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| **Course Prefix & Number:** MATH 045 C **CC Approved:** 11/20/07**DCCC Approved:** 02/01/08**Board Approved:** 03/11/08 |
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| **CYPRESS COLLEGECOURSE OUTLINE** |
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| **Division:**  | Science/Engineering/Math  |
| **Department/Subject Area:**  | Mathematics  |
| **Course Prefix:**  | MATH  |
| **Course Number:**  | 045 C  |
| **Course Title:**  | Intermediate Algebra Review  |
| **Units:**  | 2  |
| **Lec Hours: Full Term Hrs/Wk.**  | 2  |
| **Lab Hours: Full Term Hrs/Wk.**  | 0 **Scheduled**  |
| **Credit Hours:**  | 0  |
| **Assignment Preparation Hours:**  | 4  |
| **Prerequisite(s):** * **Validated on 10/02/2007**A minimum grade of 'C' in MATH 040 C
* **Validated on 10/02/2007**or Algebra II with a grade of 'C' or better AND the assessment process. Proof of prerequisites is required.
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| **Corequisite(s):** * None
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| **Advisory(ies):** * None
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| 1. **DESCRIPTIONS**
	1. **CATALOG DESCRIPTION**This course is a review of Intermediate Algebra and is designed for students who have already completed Intermediate Algebra and are planning to enroll in College Algebra, Trigonometry, Survey of Calculus, Finite Mathematics, Mathematics for Liberal Arts Students, Intro to Probability and Statistics, or General Chemistry. The topics covered include sets, axioms for the real number system, polynomials, solutions of linear and quadratic equations and inequalities, exponents and radicals, linear and quadratic functions and their graphs, exponential and logarithmic functions and systems of equations. This course requires the use of a non-graphing scientific calculator. This course does not count toward the Associate Degree. Pass/No Pass.
	2. **SCHEDULE DESCRIPTION (max 2 lines):**This course is a review of Intermediate Algebra. It is for students who have completed Intermediate Algebra and plan to enroll in a 100 level Mathematics course. Pass/No Pass.
2. **ENTRY LEVEL SKILLS AND KNOWLEDGE (To be completed if required by Prerequisite Policy)Upon entering this course, the student needs to be able to:**
	1. Translate between phrases written in English and equivalent expressions written in mathematical symbols.
	2. Solve linear, quadratic, logarithmic, and exponential equations. Solve linear and quadratic inequalities.
	3. Graph linear, quadratic, logarithmic and exponential equations and functions on a rectangular coordinate system. Graph linear inequalities on a rectangular coordinate system. Graph the conic sections on a rectangular coordinate system.
	4. Analyze and solve word problems.
	5. Utilize a scientific calculator wherever appropriate in achieving the stated instructional objectives.
	6. Demonstrate the use of intermediate algebra skills and manipulative techniques involving the use of equations and graphing.
3. **INSTRUCTIONAL OBJECTIVES (Use measurable objectives only)Upon completion of this course, the student will be able to:**
	1. Translate between phrases written in English and equivalent expressions written in mathematical symbols.
	2. Solve linear, quadratic, logarithmic, and exponential equations. Solve linear and quadratic inequalities.
	3. Graph linear, quadratic, logarithmic and exponential equations and functions on a rectangular coordinate system. Graph linear inequalities on a rectangular coordinate system. Graph the conic sections on a rectangular coordinate system.
	4. Analyze and solve word problems.
	5. Utilize a scientific calculator wherever appropriate in achieving the stated instructional objectives.
	6. Demonstrate the use of intermediate algebra skills and manipulative techniques involving the use of equations and graphing.
4. **COURSE CONTENT AND SCOPE (instructional topics or units)**
	1. The Real Numbers
		1. Sets
		2. Operations on set of Real Numbers
		3. Evaluating Expressions
		4. Properties of the Real Numbers
		5. Using the Properties
	2. Linear Equations, and Inequalities in One Variable
		1. Linear Equations in One Variable
		2. Formulas
		3. Compound Inequalities
		4. Absolute Value Equations and Inequalities
	3. Graphs and Functions in the Cartesian Coordinate System
		1. Graphing Lines in the Coordinate Plane
		2. Slope of a Line
		3. Three Forms of the Equation of a Line
		4. Linear Inequalities and Their Graphs
		5. Graphs of Functions
	4. Systems of Linear Equations
		1. Solving Systems by Graphing
		2. Solving Systems by Substitution
		3. Solving Systems by Elimination (Addition Method)
	5. Exponents and Polynomials
		1. Integral Exponents and Scientific Notation
		2. Exponent Rules
		3. Addition, Subtraction and Multiplication of Polynomials
		4. Multiplication of Binomials
		5. Division of Polynomials
		6. Factoring Binomials (Difference of Squares; Sum and Difference of Cubes)
		7. Factoring Trinomials
		8. Factoring by Grouping
		9. Solving Equations by Factoring
	6. Rational Expressions
		1. Properties of Rational Expressions
		2. Addition, Subtraction, Multiplication, and Division of Rational Expressions
		3. Complex Fractions
		4. Solving Equations involving Rational Expression
	7. Rational Exponents and Radicals
		1. Rational Exponents
		2. Radicals
		3. Operations with Radicals
		4. Solving Equations with Radicals and Exponents
		5. Complex Numbers
	8. Quadratic Equations, and Inequalities
		1. Factoring
		2. Completing the Square
		3. The Quadratic Formula
		4. Quadratic Equations
		5. Quadratic and Rational Inequalities
	9. Problem Solving
		1. Solving Application Problems Using One Equation, One Unknown
		2. Solving Application Problems Using Two Equations, Two Unknowns
		3. Solving Applications Involving Uniform Motion/Work, Mixtures, Area, Perimeter, and the Pythagorean Theorem
			1. Using Linear Equations
			2. Using Rational Equations
			3. Using Quadratic Equations
			4. Additional Function Topics
				1. Evaluating Functions at Given Values
				2. Combining Functions
				3. Variation
			5. Exponential and Logarithmic Functions
				1. Exponential Functions
				2. Logarithms Functions
				3. Properties of Logarithms
				4. Solving Equations
5. **INSTRUCTIONAL METHODOLOGIES (instructor initiated learning strategies):**
	1. Lecture/discussion
	2. Multimedia Presentations
	3. Lecture
	4. Homework assignments
	5. Facilitating problem solving sessions
	6. Use of manipulatives
	7. Encourage the use of supplementary instructional services
6. **MULTIPLE METHODS OF EVALUATION (measurements of student achievement):**
	1. Attendance/Class Participation
	2. Exams/Tests
	3. Homework
	4. Quizzes
	5. Unit or mid-term examinations -- the majority of which shall not be multiple choice or true/false. Students must show work and the work must be evaluated.
	6. A comprehensive final examination
7. **LIST RECOMMENDED TEXTBOOKS:Texts such as the following are appropriate:**
	1. Recommended Martin-Gay, E.K. (2008).*Intermediate Algebra* (4th ed). Hoboken: Pearson Prentice Hall.
8. **LIST SUPPLEMENTAL TEXTBOOKS OR MATERIALS:Supplemental Reading or materials such as the following are appropriate:**
	1. Supplemental materials: Scientific Calculator
9. **ASSIGNMENTS:**
	1. Assignments that Demonstrate Critical Thinking
		1. Interpret an English phrase as an algebraic expression.
		2. Solve linear, quadratic, rational, exponential and logarithmic equations.
		3. Identify the properties of a line such as its slope and its intercepts.
		4. Construct the graph of linear and quadratic functions.
		5. Solve a system of equations and apply that skill to problem solving.
		6. Interpret and relate mathematics to real life applications.
	2. Writing Assignments and/or Proficiency Demonstration
		1. Homework assignments and/or classroom examinations will enable the student to show proficiency in course material. These assignments and/or examinations will demonstrate the problem solving abilities of the student.
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