MAT1032 Course Description

Imtermediate Algebra Part 1.....(3) (P)

Description: This course is an in-depth study of the first half of material covered in MAT 1033. The course includes a review of factoring, an introduction to functions, graphing linear functions and interpreting graphs, graphing systems of linear inequalities, applications, as well as an emphasis on math study skills.

Prerequisite: MAT0055, MAT0056, or MAT0057 with a grade of "A"; OR MAT 0022 or MAT 0028 with a grade of "C" or better, OR the equivalent; OR a documented decision by an SB1720 exempt student stating they have opted into college level classwork, intentionally bypassing any recommended developmental prerequisites.

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 1* 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. It is a prerequisite for MAT 1034, and combined together, 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 MAT1032, 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. *Focus on Math Study Skills*

II. *Review*

A. Demonstrate an ability to factor algebraic expressions into primes using techniques of removing common factors, and factoring the difference of squares and trinomials.

B. Use the properties of inequalities and equivalent inequalities to solve linear inequalities in one variable and express the solutions graphically or in interval notation.

III. *Linear Equations and Inequalities in Two Variables*

A. Use tables and graphs as tools to interpret expressions, equations, and inequalities.

B. Locate the x and y intercepts graphically and algebraically and interpret them in the context of the problem

C. Explain and determine the slope of a line as the ratio of change in the dependent variable with respect to change in the independent variable.

IV. *Systems of Linear Inequalities and their Graphs*

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

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

V. *Introduction to Functions*

A. Recognize functions in table, graph, equation or verbal form.

B. Understand that for a function one input value results in one output value.

C. Determine the acceptability of a value to be used for the independent variable in an equation that defines a function.

D. Determine the domain and range of a relation from a graph.

E. Use and understand functional notation.

VI. *Linear Functions and Their Applications*

A. Express linear functions in table, graph, equation, or verbal form.

B. Make connections between the parameters of a function and the behavior of the function.
C. Recognize that a variety of problem situations can be modeled by the same type of function.
D. Use patterns and functions to represent and solve problems.
E. 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.