Course Title:	Elementary Algebra II
Prefix and Course Number:	MATH 92

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Solve systems of linear equations by graphing, substitution and elimination.
- Recognize inconsistent and dependent systems graphically and algebraically.
- Use systems of linear equations to solve applications.
- Determine if a number is prime or composite.
- Prime factor a whole number.
- Determine if a number is divisible by 2, 3 or 5.
- Factor polynomials using various techniques.
- Determine if a polynomial is prime.
- Solve quadratic equations by factoring.
- Setup and solve application problems using quadratic equations.
- Reduce and find restriction's for rational expressions.
- Add, subtract, multiply and divide rational expressions.
- Perform long division with polynomials to find the quotient and remainder.
- Solve rational equations and identify extraneous solutions.
- Use rational equations to solve applications.
- Simplify radical expressions.
- Add, subtract, multiply and divide radical expressions.
- Use the Pythagorean theorem.

Course Outline:

VI. Systems of Linear Equations
    A. Graphing review (In Math 92)
    B. Solving by graphing
    C. Recognizing no solution and same line
    D. Solving by elimination
    E. Solving by substitution
    F. Applications

VII. Factoring
    A. Revisit Multiplication (in particular, the Distributive Property of Multiplication over Addition)
    B. Greatest Common Factor
    C. Factor versus term
       i. Identify factors
       ii. Identify terms
       iii. Explain the difference between factors and terms
    D. Factor by grouping
    E. Factor quadratic trinomials
    F. Factor special patterns
       i. Perfect square trinomials
       ii. Difference of squares
    G. Multiple step factoring
    H. Solve quadratic equations by factoring

VIII. Operations Involving Rational Expressions
- A. Evaluate rational expressions
  - i. Find restrictions on rational expressions
- B. Reduce rational expressions
  - i. Including opposite factors
- C. Multiplication and division of rational expressions
- D. Addition and subtraction of rational expressions
  - i. With the same denominator
  - ii. With unlike denominators
- E. Simplify complex fractions
- F. Solve rational equations

IX. Introduction to Roots/Radicals
- A. Evaluate roots of numbers
  - i. Find exact roots that result in rational numbers
  - ii. Approximate roots
  - iii. Identify when a root is not a real number
- B. Evaluate roots of variables
  - i. Find roots of nonnegative variables raised to powers that are multiples of the index
- C. Simplify radicals of numbers and variables
  - i. Use the product rule for radicals to write the given radical so that the radicand contains no factor to a power greater than or equal to the index
- D. Products and quotients of radicals with the same index
- E. Addition and subtraction of radicals
- F. Pythagorean Theorem