

## ARAPAHOE COMMUNITY COLLEGE SYLLABUS

**Course Number:** MAT 108                      **Title:** Technical Mathematics      **Credits:** 4

**Instructor:**

**Phone:**

**E-mail:**

**Office Location (if applicable):**

**Office Hours (if applicable):**

**Catalogue Description:**

Covers material designed for career technical or general studies students who need to study particular mathematical topics. Topics may include measurement, algebra, geometry, trigonometry, graphs, and/or finance. These are presented on an introductory level and emphasis is on applications.

**Prerequisites:** MAT 060 or appropriate Accuplacer score.

**Text:** College Mathematics, 2009 Update with MyMathLab., Cleaves and Hobbs, Pearson, 2009.

**Required Course Material:** Text and scientific or business calculator, scientific preferred.

**Grading Criteria:**

**Makeup Policy:**

**Attendance Policy:**

**Important Dates:**

Last day to drop with refund (include date):

Last day to withdraw without refund (include date):

**Original Work/Academic Dishonesty:** All work must be your original work (this includes test work, assignments and participation). Sources you use for any assignment, including the project, must be cited appropriately. Academic dishonesty will not be tolerated. Academic dishonesty includes: plagiarism, cheating, fabrication, grade tampering, misuse of computers and other electronic technology, and facilitating academic dishonesty (for example, helping a fellow student on his/her exams).

If I find evidence of academic dishonesty, you will receive, at a minimum, a zero for the assignment/test, and potentially, an F in the course.

**Objectives:** Upon successful completion of this course, you will be able to:

1. perform mathematical operations taught in this course,
2. apply the mathematical operations to applied problems,
3. use mathematical reasoning to formulate and solve your own problems
4. think mathematically about the world around you, and

understand 80-90% of the topics described in the Colorado Community College System course objectives: <http://www.cccs.edu/cccs/ccnsindex.html> . These objectives match the topics listed in our Course Outline (see below)

**Requesting Accommodations:** Arapahoe Community College provides accommodations to qualified students with disabilities. To request accommodation, contact Center for Academic Resources in M2710 or call (303) 797-5937 v/tty.

**The Student Success Center:** 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](mailto:Mathhelp@arapahoe.edu).

**Online Course Evaluations:** As this course nears completion, you will have the opportunity to complete a confidential evaluation of the class online. Login instructions will be sent to your 'student.cccs.edu' e-mail address. Your feedback is important, and ensures that ACC continues to offer quality instruction that meets your needs. Please take time to complete the survey – I appreciate your feedback.

**E-mail Communication:** Effective 1/20/09 electronic correspondence from ACC employees will go to your student email account *only*. When you activate your account you can forward emails to an e-mail account that you already have. To activate your student e-mail account, go to <http://www.arapahoe.edu> and click on the “Activate Student E-mail” link. Questions? Please call 303-797-5621.

**Safety Information:** ACC is committed to providing a safe environment for all its students, visitors and employees. If you experience suspicious or unusual behavior or circumstances during your time on the ACC campus, please contact the Campus Police Department at 303-797-5800 (or 5800 from any campus phone) or report to their office at M2600, 2nd floor behind Information Central. More information can be found at <http://www.arapahoe.edu/studentsvcs/campuspolice/index.html>.

## **Course Content/Course Objectives:**

### **Chapters and topics in current text**

## **Chapter 1            Review of Basic Concepts**

- 1.1     Basic Operations with Whole Numbers and Decimals
- 1.2     Exponents, Roots, and Powers of 10
- 1.3     Order of Operations and Problem Solving

## **Chapter 2            Review of Fractions**

- 2.1     Multiples and Factors
- 2.2     Equivalent Fractions and Decimals
- 2.3     Adding and Subtracting Fractions and Mixed Numbers
- 2.4     Multiplying and Dividing Fractions and Mixed Numbers
- 2.5     The U.S. Customary System of Measurement

## **Chapter 3            Percents**

- 3.1     Percent and Number Equivalents
- 3.2     Percentage Problems
- 3.3     Increase and Decrease

## **Chapter 4            Measurement**

- 4.1     Introduction to the Metric System
- 4.2     Time, Temperature, and Other Measures
- 4.3     Metric-U.S. Customary Comparisons
- 4.4     Accuracy, Precision, Error, and Measuring Instruments

## **Chapter 5            Signed Numbers and Powers of 10**

- 5.1     Adding Signed Numbers
- 5.2     Subtracting Signed Numbers
- 5.3     Multiplying and Dividing Signed Numbers
- 5.4     Signed Fractions and Decimals
- 5.5     Powers of 10
- 5.6     Scientific Notation

## **Chapter 6            Statistics**

- 6.1     Reading Circle, Bar, and Line Graphs
- 6.2     Averages and Frequency Distributions

- 6.3 Range and Standard Deviation
- 6.4 Counting Techniques and Simple Probabilities

## **Chapter 7      *Linear Equations***

- 7.1 Variable Notation
- 7.2 Solving Linear Equations
- 7.3 Applying the Distributive Property in Solving Equations
- 7.4 Solving Linear Equations with Fractions and Decimals by Clearing the Denominators
- 7.5 Formulas

## **Chapter 8      *Ratio and Proportion***

- 8.1 Ratio and Proportion
- 8.2 Direct and Joint Variation
- 8.3 Inverse and Combined Variation

## **Chapter 9      *Graphing Linear Equations and Functions***

- 9.1 Graphical Representations of Linear Equations and Functions
- 9.2 Graphing Linear Equations with Two Variables Using Alternative Methods
- 9.3 Slope
- 9.4 Linear Equation of a Line

## **Chapter 10     *Systems of Linear Equations***

- 10.1 Solving Systems of Linear Equations Graphically
- 10.2 Solving Systems of Linear Equations Using the Addition Method
- 10.3 Solving Systems of Linear Equations Using the Substitution Method
- 10.4 Problem Solving Using Systems of Linear Equations

## **Chapter 11     *Powers and Polynomials***

- 11.1 Laws of Exponents
- 11.2 Polynomials
- 11.3 Basic Operations with Polynomials

## **Chapter 16     *Exponential and Logarithmic Equations***

- 16.1 Exponential Expressions, Equations, and Formulas
- 16.2 Logarithmic Expressions, Equations and Formulas

## **Chapter 18     *Geometry***

- 18.1 Lines and Angles
- 18.2 Polygons
- 18.3 Circles and Radians
- 18.4 Volume and Surface Area

## **Chapter 19     *Triangles***

- 19.1 Special Triangle Relationships
- 19.2 Pythagorean Theorem
- 19.3 Inscribed and Circumscribed Regular Polygons and Circles
- 19.4 Distance and Midpoints

## **Chapter 20     *Right-Triangle Trigonometry***

- 20.1 Trigonometric Functions
- 20.2 Solving Right Triangles Using the Sine, Cosine, and Tangent Functions

## **Chapter 21     *Trigonometry with Any Angle***

- 21.1 Vectors
- 21.2 Trigonometric Functions for Any Angle

- 21.3 Period and Phase Shift
- 21.4 Law of Sines
- 21.5 Law of Cosines