Course Syllabus

Department: Mathematics

Date: October 23, 2014

I. Course Prefix and Number: MAT 097

   Course Name: Intermediate Algebra

   Credit Hours and Contact Hours: 0 Credit Hours, 3 Contact Hours, 3 Imputed Credits

   Catalog Description including pre- and co-requisites: supporting data required for grade prerequisite of 'C' or higher.

   A transitional course in mathematics designed to provide the student with a solid algebraic background for further studies in mathematics or the sciences. This is a mid-level course in algebra for the student that has some algebra skills.

   Topics include a review of solving and graphing linear equations, expressions with integer and rational exponents, scientific notation, operations on polynomials, factoring techniques, algebraic fractions and solving quadratic equations.

   This course carries imputed (financial aid) credit. It does not fulfill FLCC’s Mathematics or general elective requirements.

   Prerequisite: MAT 095 or Placement into Math Level 1

   Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable:

   This course is a developmental course that prepares the student for introductory college level mathematics/science courses needed for many programs

II. Course Student Learning Outcomes: State the student learning outcome(s) for the course (e.g. Student will be able to identify…)

   Upon completion of the course the participant will be able to:

   1) Use the language and notation of algebra.
   2) Determine the equation of a line given two points.
   3) Simplify expressions containing negative and rational exponents.
   4) Evaluate expressions using numbers in scientific notation.
   5) Add/subtract/multiply algebraic fractions.
   6) Add/subtract/multiply/divide polynomials.
   7) Factor expressions.
   8) Solve quadratic equations by multiple methods.

   College Learning Outcomes Addressed by the Course: (check each College Learning Outcome addressed by the Student Learning Outcomes)

   N/A
III. **Assessment Measures (Summarize how the college and student learning outcomes will be assessed):** *For each identified outcome checked, please provide the specific assessment measure.*

Student Learning Outcomes will be assessed through a variety of activities. Possible activities include quizzes, tests, portfolios, collected assignments, group activities, et. al. Such evaluations and related assignments will develop a student's ability to read problems carefully, perform mathematics and use problem-solving techniques.

IV. **Instructional Materials and Methods**

**Types of Course Materials:**
- **Textbook:** As designated by department
- **Calculator:** Scientific Calculator required. TI-30X IIS or TI-30X IIB recommended

**Methods of Instruction (e.g. Lecture, Lab, Seminar …):**
1. Lectures
2. Discussions
3. Demonstrations
4. Group activities

V. **General Outline of Topics Covered:**
1) Linear Equations in two variables
   a) Solving linear equations (review)
   b) Solving one variable, first degree inequalities
   c) Solving linear systems in two variables by substitution and by elimination
   d) Dependent and inconsistent systems

2) Exponents
   a) Properties of exponents (review)
   b) Negative exponents
   c) Rational exponents and their connection to radicals
   d) Evaluating expressions with integer and rational exponents
   e) Simplifying expressions containing integer and rational exponents
   f) Solving equations by raising both sides to an exponent

3) Scientific Notation
   a) Converting numbers from standard notation to scientific notation
   b) Add/subtract/multiply/divide numbers in scientific notation
   c) Evaluating algebraic expressions with numbers in scientific notation

4) Polynomials
   a) Terminology of polynomials
   b) Add/subtract/multiply polynomials (review)
   c) Dividing polynomials by monomials and linear binomials

5) Factoring
a) Common factor (including common binomials)
b) Difference of two squares
c) Sum/difference of two cubes
d) Trinomial factoring

6) Algebraic Fractions (with variable denominators)
   a) Add/Subtract fractional expressions
   b) Multiply/Divide fractional expressions
   c) Simplifying complex fractions
   d) Solving equations that contain algebraic fractions
   e) Determining the resulting units in an applied algebraic expression

7) Quadratic Equations
   a) Solving by factoring
   b) Solving by taking roots
   c) Solving by completing the square
   d) Quadratic formula

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