Class Hours: 1.0   **Credit Hours:** 2.0
Laboratory Hours: 2.0   **Revised:** Fall 2016

Catalog Course Description

MATH 0530 is a co-requisite course for MATH 1530 Introductory Statistics. It is required for students who have not demonstrated being at the college level in mathematics. The course builds competency in applying number sense, operating with real numbers, solving equations and algebraic expressions, analyzing graphs, mathematical modeling, and critical thinking. MATH 0530 focuses on communicating mathematically, implementing appropriate problem solving strategies, and developing mathematical connections within a statistics context.

Prerequisites

None.

Corequisites

MATH 1530 Introductory Statistics

Textbook(s) and Other Course Materials

A Co-Requisite Workbook for Statistics, 1st Edition, Kendall Hunt (ISBN: 978-1-4652-9725-9)

Week/Unit/Topic Basis

Week	Topic
1-3	Sets of numbers; basic conversions between fractions, decimals, and percents; scientific notation; graphing; symbolic notation; irrational expressions; order of operations; evaluating expressions
4-5	Addition and subtraction of fractions; multiplication of fractions; addition and subtraction of decimals; order of operations; evaluating expressions with powers and roots
6-7	Magnitude and ordering of real numbers; solving and graphing linear inequalities; calculating area and perimeter; linear equations in one variable; proportions; solving literal equations
8-11	Order of operations and evaluating expressions; defining independent and dependent variables; creating a table of values from a linear equation; graphing a linear equation using ordered pairs
12-13	Identifying slope and intercepts of a linear equation; interpreting slope as a rate of change; writing a linear equation in two variables; graphing a linear equation using the y-intercept and slope
14	Review for MATH 1530 final exam.

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 with a capstone assessment. VI. 1, 3, 4
C. Foster the ability to read, write, listen to, and speak about mathematics. I. 1, 2, 6
D. Enhance the appropriate use of technology to increase mathematical understanding and judging the reasonableness of results. VI. 2, 5; VII. 1, 4, 5, 6
E. Build the skills to reason and draw conclusions from numerical information. VI. 1, 2, 6
F. Build the skills to 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

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

Expected Student Learning Outcomes*

Students will be able to:

1. Write equations to represent real world problems involving addition, subtraction, or multiplication. 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 decimals as fractions or mixed numbers. D,E
4. Write fractions and mixed numbers as decimals using equivalent fractions or division. D,E
5. Write decimals as percentages, including percentages greater than 100 or less than 1. D,E
6. Locate and order real numbers on a number line using various scales. D,E,F
7. Add, subtract, multiply, and divide rational numbers. D,E
8. Use the order of operations to simplify numeric expressions. D,E
9. Find area and perimeter (or circumference) of rectangles, triangles, and circles. A,B,D,E
10. Represent real world scenarios with algebraic expressions using two operations. B,C,G
11. Write and simplify ratios. B,C,D,E
12. Write and solve proportions using equivalent fractions or means-extremes property. A,B,C,D,E,F,G
13. 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
14. Find powers and approximate square roots. D,E
15. Identify quantities and units in real world problems. B,C,G
16. Identify and find independent and dependent values numerically in real world problems. A,B,C,D,E,F,G
17. 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
18. Interpret coordinates of a point on linear models for real world problems. B,C,F,G
19. Solve one-step and two-step equations with similar terms, variables on both sides, and variables in the denominator. D,E,F
20. Solve formulas and literal equations for a specified variable. A,F
21. Represent simple and compound inequalities on a number line. B,E,F
22. Solve simple and compound inequalities in one variable. D,E,F
23. Apply various strategies – pictorial, numeric, algebraic, and graphical – to solve real world problems A,B,C,D,E,F,G
24. Write linear equations and inequalities to model real world problems. B,C,F,G
25. Create a table of values and use to graph a linear equation in two variables. D,E,F
26. Plot points on a graph using coordinates. F
27. Identify and find independent and dependent values numerically, algebraically, or graphically in real world problems. A,B,C,D,E,F,G
28. Graph linear equations in two variables using the slope and y-intercept, two points, or two intercepts. D,E,F

29. Identify x-intercepts, y-intercepts, coordinates of other points, and slopes of linear functions from graphs. C,F
30. Calculate the slope of a line given two points. E,F
31. Identify the starting point, rate of change, and coordinates of a point in real world problems. B,C,F,G
32. Interpret slope as a rate of change in real world problems. A,B,C,E,F,G
33. 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
34. Transform linear equations to slope-intercept form. D,E,F

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

Evaluation

Testing Procedures

60% of grade

There will be five mastery-based assessments. Students must score at least 80% on each assessment in order to pass the course. Instructors will outline specific testing instructions in the course policy document.

Laboratory Expectations

15% of grade

In addition to the weekly class hour, students are required to complete at least two hours in a designated academic computer lab or classroom each week. Completion of the lab hours may be done at the student's convenience during regular operating hours of the Academic Support Centers on any Pellissippi State campus by scanning their PSCC student ID card. Other arrangements must be approved by the instructor.

Field Work

N/A

Other Evaluation Methods

25% of grade

Students must complete a capstone project, or similar department-approved assessment, which integrates mathematical development and makes meaningful connections between course content and real world principles.

Grading Scale

94 - 100	A
87 - 93	B
80 - 86	C
Below 80	F

Policies

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.

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.

Accommodations for Disabilities

Students that 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 Disability Services (DS) in order to receive accommodations in this course. Disability Services (http://www.pstcc.edu/sswd/) may be contacted via email or by visiting Alexander 130.