

## Course Syllabus

---

---

Prepared by the Department of Mathematics

Department Chair's Signature:

Date of Departmental Approval: May 1, 2006

Division Dean's Signature:

Date approved by Curriculum and Programs:

**1. Course Number: MAT030**

**Course Title: Elementary Algebra**

**Text: Introductory and Intermediate Algebra, by Lial, Hornsby, Mcginnis**

**2. Description:** A mastery-based introductory course in algebra designed to help prepare students for intermediate algebra. Topics include: properties and operations on real numbers, linear equations, ratio and proportion, percents, geometric figures, graphing, linear systems, exponents, polynomials, factoring and the development of word problem analysis and solution. This course uses a mastery-based approach. (This course does not satisfy the mathematical general education requirement.) 3 class hours.

**3. Student Learning Outcomes (instructional objectives: intellectual skills):**

Upon successful completion of course students will be able to:

- apply order of operations correctly.
- use signed numbers in equations and application problems.
- solve linear equations and inequalities.
- graph linear equations and inequalities.
- solve systems of linear equations.
- combine polynomials through addition, subtraction, multiplication and division.
- factor simple polynomials and solve quadratic equations by factoring.
- solve application problems.

**4. Credit(s):** 3 non-degree credits

**5. Required or elective:** Elective

**6. Satisfies General Education Core or Distribution Requirement:** No

**7. Prerequisite(s):** MAT020 Elementary algebra or appropriate mathematics placement score.

**8. Level of Course:** Developmental.

**9. General Statement of Evaluation:** Regular unit tests given on a "mastery basis". The mastery approach has as its goal the student's mastery of course material at the 80% level. Limited retesting is available to achieve this. The mastery approach provides for personalized interventions and advising to help students achieve the mastery level. Minimums of 80% on each unit test and 70% minimum on the final exams are required to pass. Grading yields a Pass/Fail or letter grade of B or higher. Students who remain active in the course through to its conclusion, but fail to achieve the required level of proficiency, may at the instructor's discretion, be eligible for the "R" grade.

**10. Content Outline of Course:** Please see the attached course outline. Note that more detail is available in the “Instructional Course Description” which is on file in the Division of Arts and Sciences office.

***MAT030 Elementary Algebra***

I. Review Concepts of Arithmetic

- A. Order of operations.
- B. Real numbers.
- C. Basic operations of real numbers.
- D. Properties of addition and multiplication.
- E. Simplifying expressions.

II. Review Linear Equations and Applications

- A. Solving linear equations.
- B. More on solving linear equations.
- C. Applied problems.
- D. Formulas and geometry applications.
- E. Ratio and proportion; percent.

III. Linear Inequalities and Absolute Value

- A. Linear inequalities in one variable.
- B. Set operations and compound inequalities.
- \*C. Absolute value equations and inequalities. *optional*.

IV. Linear Equations and Inequalities in Two Variables; Functions.

- A. The rectangular coordinate system.
- B. The slope of a line.
- C. Linear equations in two variables.
- \*D. Linear inequalities in two variables. *optional*.
- E. An introduction to functions.
- F. An application of functions: variation.

V. Systems of Linear Equations

- A. Solving systems of linear equations by graphing.
- B. Solving systems of linear equations by addition.
- C. Solving systems of linear equations by substitution
- D. Applications of linear systems.

VI. Exponents and Polynomials

- A. Rules for exponents
- B. Addition and subtraction of polynomials.
- C. Multiplication of polynomials.
- D. Product patterns and dividing by monomials.
- E. The quotient of two polynomials.

VII. Factoring

- A. Factors; the greatest common factor.
- B. Factoring trinomials.

- C. Special factorizations.
- D. Solving quadratic equations by factoring.
- E. Applications of quadratic equations.