MAT1034 Course Description

Intermediate Algebra Part 2 ....(3) (P)

Description: This course is an in-depth study of the second half of material covered in MAT 1033. This course includes solving linear systems; the study of quadratic equations, rational exponents and their properties, radicals, rational expressions and equations; applications; a review of the first half of MAT 1033; as well as an emphasis on math study skills.

Prerequisite: MAT 1032 with a grade of "C" or better, OR the equivalent; or special permission after successfully completing the first half of MAT 1033

Rationale: In an increasingly complex world, mathematical thinking, understanding, and skill are more important than ever. This course provides students with skills and proficiency in understanding many of the concepts needed for College Algebra, and the opportunity to learn to communicate and reason mathematically.

Impact Assessment: *Intermediate Algebra Part 2* provides students with skills for proficiency in quantitative and analytical description of these topics, at a slowed down pace to support deeper understanding and development of good math study skills. The course applies as elective credit toward the General Education requirements for an Associate of Arts degree but does **not** satisfy a mathematics requirement. Combined with MAT 1032, the two courses are a prerequisite track to enter into MAC1105, MGF1106, MGF1107, MGF1121 & STA2023, and as well as other science, nursing, and business courses.

Broad Course Objectives: This course supports the following goals of the Math Department:
- Engage students in sound mathematical thinking and reasoning. This should include students finding patterns, generalizing, and asking/answering relevant questions.
- Provide a setting that prepares students to read and learn mathematics on their own.
- Explore multiple representations of topics including graphical, symbolic, numerical, oral, and written. Encourage students to make connections among the various representations to gain a richer, more flexible understanding of each concept.
- Analyze the structure of real-world problems and plan solution strategies. Solve the problems using appropriate tools.
- Develop a mathematical vocabulary by expressing mathematical ideas orally and in writing.
- Enhance and reinforce the student's understanding of concepts through the use of technology when appropriate.

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As a result of successfully completing MAT1034, students should be able to demonstrate the following:

- Analyze/interpret quantitative data verbally, graphically, symbolically and numerically.

- Communicate quantitative data verbally, graphically, symbolically and numerically.

- Appropriately integrate technology into mathematical processes.

- Use mathematical concepts in problem-solving through integration of new material and modeling.

Topical Outline with Specific Course Objectives:

I.   *Review of MAT 1032 material*

II. *Focus on math study skills*

III. *Systems of Linear Equations and their Graphs*

    A. Connect the solution set of a system of two linear equations in two variables with the graphs of the two equations.

    B. Graph the solution set of a system of two linear equations in two variables

    C. Find the solution to a system of two linear equations algebraically and graphically

IV. *Rational Expressions and Equations*

    A. Evaluate rational expressions, and use prime factorization to reduce simple rational expressions (decreased emphasis).

    B. Use the properties of equalities and equivalent equalities to solve rational equations; apply to word problems involving ratios and proportions.

V.   *Radicals and Rational Exponents*

    A. Demonstrate the relationship between exponents and radicals.

    B. Use the properties of radicals to simplify simple radicals.

    C. Use the properties of equality to solve equations involving one radical expression.

VI. *Quadratic Equations*

    A. Recognize a quadratic equation; choose and apply the most efficient method to solve it.

    B. Apply skills to word problems involving quadratic equations.

    C. Express quadratic functions in table, graph, equation, or verbal form.

    D. Make connections between the parameters of a function and the behavior of the function.

    E. Recognize that a variety of problem situations can be modeled by the same type of function.

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    F. Use patterns and functions to represent and solve problems.

    G. Extract and interpret information presented in a graph.

Evaluation: Each instructor will determine the specific criteria for determining the final course grade. These criteria will be delineated in the first day handout provided to each student. Each instructor will give a **_common_** comprehensive final exam during the assigned final exam period that will account for 25% of the course grade.

Commonality: All instructors will use the same textbook and cover all topics in the topical outline and give a common final exam. A graphing calculator will be required for this course. Either the TI-83 or the TI-84 line of calculators is recommended; any other graphing calculator will need to be approved by the instructor.