PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

ELEMENTARY ALGEBRA
DSM 0830

Class Hours: 4.0   **Credit Hours: 4.0**

Laboratory Hours: **Date Revised: Fall 1998**
0.0

Catalog Course Description:

 Course includes elementary algebra topics of signed numbers, simple equations, order of   operations, graphing equations, solving systems of equations, linear inequalities, geometry, and   associated word problems. The TI-83 calculator is required and used throughout the course.

Entry Level Standards:

 Satisfactory completion of RSR 0710 or equivalent test score

Prerequisite:

 RSM 0730 or equivalent math placement score

Textbook(s) and Other Reference Materials Basic to the Course:

 Thomasson/Pesut, Experiencing Algebra. Prentice Hall Publishing Company, 1999.
 TI-83 Graphics Calculator

I. Week/Unit/Topic Basis:

Week	Topic
1	Rational numbers and the number line, 1.1; addition of rational numbers, 1.2; subtraction of rational numbers, 1.3; multiplication and division of rational numbers, 1.4/1.5
2	Review; Test 1; exponential expressions with integer exponents, 2.1; scientific notation, 2.2
3	Radical expressions and real numbers, 2.3; Exponential expressions with rational exponents, 2.4; Properties of real numbers and order of operations, 2.5; Review
4	Test 2; Calculator/Group Work/Modeling Activities; Variables and algebraic expressions, 3.1; Algebraic addition, subtraction, multiplication and division, 3.2/3.3
5	Equations, 3.4; Formulas and Geometry, 3.5; More formulas, 3.6; Review
6	Test 3; Table of values, ordered pairs, and relations, 4.1; Rectangular coordinate system and graphing, 4.2; Functions and function notation, 4.3
7	Analyzing Graphs, 4.4; Review; Test 4; Calculator/Group Work/Modeling Activities
8	Solving linear equations numerically and graphically, 5.1; Solving linear equations using addition and multiplication, 5.2; Solving equations using a combination of properties, 5.3;

	Solving equations for a variable, 5.4
9	Real world models of linear equations, 5.5; Solving linear absolute value equations (optional) 5.6; Review; Test 5
10	Graphing using ordered pairs and the intercept method, 6.1/6.2; graphing using the slope-intercept method, 6.3; Coinciding, parallel, and perpendicular lines, 6.4; Writing equations from given data, 6.5
11	Writing equations from given data, 6.5; Review; Test 6; Calculator/Group Work/Modeling Activities
12	Solving systems of linear equations graphically and with substitution, 7.1/7.2; Solving systems of linear equations using elimination, 7.3; Real world problems, 7.4; Review
13	Test 7; Introduction to linear inequalities, 8.1; Linear inequalities in one variable, 8.2; Linear inequalities in two variables, 8.3
14	Systems of linear equations in two variables, 8.4; Review; Test 8; Calculator/Group Work/Modeling Activities
15	Review; Final exam
16	Performance evaluation and final exam retesting

II. Course Objectives*:

DSM 0830 is a mathematics course in the TBR mandated R/D program. The program is   designed to provide students with skills which support their success in college-level curricula   and enable them to achieve their educational goals. Students' test results will show 80%   competency when compared to his/her initial assessment. Students who complete the R/D   program will experience about the same or better success in college-level classes as students   who did not need to enroll in developmental courses.

A. Solve first order algebraic equations, inequalities, and systems. V, IV

B. Evaluate expressions, formulas and functions. V

C. Model word problems numerically, graphically, or algebraically. II, V

D Use formulas and language of plane and coordinate geometry. III

E. Interpret graphical information. I

F. Use a calculator to support problem solving. GE-V.6

*Roman numerals after course objectives reference goals of the Math department.

III. Instructional Processes*:

Students will:

1. Use graphing calculator and/or computer software to simplify algebraic expressions and   solve linear equations and inequalities. *Technological Literacy Outcome*

2. Engage in collaborative activities such as modeling projects, presentations, group   assignments, and/or other activities involving linear equations. *Problem Solving   and Decision Making*

Outcome, Numerical Literacy Outcome, Transitional Strategy, Active Learning Strategy

3.   Use multiple approaches--physical, numerical, graphical, symbolic, and verbal to solve   linear equations and inequalities. *Numerical Literacy Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State□s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1.   Perform indicated operations on arithmetic expressions involving real numbers by using the correct order of operations. A, F

2.   Simplify single- and multi-variable expressions with real number coefficients using the correct order of operations and the laws of commutativity, associativity, and distribution. A

3.   Evaluate single- and multi-variable expressions and functions when given value(s) for the variable(s). B, F

4.   Solve linear equations numerically, graphically, and algebraically. A, F

5.   Solve linear inequalities and represent the solution on a graph and with interval notation.   A, F

6.   Simplify expressions involving integer and rational exponents. B

7.   Analyze graphs of functions. E

8.   Find several solutions of first-order two-variable linear equations and inequalities and graph solutions on the Cartesian Coordinate Plane. D, F

9.   Model and solve word problems with a single unknown and explain the solution in narrative form. C

10.   Write the equation of a line given the graph of the line. D, E

11.   Write the equation of line given the slope of and a point on the line. D

12.   Write the equation of a line given two points on the line. D

13.   Identify slope, x-, and y-intercepts given the equation of a line. D, F

14.   Identify relationships. (parallel, perpendicular, coinciding) between lines by examining both the graphs and equations of the lines. D, E, F

15.   Graph systems of inequalities and clearly label the region of solution. A, D, E

16.   Solve systems of equations using graphing, substitution, and elimination techniques. A, D, E, F

17.   Model word problems containing two unknowns, solve the resulting system and explain the solution in narrative form. C

18.   Interpret and solve problems involving the concepts of area and perimeter, volume, surface area, cost, revenue, profit, and interest. C, D

19.   Interpret and solve problems involving the properties of complementary and   supplementary

angles. C, D

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

A maximum of three attempts will be allowed per chapter. If the student does not achieve 80% proficiency within three attempts, he/she fails the course. The student has two attempts to pass the final with the required 60%. A third attempt at passing the final may be given at the instructor's discretion.

Multiple Attempts: If a student requires more than one attempt to achieve the required   80% (60% on the final) the scores of the attempts will be averaged. The student will   receive the average of the attempts or 80% (60% on the final), whichever is higher.

B. Laboratory Expectations: None

C. Field Work: None

D. Other Evaluation Methods:

To pass this course, the student must:
1. Achieve a course average of "C" or better
2. Achieve at least 60% correct on the final exam for the course
3. Receive an 80% proficiency on each chapter exam

E. Grading Scale:

Unless otherwise stated on the syllabus supplement, the course grade will be the average of   the individual chapter exams and the comprehensive final exam.

A = 94 - 100
B = 87 - 93
C = 77 - 86
F = below 77

VI. Policies:

A. Attendance Policy:

Regular attendance is very important for successful completion of this course. Absences will be recorded and monitored. Students who miss the equivalent of one week of class may be dropped from the roll and receive an "F" for the course at the instructor's discretion.

B. Academic Dishonesty:

Cheating in any form will not be tolerated. The penalty for cheating is a grade of "F" for the course.

C. Two Attempt Rule:

According to TBR policies, a student must complete this course within two semesters of enrollment or be suspended from all TBR schools for one semester. Grades of A, B, C, E, F, I, or W constitute enrollment.

Withdrawal: Students placed in and enrolled in an R/D course are not permitted to   withdraw except for serious circumstances and with the permission of the R/D program   director. Students wishing to withdraw must discuss this matter first with their   mathematics instructor and then with the student development counselor. The counselor   will notify the student of the decision to allow him/her to withdraw.