



# ILLINOIS VALLEY COMMUNITY COLLEGE

## COURSE OUTLINE

**DIVISION: Natural Sciences & Business**

**COURSE: MTH 0108 Statistics Supplement**

Date: Fall 2019

Credit Hours: 2

Prerequisite(s): Appropriate score on Accuplacer

Delivery Method:  **Lecture**                    **2 Contact Hours** (1 contact = 1 credit hour)  
 **Seminar**                    **0 Contact Hours** (1 contact = 1 credit hour)  
 **Lab**                                **0 Contact Hours** (2-3 contact = 1 credit hour)  
 **Clinical**                    **0 Contact Hours** (3 contact = 1 credit hour)  
 **Online**  
 **Blended**

Offered:  **Fall**     **Spring**     **Summer**

IAI Equivalent –**Only for Transfer Courses**–go to <http://www.itransfer.org>:

### CATALOG DESCRIPTION:

This course covers pre-requisite skills necessary to be successful in MTH-1008—General Elementary Statistics and is taught concurrently with MTH-1008. The course integrates mathematical content with instruction in the study/critical thinking skills necessary for successful completion of MTH-1008—General Elementary Statistics course work. Emphasis will be placed on work with fractions, decimals, ratios and proportions, percent, signed numbers, equation solving, Cartesian coordinate system, graphing and writing equations of lines and their applications, interpreting slopes and intercepts, and square roots. Additional topics to be addressed include time management, note-taking, study skills, math anxiety, test preparation, test-taking skills, critical thinking/problem-solving, personal responsibility, self-motivation, and self-management. The grade in this course is not computed in G.P.A. or applicable to any degree or certificate program for graduation.

## GENERAL EDUCATION GOALS ADDRESSED

*[See last page for Course Competency/Assessment Methods Matrix.]*

### Upon completion of the course, the student will be able:

*[Choose up to three goals that will be formally assessed in this course.]*

- To apply analytical and problem solving skills to personal, social, and professional issues and situations.
- To communicate successfully, both orally and in writing, to a variety of audiences.
- To construct a critical awareness of and appreciation for diversity.
- To understand and use technology effectively and to understand its impact on the individual and society.
- To develop interpersonal capacity.
- To recognize what it means to act ethically and responsibly as an individual and as a member of society.
- To recognize what it means to develop and maintain a healthy lifestyle in terms of mind, body, and spirit.
- To connect learning to life.

### EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

*[Outcomes related to course specific goals. See last page for more information.]*

#### Upon completion of the course, the student will be able to:

1. demonstrate a working knowledge of fractions
  - 1.1. Write equivalent fractions.
  - 1.2. Reduce a fraction to lowest terms.
  - 1.3. Add, subtract, multiply and divide two or more fractions and/or mixed numbers.
  - 1.4. Use the order of operations to evaluate expressions containing fractions.
  - 1.5. Solve real-world problems involving fractions.
2. demonstrate a working knowledge of decimals
  - 2.1. Round a decimal to a given place value.
  - 2.2. Add, subtract, multiply or divide two or more decimal numbers.
  - 2.3. Use the order of operations to evaluate expressions containing decimals.
  - 2.4. Convert between decimal notation and fraction/mixed number notation.
  - 2.5. Solve real-world problems involving decimals.
3. demonstrate a working knowledge of ratios and proportions.
  - 3.1. Write a ratio of quantities in simplest form.
  - 3.2. Determine whether a given proportion is true or false.
4. demonstrate a working knowledge of percent
  - 4.1. Write a percent as a fraction or decimal.
  - 4.2. Solve real-world problems involving percent.
5. demonstrate a working knowledge of signed numbers and perform operations with them.
  - 5.1. Determine the order of signed numbers.
  - 5.2. Use the rules for order of operations to evaluate expressions.

6. demonstrate a working knowledge of solving basic linear equations.
  - 6.1. Solve equations using the addition property.
  - 6.2. Solve equations using the multiplication property.
  - 6.3. Solve formulas.
  - 6.4. Translate sentences into equations and solve them.
  - 6.5. Solve real-world application problems using equations.
7. demonstrate a working knowledge of the Cartesian coordinate system.
  - 7.1. Graph ordered pairs,
  - 7.2. Graph x- and y-intercepts.
8. demonstrate the skills needed to graph linear equations.
  - 8.1. Graph linear equations by plotting points
  - 8.2. Graph linear equations by the intercept method.
  - 8.3. Interpret the slope and y-intercept of a line.
  - 8.4. Find the slope of a line.
  - 8.5. Graph linear equations by using the slope.
  - 8.6. Graph linear equations in real-world applications.
9. demonstrate the skills needed to write the equation of a line.
  - 9.1. Write the equation of a line given the slope and one point.
10. demonstrate the skills needed to simplify basic square roots
  - 10.1. Approximate square roots using a calculator.
  - 10.2. Use the order of operations to evaluate expressions containing square roots.
  - 10.3. Evaluate complex expressions on the calculator.
11. Investigate strategies to create greater academic and personal success.
  - 11.1. The student will learn ways to take greater personal responsibility.
  - 11.2. The student will learn methods to increase self-motivation.
  - 11.3. The student will learn strategies for self-management.
  - 11.4. The student will improve critical thinking and problem-solving skills.
  - 11.5. The student will learn time management strategies.
  - 11.6. The student will investigate different note-taking techniques.
  - 11.7. The student will learn ways to improve their study skills.
    - 11.7.1. The student will learn strategies for effectively completing online homework.
    - 11.7.2. The student will learn strategies for reading their math textbook.
    - 11.7.3. The student will learn how to effectively use their online resources.
    - 11.7.4. The student will learn how to effectively use campus resources.
  - 11.8. The student will improve their test-taking strategies.
    - 11.8.1. The student will learn strategies for test preparation.
    - 11.8.2. The student will learn strategies to use while taking a test.
    - 11.8.3. The student will learn test analysis strategies following a test.

## MAPPING LEARNING OUTCOMES TO GENERAL EDUCATION GOALS

[For each of the goals selected above, indicate which outcomes align with the goal.]

Goals	Outcomes
First Goal	
To apply analytical and problem solving skills to personal, social, and professional issues and situations.	1.4 Solve real-world problems involving fractions 2.4 Solve real-world problems involving decimals 4.2 Solve real-world problems involving percent 6.5 Solve real-world application problems using equations 8.3 Interpret the slope and y-intercept of a line 8.5 Graph linear equations in real-world applications
Second Goal	
Connect learning to life.	11.1 The student will learn ways to take greater personal responsibility 11.2 The student will learn methods to increase self-motivation 11.3 The student will learn strategies for self-management 11.4 The student will improve critical thinking and problem-solving skills 11.5 The student will learn time management strategies

### COURSE TOPICS AND CONTENT REQUIREMENTS:

- I. Fractions
  - a. Equivalency
  - b. Computation
  - c. Ordering
  - d. Applications
- II. Decimals
  - a. Rounding
  - b. Computation
  - c. Equivalency to fraction and percent form
  - d. Applications
- III. Ratios & Proportion
  - a. Solve Proportions
- IV. Percent
  - a. Computation
  - b. Applications
- V. Signed Numbers
  - a. Ordering
  - b. Order of operations
- VI. Solving Linear Equations
  - a. Solve equations
  - b. Applications
  - c. Solve formulas
  - d. Translate sentences to equations

- VII. Cartesian Coordinate System
  - a. Graph ordered pairs
  - b. Intercepts
- VIII. Graphing Linear Equations
  - a. Plotting points
  - b. Slope
  - c. Intercepts
  - d. Slope-intercept method
- IX. Writing Equations of Lines
  - a. Using slope and a point
- X. Square Roots
  - a. Approximate square roots
- XI. Success Strategies
  - a. personal responsibility
  - b. self-motivation
  - c. self-management
  - d. critical thinking and problem-solving
  - e. time management
  - f. note-taking
  - g. study skills
  - h. test-taking strategies

**INSTRUCTIONAL METHODS:**

- Lectures
- Guest speakers
- Small groups/one-on-one discussion
- Class participation and activities

**INSTRUCTIONAL MATERIALS:**

Scientific calculator

\*There will be no textbook or online supplement required for purchase by the student. Instructors will pull content from existing physical resources as listed in the reference section or use Open Educational Resources. MTH-0108 instructors will also have access to the Statistics e-book and corresponding Statistics assignments in MyStatsLab. This access will be provided by the MTH-1008 instructor whose class section is linked to the Supplemental section.

**STUDENT REQUIREMENTS AND METHODS OF EVALUATION:**

A= 90-100  
B= 80-89  
C= 70-79  
D= 60-69  
F= 0-59

1. Class attendance/participation 40%
2. In-class activities 30%
3. Homework assignments 20%
4. Other 10%

### **OTHER REFERENCES**

*Developmental Mathematics*, 1<sup>st</sup> edition, by M. Lial, J. Hornsby, T. McGinnis  
*Beginning & Intermediate Algebra*, 6th edition, by M. Lial, J. Hornsby, T. McGinnis  
*Prealgebra*, 2<sup>nd</sup> edition, by J. Miller, M. O'Neill, N. Hyde  
*On Course*, 3<sup>rd</sup> edition, by S. Downing  
*Winning at Math*, 4<sup>th</sup> edition, by P. Nolting  
*Managing the Mean Math Blues*, 2<sup>nd</sup> edition, by C. Ooten, K. Moore  
*Math Study Skills*, 1<sup>st</sup> edition, by A. Bass  
*Focus on Community College Success*, 1<sup>st</sup> edition, by C. Staley

## Course Competency/Assessment Methods Matrix

(Dept/# Course Name)	Assessment Options																																				
For each competency/outcome place an "X" below the method of assessment to be used.	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment					
	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D											
demonstrate a working knowledge of fractions				X				X					X		X					X																	X
demonstrate a working knowledge of decimals				X				X					X		X					X																	X
demonstrate a working knowledge of ratios and proportions				X				X					X		X					X																	X
demonstrate a working knowledge of percent demonstrate a working knowledge of signed numbers and perform operations with them				X				X					X		X					X																	X

