COURSE OUTLINE FALL 2008

Course Number	Course Title	Credits
MAT037A	Beginning Algebra Part A	3

Hours: lecture/Lab/Other	Co- or Pre-requisite	Implementation sem/year
3 lecture	Passed MAT033 with a C Or an appropriate score on Accuplacer test	Fall 2008

Catalog description (2006-2009 Catalog):
The first half of a two-semester sequence for students with minimal experience in algebra. Topics include integers, algebraic expressions, solving and graphing linear equations and inequalities, systems of equations and polynomials. Students must also complete MAT037B to take college-level math. [Foundation course does not fulfill mathematics elective requirement.]

Is course New, Revised, or Modified? New

Required texts/other materials:

Textbook: Blitzer, Robert. Introductory Algebra. 5th Edition. Pearson Publishing, 2008. ISBN-10: 0-13-235679-1
Or
MyMathLab available in bookstore or at www.mymathlab.com. An access code is required from an instructor and will be provided first day of class.
Scientific calculator
Notebook

Revision date:
Spring 2008

Course coordinator:
Betty Peterson, ext 3421, petersob@mccc.edu

Information resources:
The library has an extensive collection of books that students may use for reinforcement of the skills being taught in this course. Supplemental materials are available from the publisher which includes student's solution manual, a DVD series and MyMathLab. MyMathLab is an online learning resource which includes an interactive textbook with guided solutions and a series of video lectures.

Other learning resources:
Tutors available at both campuses.

Course Competencies/Goals:

As this is a foundation level mathematics course, the course should first and foremost prepare the students for future college level work in mathematics. The students should develop confidence in their abilities to perform successfully. They should also gain experiences that connect their classroom learning with real world applications of mathematics and should be able to build techniques of reasoning for effective problem solving.

The student will be able to:

I. Apply knowledge of integers and their arithmetic operations.
II. Apply rules of arithmetic to algebraic expressions.
III. Solve equations and inequalities with one variable algebraically.
IV. Generate and interpret graphs of linear equations with two unknowns.
V. Demonstrate an understanding of mathematical vocabulary.
VI. Apply skills learned to solve application problems.
VII. Apply rules of exponents.

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goal

Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

MCCC Core Skills

Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.

Goal F. Collaboration and Cooperation. Students will develop the interpersonal skills required for effective performance in group situations.

Units of study in detail.

Unit I Integers and Expressions

Learning Objectives

The student will be able to…

- Solve applied problems involving the comparison of real numbers. (Course Competency I, MCCC Core Skills 2 and B)
- Perform the mathematical operations of addition, subtraction, multiplication and division on integers. (Course Competency I, MCCC Core Skill 2)
- Solve application problems involving integers. (Course Competencies I, V & VI, MCCC Core Skills 2 and B)
- Translate word phrases to algebraic expressions. (Course Competencies I & VI, MCCC Core Skills 2 and B)
- Evaluate algebraic expressions. (Course Competency II, MCCC Core Skills 2 and B)
- Solve application problems involving formulas. (Course Competencies I, V & VI, MCCC Core Skills 2 and B)
- Combine like terms and simplify algebraic expressions that contain parentheses. (Course Competency II, MCCC Core Skills 2 and B)

Unit II Equations and Inequalities

Learning Objectives

The student will be able to…

- Use the properties of equality to solve equations. (Course Competencies I & III, MCCC Core Skills 2 and B)
- Solve a literal equation for one of the unknowns. (Course Competencies I & III, MCCC Core Skills 2 and B)

- Translate written statements into algebraic equations. (Course Competencies I, V & VI, MCCC Core Skills 2 and B)
- Solve application problems involving equalities. (Course Competencies III, V & VI, MCCC Core Skills 2, B and F)
- Solve and graph linear inequalities. (Course Competencies I & III, MCCC Core Skills 2 and B)
- Graph linear compound inequalities. (Course Competencies I & III, MCCC Core Skills 2 and B)
- Use interval notation to express inequalities. (Course Competencies I & III, MCCC Core Skills 2 and B)
- Solve application problems involving inequalities. (Course Competencies I, III, V & VI, MCCC Core Skills 2, B and F)

Unit III **Graphs of Linear Equations and Systems**

Learning Objectives

The student will be able to…

- Find ordered pairs that are solutions to linear equations and determine if they are correct. (Course Competency IV, MCCC Core Skill 2)
- Graph linear equations of the form $y = mx + b$ and $Ax + By = C$ by using a table of values. (Course Competency IV, MCCC Core Skill 2)
- Find the slope of a line that passes through two given points and understand that slope is a rate of change. (Course Competency IV, MCCC Core Skill 2)
- Graph a line that passes through a given point and has a given slope. (Course Competency IV, MCCC Core Skill 2)
- Determine whether two given lines are parallel or perpendicular. (Course Competency IV, MCCC Core Skill 2)
- Determine the *x* and *y* intercepts of linear equations. (Course Competency IV, MCCC Core Skill 2)
- Solve application problems involving linear equations. (Course Competencies IV, V & VI, MCCC Core Skills 2, B and F)
- Solve a system of two linear equations with two unknowns by graphing. (Course Competency IV, MCCC Core Skills 2 and B)

Unit IV **Exponents and Polynomials**

Learning Objectives

The student will be able to…

- Understand the vocabulary used to describe polynomials. (Course Competency V, MCCC Core Skill 2)
- Apply knowledge of integers to add and subtract polynomials. (Course Competency II, MCCC Core Skill 2)
- Use rules of exponents to multiply when both are monomials and when only one is a monomial. (Course Competency VII, MCCC Core Skill 2)
- Apply rules to multiply polynomials when neither is a monomial. (Course Competencies II & VII, MCCC Core Skill 2)

Evaluation of student learning:

Grade will be based on the following percentages:
Four unit tests 60%
Group Projects 10%
Homework and Quizzes 10%
Final 20%

Multiple choice questions on the departmental unit tests will reflect each of the unit objectives listed above and administered in the testing center. No extra credit should be given on these tests. Partial credit should not be given for work. As an alternative to this policy, instructors may write their own free answer tests, but these tests need to be reviewed by the course coordinator before administration to ensure that both the learning objectives are being met and that the tests are clearly written to be fair for the students.

The textbook chosen for this course has group projects at the end of each chapter. During the review period for the unit, the students should complete a group project which will reinforce the material in the unit as well as connect it with a real world application. A minimum of two projects should be collected for a grade.

For the homework and quizzes portion of the grade instructors are free to do any or all of the following suggestions. Homework could be checked for completion or collected and graded. Quizzes should be given on a weekly basis when there are no tests assigned for completion. Most students need to practice the skills presented in class in order to perform well on a test. Attendance in class is important but is not enough and weekly graded opportunities should be used to ensure that the students are practicing on a regular basis. Two other possibilities for a grade in this area would be to check notebooks to ensure that the students are taking notes during class or assigning minute papers to check for understanding of the day's material.

The final is comprehensive and passing the final is required to pass the class.

Academic Integrity Statement:

Mercer County Community College is committed to academic integrity – the honest, fair and continuing pursuit of knowledge, free from fraud or deception.

Students should never:

- Knowingly represent the work of others as their own
- Knowingly represent previously completed academic work as current
- Fabricate data to support academic work
- Use or obtain unauthorized assistance in the execution of any academic work
- Give fraudulent assistance to other students
- Unethically use technological means to gain academic advantages

Violators of the above actions will be penalized. For a single violation the faculty member will determine the course of action. This may include assigning a lower grade on the assignment, lowering the course grade, failing the student, or another penalty that is appropriate to the violation. The student will be reported to the Academic Integrity Committee, who may impose other penalties for a second (or later) violation. The student has right to a hearing and also to appeal any decisions. These rights are outlined in the student handbook.