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Course Outline for MATH 107A

PRE-ALGEBRA A

Effective: Fall 2018

I. CATALOG DESCRIPTION:
MATH 107A — PRE-ALGEBRA A — 2.00 units

This course is intended to serve as a bridge between arithmetic and Elementary Algebra. It includes a review of concepts covered in the first half of Mathematics 107 Pre-Algebra, including: review of arithmetic, operations involving signed integers, fractions, variables and variable expressions, and simple linear equations.

1.50 Units Lecture 0.50 Units Lab

Corequisite
MATH 107E - Pre-Algebra A Co-requisite Support

Grading Methods:
Letter or P/NP

Discipline:
- Mathematics

	MIN
Lecture Hours:	27.00
Expected Outside of Class Hours:	54.00
Lab Hours:	27.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Perform accurate computations with whole numbers, fractions, signed and unsigned, without using a calculator;
B. Simplify and evaluate variable expressions;
C. Solve linear equations involving multiple steps.

V. CONTENT:
A. The real number system
   1. Natural numbers and integers
   2. Addition, subtraction, multiplication and division of signed numbers
   3. Addition, subtraction, multiplication and division of signed fractions
   4. Order of operations using signed numbers
B. Properties of operations
   1. Commutative law
   2. Associative law
   3. Distributive law
C. Algebraic Expressions
   1. Evaluate
   2. Simplify using order of operations
D. Linear equations in one variable
   1. Solve simple equations using the addition and multiplication property of equality;
   2. Solve multi-step equations using the above, combining like terms and the distributive property

VI. METHODS OF INSTRUCTION:
A. **Lab** - Laboratory activities
B. **Discussion** - Classroom or small group discussion.
C. Computer assisted instruction (e.g., ALEKS or My Math Lab)
D. **Lecture** - Lectures and tutorials
E. **Classroom Activity** - Collaborative exercises on designated content.

VII. TYPICAL ASSIGNMENTS:

A. Lab Activities/Computer Assisted Instruction
   1. Take an initial personalized interactive assessment of your skills on the computer using an appropriate computer software program.
   2. Practice simplifying algebraic expressions and continue to take the computer assessment on this topic until mastered.

B. Homework-typical problems
   1. A wedding-cake recipe requires 12 cups of shortening. Being calorie-conscious, the wedding couple decides to reduce the shortening by cups and replace it with prune puree. How many cups of shortening are used in the new recipe?
   2. Evaluate
   3. Solve

C. Collaborative learning exercises collected at the end of class
   1. Complete the 'Just State the Facts' worksheet on adding and multiplying mixed numbers.

VIII. EVALUATION:

A. **Methods**

   1. Exams/Tests
   2. Class Work
   3. Home Work
   4. Other:
      a. Collaborative Learning Activities

B. **Frequency**

   1. Exams/Tests
      a. Recommend minimum of three exams
      b. Comprehensive final exam
   2. Class work weekly
   3. Homework
      a. Assigned for each section covered
      b. Collected regularly
   4. Collaborative Learning Activities
      a. At the discretion of the instructor

IX. TYPICAL TEXTS:

1. Martin-Gay, E. (2015). *Prealgebra* (7th ed.). Boston, MA: Pearson.
2. Bittenger, M.L., Ellenbogen, D.J., & Johnson, B.L. (2016). *Prealgebra Plus* (7th ed.). Boston, MA: Pearson.
3. Blair, J., Tobey, J., Slate, J., & Crawford, J. (2017). *Prealgebra* (6th ed.). Boston, MA: Pearson.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Students will purchase an access code to an online software package that will provide them with access to an online mathematics homework, tutorial, and assessment system. The access code can be bundled with the text at a small cost to the student. Math software and required free plugins will need to be installed on both student and instructor computers.