Salem Community College Course Syllabus

Section 1

Course Title: **Contemporary Math Enhancement**

Course Code: **MAT094**

Lecture Hours: **2**

Lab Hours: **0**

Credits: **2**

Course Description:
This course is designed to enable students to become very proficient in the manipulative skills of traditional mathematics that are required for student proficiency in MAT-134 (Contemporary Mathematics). Students investigate both mathematics and algebraic principles at a level that supports these applications in MAT134. Topics include, linear equations and properties of lines, numerical and variable exponents, fractions and rational expressions.
(Credits do not apply toward graduation requirements.)

Prerequisite:
College Placement Test or MAT 092

Co-requisite:
MAT134

Place in College Curriculum:
This course is used to build academic competencies of students who lack appropriate mathematical proficiencies required for entry into the college curriculum of their choice.

Date of Last Revisions:
January 2016

Section II

Course Content Outline:

I. Real Numbers inclusive of whole numbers, Integers, Fractions and including Decimals and their Related Operations
   A. Addition
   B. Subtraction
   C. Multiplication
   D. Division
   E. Properties
   F. Simplifying Expressions
   G. Order of operations

II. Equations
   A. Addition Principle
   B. Multiplication Principle
   C. Combining Addition and Multiplication Principles to Solve Equations
   D. Formula evaluation and Manipulation

III. Graphs: Linear Equations & Other types
   A. Applications of Graphs of Linear Equations
   B. Intercepts
   C. Slope
   D. Y-Intercept
   E. Equations of Lines
   F. Parallel Lines
   G. Other types

IV. Polynomial Operations
   A. Integers and Exponent Rules
   B. Addition, Subtraction and Multiplication of Variables

V. Ratio and Proportions
   A. Ratios
   B. Proportions

VI. Percent
   A. Percent Notation
   B. Percent Equations
   C. Percent Proportions

Section III

Course Performance Objective #1:
The Student will perform calculations using real numbers and analyze basic algebraic expressions.

Learning Outcomes: The student will:

1) Evaluate algebraic expressions by substitution.
2) Translate written phrases to algebraic expressions.
3) Graph rational numbers on the number line.
4) Convert a rational number from fraction notation to decimal notation.
5) Identify the relative ordering of two real numbers.
6) Calculate the absolute value of a real number.
7) Calculate the sum of real numbers.
8) Find the opposite of a real number.
9) Calculate the difference of real numbers.
10) Simplify combinations of additions and subtractions of real numbers.
11) Calculate the product of real numbers.
12) Calculate the quotient of real numbers.
13) Simplify fraction expressions.
14) Calculate the product of expressions using distributive laws.
15) Combine like terms of algebraic expressions.
16) Simplify expressions using distributive laws.
17) Simplify expressions containing nested parenthesis.
18) Simplify expressions using the rules for order of operations.

Course Performance Objective #2:
The student will solve basic equations

Learning Outcomes: The student will:

1) Recognize when a given number is a solution of an equation.
2) Solve equations using the addition principle.
3) Solve equations using the multiplication principle.
4) Solve equations using both the addition principle and the multiplication principle.
5) Solve equations in which like terms may need to be collected.
6) Solve equations by first removing parenthesis and collecting like terms.
7) Recognize when an equation has an infinite number of solutions.
8) Recognize when an equation has no solution.
9) Evaluate a formula.
10) Solve a formula for a specified letter.

Course Performance Objective #3:
The student will understand the graphs of linear equations.

Learning Outcomes: The student will:

1) Plot points associate with ordered pairs of numbers.
2) Find the coordinates of a point on a graph.
3) Recognize when an ordered pair is a solution of an equation with two variables.
4) Graph linear equations of the type y=mx+b and ax+by=c.
5) Identify the intercepts of a linear equation.
6) Graph a linear equation using intercepts.
7) Graph equations equivalent to those of the type x=a and y=b.
8) Calculate the slope of the line when given two points on the line.
9) Calculate the slope of the line from an equation.
10) Identify the slope and the y-intercept given an equations in the form of y=mx+b.
11) State and equation of a line when the slope and a point on the line are given.
12) State and equation of a line when points on the line are given.
13) Graph a line using the slope and y-intercept.
14) Recognize when the graphs of two linear equations are parallel.
15) Recognize when the graphs of two linear equations are perpendicular.
16) Create and evaluate other types of graphs such as pie charts; bar graphs and histograms.

Course Performance Objective #4:
The student will manipulate polynomials.

Learning Outcomes: The student will:

1) Evaluate exponential expressions.
2) Evaluate algebraic expressions containing exponents.
3) Use the product rule to multiply exponential expressions with like bases.
4) Use the quotient rule to divide exponential expressions with like bases.
5) Simplify expressions by using the properties of integer exponents.
6) Use the power rule to raise exponential expressions to an exponent.
7) Simplify expressions using both the product rule and the power rule.
8) Simply expressions using both the quotient rule and the power rule.
9) Evaluate a polynomial given the value of the variable or variables.
10) Identify the terms of a polynomial.
11) Identify the like terms of a polynomial.
12) Identify the coefficients of a polynomial.
13) Combine the like terms of polynomial.
14) Arrange the terms of a polynomial in descending order.
15) Identify the degree of each term of a polynomial and the degree of a polynomial.
16) Identify the missing terms of a polynomial.
17) Identify a polynomial as a monomial, binomial, trinomial, or none of these.

Course Performance Objective #5:
The student will understand ratios, proportions, and solve problems using proportions.

Learning Outcomes: The student will:

1) Write a ratio in fraction notation.
2) Simplify ratios.
3) Demonstrate whether two pairs of numbers are proportional.
4) Recognize an equation when presented in a format of proportions.
5) Solve proportions.
6) Solve applied problems using proportions.

Course Performance Objective #6:
The student will understand percent, and solve percent problems.

Learning Outcomes: The student will:

1) Convert between percent notation and decimal notation.
2) Convert between fraction notation and percent notation.
3) Translate percent problems using percent equations and to proportions.
4) Solve basic percent problems using percent equations and using proportions.

Section IV

General Education Requirements:
The general education goals cover in _____are critical thinking and problem solving, quantitative skills, and science and technology. See Student Handbook for additional details.

Section V

Outcomes Assessment:
A college-wide outcome assessment program has been put into place to enhance the quality and effectiveness of the curriculum and programs at Salem Community College. As part of this assessment program, the learning outcomes for this course will be assessed. Assessment methods may include tests, quizzes, papers, reports, projects and other instruments. Copies of all outcomes assessments are available in an electronic assessment bank maintained by the Institutional Research and Planning Office.

Section VI

Course Activities:
Students will use computer based assessments to develop a customized individual instructional plan. This individual content will be delivered by computer, supplemented by the instructor.

Course Requirements and Means of Evaluation:
Please refer to the instructor's syllabus addendum (to be distributed in class) for specific information regarding the course requirements and means of evaluation.

ADA Statement:
If you have a 504 Accommodation Plan, please discuss it with your instructor. If you have any disability but have not documented it with the Disability Support coordinator at Salem Community College, you must do so to be eligible for accommodations. To contact the Disability Support Coordinator, call 856-351-2773, visit DON108, or e-mail disabilitysupport@salemcc.edu to set up an appointment. To find out more information about disability support services at Salem Community College, visit www.salemcc.edu/students/student-success-programs/disability-support.

Attendance Policy:
Regular and prompt attendance in all classes is expected of students. Students absent from class for any reason are responsible for making up any missed work. Faculty members establish an attendance policy for each course and it is the student's responsibility to honor and comply with that policy.

Academic Honesty Policy:
Students found to have committed an act of academic dishonesty may be subject to failure of this course, academic probation, and/or suspension from the college. See the Student Handbook for additional details.

Section VII

Required Text(s):
For textbook information, please see Salem Community College Bookstore Website.

Additional Costs:
Students are required to access the internet outside of class time to complete assigned homework or assessments. This may be done at the computer labs at the college, or by using private computer equipment. Any charges incurred by using equipment outside of the college are the student's responsibility.