success Center at 303-797-5669 or email Mathhelp@arapahoe.edu.

Student Support Services: Arapahoe Community College provides accommodations to qualified students with disabilities. To request accommodation, contact Disability Services in M2710 or call (303) 797-5937 v/tty.

Please refer to the college catalog for policies on academic integrity, plagiarism, student code of conduct, student grievance procedures, etc.

Academic Honesty Statement

Arapahoe Community College is committed to academic honesty and scholarly integrity. The College can best function and accomplish its mission in an atmosphere of the highest ethical standards. All members of the College community are expected and encouraged to contribute to such an environment by observing all accepted principles of academic honesty. Academic dishonesty includes but is not limited to: **plagiarism, cheating, fabrications, grade tampering, misuse of computers and other electronic technology, and facilitating academic dishonesty.** Those found in violation may also be subject to potential disciplinary sanctions under the

Arapahoe Community College Code of Conduct OR “Those found in violation of academic honesty will be subject to the following disciplinary actions:

Safety and Security

The safety and security of all our students, faculty, staff and visitors is of the utmost importance to the Campus Police Department. We rely on each of you to be an additional set of ears and eyes to help maintain campus safety. Please be diligent in your efforts to report suspicious or unusual behavior or circumstances to the Campus Police Department. Trust your instincts when something doesn't look, seem or feel right and tell someone. The Campus Police can be reached at 303.797.5800 or in M2600 on the second floor behind Information Central. Additional safety information can be found on the website at

<http://www.arapahoe.edu/studentsvcs/campuspolice/index.html>

Contact Information for Learning Support Services

Library	M2500	303.797.5090
Student Success Center	M2720	303.797.5669
Technical Support		303.797.5700 x3199
Advising/Counseling	M2010	303.797.5651
Instructional Testing Center	M2280	303.797.5993
Bookstore	M1200	303.797.5676
Computer Lab	M1650	303.797.5907
Career Center	M2025	303.797.5805
eLearning	M1650	303.797.5700 x6700

1. Basics of Algebra and Graphing (Optional prerequisite material - for review) (1 week)

- 1.1 Some Basics of Algebra
- 1.2 Operations with Real Numbers
- 1.3 Equivalent Algebraic Expressions
- 1.4 Exponential and Scientific Notation
- 1.5 Graphs
- 1.6 Solving Equations and Formulas
- 1.7 Introduction to Problem Solving and Models

2. Functions, Linear Equations and Models (1 week)

- 2.1 Functions
- 2.2 Linear Functions: Slope, Graphs, and Models
- 2.3 Another Look at Linear Graphs
- 2.4 Introduction to Curve Fitting: Point-Slope Form

3. Systems of Linear Equations and Problem Solving (1 week)

- 3.1 Systems of Equations in Two Variables
- 3.2 Solving by Substitution or Elimination
- 3.3 Solving Applications: Systems of Two Equations
- 3.4 Systems of Equations in Three Variables
- 3.5 Solving Applications: Systems of Three Equations
- 3.6 Elimination Using Matrices (optional)
- 3.7 Determinants and Cramer's Rule (optional)
- 3.8 Business and Economics Applications (optional)

4. Inequalities and Problem Solving (1 week)

- 4.1 Inequalities and Applications
- 4.2 Solving Equations and Inequalities by Graphing
- 4.3 Intersections, Unions and Compound Inequalities
- 4.4 Absolute-Value Equations and Inequalities
- 4.5 Inequalities in Two Variables

5. Polynomials Functions (2 weeks)

- 5.1 Introduction to and Poly's and Polynomial Functions
- 5.2 Multiplication of Polynomials
- 5.3 Polynomial Equations and Factoring
- 5.4 Equations Containing Trinomials of the Type $x^2 + bx + c$
- 5.5 Equations Containing Trinomials of the Type $ax^2 + bx + c$, $a \neq 1$
- 5.6 Equations Containing Perfect-Square Trinomials and Differences of Squares
- 5.7 Equations Containing Sums or Differences of Cubes
- 5.8 Applications of Polynomial Equations

6. Rational Equations and Functions (2 weeks)

- 6.1 Rational Expressions and Functions: Multiplying and Dividing
- 6.2 Rational Expressions and Functions: Adding and Subtracting
- 6.3 Complex Rational Expressions
- 6.4 Rational Equations
- 6.5 Solving Applications Using Rational Equations
- 6.6 Division of Polynomials
- 6.7 Synthetic Division (optional)
- 6.8 Formulas, Applications, and Variation

7. Exponents and Radical Functions (2 weeks)

- 7.1 Radical Expressions, Functions and Models
- 7.2 Rational Numbers as Exponents
- 7.3 Multiplying Radical Expressions
- 7.4 Dividing Radical Expressions
- 7.5 Expressions Containing Several Radical Terms

- 7.6 Solving Radical Equations
- 7.7 Geometric Applications
- 7.8 The Complex Numbers

8. Quadratic Functions and Equations (2 weeks)

- 8.1 Quadratic Equations
- 8.2 The Quadratic Formula
- 8.3 Applications Involving Quadratic Equations
- 8.4 Studying Solutions of Quadratic Equations
- 8.5 Equations Reducible to Quadratic
- 8.6 Quadratic Functions and Their Graphs
- 8.7 More About Graphing Quadratic Functions
- 8.8 Problem Solving and Quadratic Functions
- 8.9 Polynomial and Rational Inequalities

9. Exponential and Logarithmic Functions (1 week)

- 9.1 Composite and Inverse Functions
- 9.2 Exponential Functions
- 9.3 Logarithmic Functions

Tentative Schedule