Mathematics 112. Algebra  
Syllabus for Instructors

• Required Course Materials:
  (1) Lecture Notes: *College Algebra Lecture Notes* available at TIS and UIB bookstores.
  (2) ALEKS course semester code: purchase at www.aleks.com/uiuc

• Course Description:
This class has a blended format in which half of the content is delivered in lecture and half is delivered online. Rapid review of basic techniques of factoring, rational expressions, equations and inequalities; functions and graphs; exponential and logarithm functions; systems of equations; polynomials; and the binomial theorem, unit circle trigonometry.

• Prerequisite: Three years of high school mathematics, including two years of algebra and one year of geometry.

• Tentative Topic Schedule by Week
  (1) Real Numbers; Interval Notation; Absolute Value Integer Exponents; Radicals; Rational Exponents
  (2) Algebraic Expressions; Factoring Rational Expressions
  (3) Equations – Basic, Quadratic, Other Types, Absolute Value
  (4) Modeling with Equations
  (5) Inequalities – Linear, Non-linear, Absolute Value
  (6) Coordinate Geometry; Graphing Equations; Symmetry Lines
  (7) Functions; Graphs of Function
  (8) Increasing/Decreasing Functions; Avg Rate of Change; Transformations of Functions
  (9) Quadratic Functions; Combining Functions
  (10) One-to-One Functions and Inverses
  (11) Polynomial Functions; Dividing Polynomials
  (12) Real Zeros of Polynomials
  (13) Rational Functions
  (14) Exponential Functions; Logarithmic Functions
  (15) Laws of Logarithms; Exponential and Log Equations; Modeling with Exp and Log Functions