



Wisconsin Indianhead Technical College

10804107 College Mathematics

Course Outcome Summary

Course Information

Description This course is designed to review and develop fundamental concepts of mathematics pertinent to the areas of: 1) arithmetic and algebra; 2) geometry and trigonometry; and 3) probability and statistics. Special emphasis is placed on problem solving, critical thinking and logical reasoning, making connections, and using calculators. Topics include performing arithmetic operations and simplifying algebraic expressions, solving linear equations and inequalities in one variable, solving proportions and incorporating percent applications, manipulating formulas, solving and graphing systems of linear equations and inequalities in two variables, finding areas and volumes of geometric figures, applying similar and congruent triangles, converting measurements within and between U.S. and metric systems, applying Pythagorean Theorem, solving right and oblique triangles, calculating probabilities, organizing data and interpreting charts, calculating central and spread measures, and summarizing and analyzing data.

Instructional Level Associate Degree

Total Credits 3.00

Total Hours 48.00

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation (Lecture/Demonstration/Discussion)	3/48

Pre/Corequisites

Prerequisite Successful scores on placement test or 10834109 Pre-Algebra

Course Competencies

1 Simplify algebraic expressions

Assessment Strategies

by simplifying algebraic expression problems given written problems and calculator

Criteria

Your performance will be successful when:

- you perform operations on rational numbers
- you simplify expression using the order of operations
- you solve applied problems

your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Perform operations on rational numbers
Simplify expression using the order of operations
Solve applied problems
Simplify algebraic expression problems

2 Solve equations and inequalities

Assessment Strategies

by solving equation and inequalities problems
given written problems and calculator

Criteria

Your performance will be successful when:

you solve equations in one variable
you manipulate formulas and solve literal equations
you solve applied problems
you solve linear inequalities in one variable
you solve a system of equations by algebraic methods
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Solve equations in one variable
Manipulate formulas to solve literal equations
Solve applied problems
Solve linear inequalities in one variable
Solve a system of equations by algebraic methods

3 Solve percent applications

Assessment Strategies

by solving percent application problems
given written problems and calculator

Criteria

Your performance will be successful when:

you solve ratios and proportions
you solve for missing quantities in percent problems
you solve financial problems involving percent (interest, finance charges, sale prices, credit transactions, etc.)
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Solve ratios and proportions
Solve for missing quantities in percent problems
Solve financial problems involving percent (interest, finance charges, sale prices, credit transactions, etc.)

4 Graph equations and inequalities in two variables

Assessment Strategies

by graphing equations and inequalities
given written problems and calculator

Criteria

Your performance will be successful when:

you graph linear equations in two variables by making a table of values
you graph linear equations in two variables using the slope intercept method
you graph linear equations in two variables using intercepts
you solve a system of two linear equations by graphing
you graph linear inequalities in two variables
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Graph linear equations in two variables by making a table of values
Graph linear equations in two variables using the slope intercept method
Graph linear equations in two variables using intercepts
Solve a system of two linear equations by graphing
Graph linear inequalities in two variables

5 Apply geometric concepts

Assessment Strategies

by applying geometric concepts to solve problems
given written problems and calculator

Criteria

Your performance will be successful when:

you find perimeter of plane figures including composites (having more than one basic shape)
you find area of plane figures including composites
you find volume and surface area of geometric solids including composites
you solve problems involving similar and congruent triangles
you approximate solutions without a calculator
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Find perimeter of plane figures including composites (having more than one basic shape)
Find area of plane figures including composites
Find volume and surface area of geometric solids including composites
Solve problems involving similar and congruent triangles
Approximate solutions without a calculator

6 Use measurement concepts (both US Customary and metric) to solve problems

Assessment Strategies

by solving measurement problems
given written problems and calculator

Criteria

Your performance will be successful when:

you convert measurements within the metric system
you convert measurements within the us customary system
you convert between us and metric systems
you convert area and volume measurements
you express measurements with correct precision and accuracy
you estimate conversions without a calculator
your solution is correct
your solution includes correct units

you show supporting work
your work is clear and organized

Learning Objectives

Convert measurements within the metric system
Convert measurements within the U.S. customary system
Convert between U.S. and metric systems
Convert area and volume measurements
Express measurements with correct precision and accuracy
Estimate conversions without a calculator

7 Apply trigonometric concepts to solve problems

Assessment Strategies

by applying trigonometry concepts to solve problems
given written problems and calculator

Criteria

Your performance will be successful when:

you use the Pythagorean Theorem to solve for the unknown side of a right triangle
you solve right triangles using trigonometric ratios
you solve oblique triangles using trigonometric ratios
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Use the Pythagorean Theorem to solve for the unknown side of a right triangle
Solve right triangles using trigonometric ratios
Solve oblique triangles using trigonometric ratios

8 Summarize data

Assessment Strategies

by organizing data and summarizing results
given data sets
given written problems and calculator

Criteria

Your performance will be successful when:

you organize data using grouped and ungrouped frequency distributions
you construct, read, and interpret graphs of data (histograms, pie charts, etc.)
you find measures of central tendency (mean, median, mode, mid-range) for data sets
you find measures of relative position (quartiles, percentiles)
you find measures of dispersion (range, variance, standard deviation, inter-quartile range) for given data sets
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Organize data using grouped and ungrouped frequency distributions
Construct graphs of data (histograms, pie charts, etc.)
Read graphs of data (histograms, pie charts, etc.)
Interpret graphs of data (histograms, pie charts, etc.)
Find measures of central tendency (mean, median, mode, mid-range) for data sets
Find measures of relative position (quartiles, percentiles)
Find measures of dispersion (range, variance, standard deviation, inter-quartile range) for given data sets and your solution is correct

9 Solve problems involving probabilities

Assessment Strategies

by solving probability problems
given an actual experiment
given calculator

Criteria

Your performance will be successful when:

you define a probability of an event in an experiment
you recognize invalid probabilities
you calculate probabilities using a fair experiment model
you apply the counting principle
you compare theoretical and empirical probabilities
you distinguish between probabilities and odds of an event
your solution is correct
your solution includes correct units
you show supporting work
your work is clear and organized

Learning Objectives

Define a probability of an event in an experiment
Recognize invalid probabilities
Calculate probabilities using a fair experiment model
Apply the counting principle
Compare theoretical and empirical probabilities
Distinguish between probabilities and odds of an event