PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

LEARNING SUPPORT MATHEMATICS
MATH 0800/0801/0802/0803/0804/0805

Class Hours: 4.0

Credit Hours: 5 (1 credit per course)

Laboratory Hours: 2.0

Revised: Spring 2013

Catalog Course Description:

MATH 0800 builds competency in applying number sense, operating with real numbers and algebraic expressions, analyzing graphs, solving equations, modeling, and critical thinking. The course focuses on implementing problem solving strategies and developing mathematical connections, as well as developing study skills and communicating mathematically.

Entry Level Standards:

ACT or COMPASS scores and scores earned on the Pellissippi math placement test will be used to determine placement in the class.

Prerequisites:

None

Textbook(s) and Other Course Materials:

License for Carnegie Learning
Classroom Activity Packet
Review Packet
The TI-83 or TI-83 Plus or TI-84 graphics calculator is required. A symbolic manipulator such as the TI-89 or TI-92 is not permitted.
Headphones/earphones for use in the Learning Commons

I. Week/Unit/Topic Basis:

Week	Topic
1	Learning styles; email; online course; introduction to equations; natural numbers; integers
2	Patterns and expressions; one-step equations; unit conversions
3	Fraction, decimal, and percent conversions; rational and irrational numbers; order of operations; perimeter and area
4	Test; patterns and two-step equations; ratios, percents, and proportions
5	Squares and square roots; polynomials operations; exponent rules

6	Distributive property;; linear patterns and expressions
7	Test; linear models; two-step equations
8	Equations with similar terms using the distributive property; equations with variables on both sides; problem solving with two-step equations; literal equations
9	Linear inequalities; Test
10	Graphs of linear models; slope-intercept form; graphing lines using various methods
11	Equations of lines; linear models in general form
12	Graphs of linear inequalities; Test
13	Models of linear systems; systems of linear equations
14	Systems of linear inequalities; Test
15	Final Exam Period

II. Course Goals*:

The course will

A. Engage the student in substantial mathematical problem solving. VI. 1,2,4

B. Expand student understanding of mathematics through modeling real-world situations. VI. 1,3,4

C. Foster the ability to read, write, listen to, and speak mathematics. I. 1,2,6

D. Use appropriate technology to enhance mathematical thinking and understanding and to judge the reasonableness of results. VI. 2,5; VII. 1,4,5,6

E. Build the skills to perform arithmetic operations, as well as reason and draw conclusions from numerical information. VI. 1,2,6

F. Build the skills to select, use, and translate among mathematical representations – numerical, graphical, symbolic, and verbal – to organize information and solve problems using a variety of techniques. VI. 1,2,6

G. Increase student tenacity and confidence in the ability to use mathematics. VI. 3,4

*Roman numerals after course objectives reference TBRs general education goals.

III. Expected Student Learning Outcomes*:

Students will be able to:

(MATH 0801)

1. Write equations to represent real world problems involving addition, subtraction, or multiplication. B,C,G

2. Add and subtract integers using a number line model. F,G

3. Enter and find input and output values for real world problems in a table of values. A,B,C,D,E,F,G

4. Represent real world scenarios with algebraic expressions using one operation. B,C,F,G

5. Solve linear equations involving one operation. E,F

6. Determine equivalent measure of length, weight or mass, volume, or time within the same system when given either customary or metric units of measurement. A,B,D,E

7. Write decimals as fractions or mixed numbers. D,E

8. Write fractions and mixed numbers as decimals using equivalent fractions or division. D,E

9. Write decimals as percents, including percents greater than 100 or less than 1. D,E

10. Locate and order real numbers on a number line using various scales. D,E,F

11. Add, subtract, multiply, and divide rational numbers. D,E

12. Use the order of operations to simplify numeric expressions. D,E

13. Find area and perimeter (or circumference) of rectangles, triangles, and circles. A,B,D,E

(MATH 0802)

1. Represent real world scenarios with algebraic expressions using two operations. B,C,G

2. Enter and find input and output values for real world problems in a table of values. A,B,C,D,E,F,G

3. Write and simplify ratios. B,C,D,E

4. Calculate and compare unit rates. A,B,C,D,E

5. Write and solve proportions using equivalent fractions or means-extremes property. A,B,C,D,E,F,G

6. Use percent proportions to find the percent of a number, a percent given two numbers, or a total quantity in real world problems. A,B,C,D,E,F,G

7. Find powers and approximate square roots. D,E

8. Add and subtract polynomials. E,F

9. Multiply polynomials using factor tables or the distributive property. E,F

10. Simplify expressions involving integer exponents using the product and quotient rules for exponents. E,F

11. Write and compare numbers in scientific notation; write standard form of numbers given in scientific notation. D,E,F

(MATH 0803)

1. Identify quantities and units in real world problems. B,C,G

2. Identify and find independent and dependent values numerically in real world problems. A,B,C,D,E,F,G

3. Write algebraic expressions to represent linear models in real world problems with positive or negative rates of change and starting points, or using ratios. B,C,F,G

4. Identify and find independent and dependent values graphically in real world problems. A,F,G

5. Interpret coordinates of a point on linear models for real world problems. B,C,F,G

6. Solve one-step and two-step equations with similar terms, variables on both sides, and variables in the denominator. D,E,F

7. Apply the distributive property to multiply and factor expressions. E,F

8. Solve formulas and literal equations for a specified variable. A,F

9. Represent simple and compound inequalities on a number line. B,E,F

10. Solve simple and compound inequalities in one variable. D,E,F

(MATH 0804)

1. Write linear equations and inequalities to model real world problems. B,C,F,G

2. Create a table of values and use to graph a linear equation in two variables. D,E,F

3. Choose appropriate graph bounds and intervals. B,D,F,G

4. Plot points on a graph using coordinates. F

5. Identify and find independent and dependent values numerically, algebraically, or graphically in real world problems. A,B,C,D,E,F,G

6. Graph linear equations in two variables using the slope and y-intercept, two points, or two intercepts. D,E,F

7. Graph horizontal and vertical lines and inequalities. E,F

8. Graph linear inequalities in two variables. A,B,C,D,E,F

9. Identify x-intercepts, y-intercepts, coordinates of other points, and slopes of linear functions from graphs. C,F

10. Calculate the slope of a line given two points. E,F

11. Identify the starting point, rate of change, and coordinates of a point in real world problems. B,C,F,G

12. Interpret slope as a rate of change in real world problems. A,B,C,E,F,G

13. Write linear equations in two variables given two points, slope and one point, or one point and the equation of a parallel or perpendicular line. D,E,F

14. Transform linear equations to slope-intercept form. D,E,F

(MATH 0805)

1. Identify independent and dependent quantities and units in real world problems. B,C,G
2. Write expressions for systems of linear equations to model real world problems. B,C,F,G
3. Evaluate expressions to find dependent values; solve linear equations to find independent values. A,D,E,F
4. Choose appropriate graph bounds and intervals. B,D,F,G
5. Find the point of intersection in a system of equations or inequalities. A,D,E,F
6. Determine whether an ordered pair is a solution to a system of equations or inequalities. D,E,F
7. Solve systems of linear equations using substitution. A,D,E,F
8. Solve systems of linear equations using elimination. A,D,E,F
9. Graph systems of inequalities in two variables and identify intersecting regions. A,D,E,F
10. Solve systems of equations with no solution. D,E,F
11. Interpret the solution of a system of equations or inequalities in real world problems. A,B,C,F,G

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures:

Students must score at least 80% on a course posttest to complete the course.

B. Laboratory Expectations:

Students will work in the Learning Commons to complete interactive mathematics instruction and other activities based on various learning styles.

C. Field Work:

N/A

D. Other Evaluation Methods:

The grade for each course will be determined by points earned on the course posttest and the course requirements grade. Classroom attendance, classroom participation, assignments, and Learning Commons' attendance determine a student's Course Requirements Grade. Students will not be allowed to take a course test if their current Course Requirements Grade is below 80%.

MATH 0801-0805: (Test Grade + Test Grade + Course Requirements Grade) ÷ 3 = Course Grade

E. Grading Scale:

A = 94 - 100
B = 87 – 93
C = 80 – 86
F = below 80

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

Students who miss 8 or more classroom or lab days will receive an F for any uncompleted courses.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:
• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

Cell Phones: Cellular telephones and other devices with photographic imaging capabilities

must be turned off and cannot be visible during any Pellissippi State instructional or testing activity. Students who violate this policy during an instructional activity will be asked to leave the classroom or other instructional area; a violation of the policy during a test or other evaluation activity will be considered cheating and the student will be given a zero for that activity or an F for the module.

Withdrawal: Students placed and enrolled in a Learning Support course are not permitted to withdraw except for serious documented circumstances. Students wishing to withdraw should discuss this matter first with their mathematics instructor and then must confer with a counselor. The counselor will notify the student of the decision to allow him or her to withdraw. **Maintaining continuous attendance in your classes is very important. If you are considering dropping or withdrawing from a course, please check with the Financial Aid Office before doing so. Dropping or withdrawing from a class can adversely affect your financial aid and/or lottery eligibility.**