

COURSE OUTLINE **Fractions, Decimals and Percents**

Course Description

MA 020. Fractions, Decimals and Percents. 1 hour credit. Prerequisite: A score at a pre-determined level on a diagnostic and placement instrument or MA 010 with a C or better. This course will enable the student to improve skills in operations of addition, subtraction, multiplication and division with fractions, decimals, and percents. The student will apply concepts of place value for decimal numbers and problem solving.

Course Relevance

The principles learned in this course will allow the student to use math skills in application problems as well as more advanced math classes.

Required Materials

Frechette, E. (2003). *Math sense: decimals, fractions, ratios, and percents*. New York, NY: New Readers Press.

Learning Outcomes

The intention is for the student to be able to:

1. Demonstrate competence in use of fractions, decimals and percents in math computation and problem solving.

Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through involvement in this course, the student will develop ability in the following PACT skill area(s):

Analytical Thinking Skills

1. Problem solving
 - Through application problems, the student will demonstrate ability to solve multi-step problems.

Major Summative Assessment Task(s)

These learning outcome(s) and the Learning PACT skill(s) will be demonstrated by

1. Completing a project involving real-life problems which apply the principles of computation and problem-solving using fractions, decimals, and percents.

Course Content:

- I. Skills/Competencies - Actions that are essential to achieve the course outcomes:
 - A. Add, subtract, multiply and divide fractions
 - B. Solve word problems involving fractions, decimals and percents
 - C. Solve word problems involving fractions, decimals and percents

- II. Themes - Key recurring concepts that run throughout this course:
 - A. Problem Solving; use of multiple routes to reach a correct answer
 - B. Value of math; personal and others' perceptions
- III. Issues - Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Use of calculators
- IV. Concepts - Key concepts that must be understood to address the issues:
 - A. Math as a language
 - B. Properties that govern math usage

Learning Units

- I. Addition, subtraction, multiplication and division of fractions
 - A. Identify fractions
 - B. Write fractions
 - C. Simplify fractions
 - D. Convert fractions
 - E. Find a common denominator
 - F. Add fractions
 - G. Subtract fractions
 - H. Multiply fractions
 - I. Divide fractions
 - J. Solve word problems involving decimals
- II. Addition, subtraction, multiplication and division of decimals
 - A. Identify decimals
 - B. Write decimals
 - C. Convert decimals
 - D. Identify place value of decimals
 - E. Add decimals
 - F. Subtract decimals
 - G. Multiply decimals
 - H. Divide decimals
 - I. Solve word problems involving decimals
- III. Solve percent problems
 - A. Identify percents
 - B. Write percents
 - C. Convert percents
 - D. Solve percent problems with missing variables: whole, part and percent
 - E. Find the percent change between an old amount and a new amount
 - F. Find a new amount given a percent increase or decrease and original amount
 - G. Find an old amount given a percent change and new amount

Learning Activities

Learning activities will be assigned to assist the student to achieve the intended course outcome through student-Instructor interaction, text materials, computerized instruction, web resources and other activities at the discretion of the instructor.

Grade Determination

The student will be graded on learning activities and assessment tasks (including development of visual representations in problem-solving). Grade determinates may include the following: daily assignments, including assignments involving use of study skills (i.e., making of unique study cards), and other methods of evaluation employed at the discretion of the instructor.