SPARTANBURG COMMUNITY COLLEGE

COLLEGE ALGEBRA

Revised **8/12/11**

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COURSE NUMBER: MAT 110

PREREQUISITE(S): MAT 102 with grade of "C: or better.

CO-REQUISITE(S): None

COURSE DESCRIPTIONS This course includes the following topics: polynomial, rational, logarithmic, and exponential functions; inequalities; systems of equations and inequalities; matrices; determinants; and solutions of higher degree polynomials.

TEXTBOOK(S): Ratti & McWaters. College Algebra and Trigonometry, second edition. Boston: Pearson Education, Inc., 2011.

Addison-Wesley:
textbook with MyMathLab included: ISBN: 0-32173579-X
MyMathLab stand alone: ISBN: 0-32119991X

REFERENCE(S): N/A

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: For most recent requirements go to : http://pearsonmylabandmastering.com/system-requirements/

TI-83 calculator or equivalent. Calculators with algebraic symbolic operations are not allowed without instructor's approval.

Computer with Internet access, Internet Explorer 5.0 or higher or other current browser, Java, word processing software (must be able to save Word format), and anti-virus software.

METHOD OF INSTRUCTION:

This course will be taught via the internet. The concepts will be instructor-led by reading, watching, and/or exploring using an internet-based math tutorial and a textbook.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

GRADE CALCULATION METHOD:

See instructor's handout.

CONFIDENTIALITY:

All students' e-mail addresses may be available to other students in the class. Although some assignments in an online course may encourage or require peer communication, the instructor will make every effort to protect the confidentiality of any personal communication (for example, grades). However, you should recognize that e-mail and other electronic media are not secure; there is no guarantee of the privacy of your e-mail or other personal information.

APPROPRIATE ONLINE BEHAVIOR:

The use of Spartanburg Community College's website, e-mail service or course management software for creation and/or distribution of material not pertaining to course participation is prohibited and is grounds for dismissal according to College policy under "disruptive behavior." Such actions, include, but are not limited to:

- Inappropriate use of email and discussion boards for:
  - ✓ Harassment
  - ✓ Unlawful solicitation
  - ✓ "Spamming"
  - ✓ "Flaming"
- Use of online editing tools within the course management software to:
  - ✓ Create offensive material
  - ✓ Link to inappropriate materials

ATTENDANCE POLICY:

Requirement: All students must register in MyMathLab during the first week of scheduled classes. At the end of the first week, the instructor will drop any student from the course who has not registered in MyMathLab.

Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student who stops attending the online class and fails to initiate a withdrawal will remain on the class roster. *With this in mind, for every assignment, test or exam not completed while still enrolled in the course the student will receive a grade of zero and the final course grade will be calculated accordingly.*

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

ACADEMIC CONDUCT:

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

TESTING:

Tests will be taken online in approved Testing Centers with proctors. The instructor may allow, at most, one test to be taken online unproctored. For SCC students, tests will be taken online and will be administered in the **Testing Center located in E-3 of the East Building on the SCC campus**. If the SCC campus is not convenient, the student may contact the instructor for an alternate testing site. For Tech Online students, the test will be administered in the testing center at your host college**.** Refer to the class outline for test availability. If any test is not taken during the specified time frame, a zero will be awarded for the test grade. Everyone must take a comprehensive final exam.

East Building Room 3 Testing Center: PHOTO ID REQUIRED!

Go to http://www.sccsc.edu/resources/testing for hours of operation.

ACCOMMODATIONS:

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at http://www.sccsc.edu/resources/disabilities ; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

COURSE OUTCOMES & OBJECTIVES:

Upon satisfactory completion of this course, the students should be able to demonstrate competency in the General Education Outcome listed as "their ability to express themselves effectively in quantitative and qualitative terms" in the following competencies and objectives:

Unit I – Functions and their Graphs
The student will be able to (TSWBAT):
• Define and evaluate functions and find their domains.
• Analyze and graph functions.
• Identify nonlinear parent functions and their transformations.
• Translate, reflect, and stretch graphs of functions.
• Perform operations on functions, including composition of functions.
• Find the inverse of a given function.

Unit II – Polynomial and Rational Functions
(TSWBAT):
• Perform operations on complex numbers.
• Analyze graphs of polynomial and rational functions.
• Find the zeros of a polynomial function.
• Graph polynomial and rational functions.
• Solve and graph polynomial and rational inequalities.
• Use polynomial functions and rational functions to model applications.

Unit III – Exponential and Logarithmic Functions
(TSWBAT):
• Recognize, evaluate and graph exponential and logarithmic functions.
• Apply the properties of logarithms to simplify expressions.
• Solve exponential and logarithmic equations.
• Solve application problems involving exponential and logarithmic functions.

Unit IV – Systems of Equations and Inequalities, Matrices, and Determinants
(TSWBAT):
• Perform operations on matrices and evaluate determinants.
• Solve systems of linear and non-linear equations employing a variety of methods, including the use of matrices.
• Solve application problems involving systems of equations and matrices.
• Solve systems of inequalities.

SYLLABUS
ADDENDUM
MAT 110

I. Equations and Inequalities — **4 hrs**
   A. Section 1.3 Complex Numbers
   B. Section 1.4 Quadratic Equations

II. Graphs and Functions — **12.5 hrs**
   A. Section 2.2 Graphs of Equations (omit Circles)
   B. Section 2.4 Relations and Functions
   C. Section 2.5 Properties of Functions (omit Average Rate of Change and Difference Quotient)
   D. Section 2.6 A Library of Functions (omit Linear and Piecewise Functions)
   E. Section 2.7 Transformations of Functions
   F. Section 2.8 Combining Functions; Composite Functions
   G. Section 2.9 Inverse Functions

III. Polynomial and Rational Functions — **12.5 hrs**
   C. Section 3.1 Quadratic Functions
   D. Section 3.2 Polynomial Functions
   E. Section 3.3 Dividing Polynomials
   F. Section 3.4 The Real Zeros of a Polynomial Function (omit Descartes's Rule of Signs and Bounds)
   G. Section 3.5 The Complex Zeros of a Polynomial Function
   H. Section 3.6 Rational Functions
   I. Section 3.7 Polynomial and Rational Inequalities

IV. Exponential and Logarithmic Functions — **9 hrs**
   A. Section 4.1 Exponential Functions
   B. Section 4.2 The Natural Exponential Function
   C. Section 4.3 Logarithmic Functions
   D. Section 4.4 Rules of Logarithms
   E. Section 4.5 Exponential and Logarithmic Equations (omit Inequalities)

V. Systems of Equations and Inequalities — **4.5 hrs**
   A. Section 8.1 Systems of Linear Equations in Two Variables
   B. Section 8.4 Systems of Inequalities (Two Equations only)

VI. Matrices and Determinants — **9.5 hrs**
   A. Section 9.1 Matrices and Systems of Equations (Solve on Calculator only)
   B. Section 9.2 Matrix Algebra
   C. Section 9.4 Determinants and Cramer's Rule (omit Minors, Cofactors, and 3x3 and nxn matrices)