

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

MATHEMATICS 060 –FOUNDATIONS FOR ELEMENTARY STATISTICS

2 hours lecture, 2 units

Catalog Description

This support course focuses on the skills and concepts needed for success in transfer-level statistics. This course is for students concurrently enrolled in statistics at Cuyamaca College. Students will receive extra support in arithmetic, algebra, problem solving, technology, and study skills.

Pass/No Pass only. Non-degree applicable.

Prerequisite

Appropriate placement

Corequisite

MATH 160 or PSY 215

Course Content

A just-in-time approach to:

- 1) Arithmetic Skills
 - a. Operations with integers, fractions, and decimals
 - b. Percentages
 - c. Order of operations
- 2) Algebra skills
 - a. Solving equations
 - b. Simplifying expressions
 - c. Summation notation
- 3) Cartesian coordinate system
 - a. Scales
 - b. Plotting points
 - c. Intercepts
 - d. Linear equations
 - e. Interpreting graphs
- 4) Problem solving skills
 - a. Reading strategies for comprehension
 - b. Categorizing information
 - c. Writing equations: translating words into equations
 - d. Interpreting results
- 5) Study Skills
 - a. Affective domain
 - b. Test taking strategies
 - c. Reading a textbook for comprehension
 - d. Note taking
- 6) Technology Skills
 - a. Graphing Calculator
 - b. On-Line Learning Management Systems (on-line homework, Canvas, etc.)

Course Objectives

Students will be able to:

- 1) Practice specific skills from arithmetic, algebra, and problem solving and technological skills; needed to complete Elementary Statistics;
- 2) Gain confidence working with problems at the Elementary Statistics level;

- 3) Assess and improve their mathematical competency; and
- 4) Use effective study skills.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Group project(s), class activities, homework exercises, and exam questions which measure students' ability to explore and represent data.
- 2) Projects, class activities, homework assignments, and exams (including a comprehensive final exam) which measure students' ability to exhibit numerical and algebraic reasoning and computational skills, and model quantitative data using linear models.
- 3) In-class activities, homework, math notebook, and data analysis projects which demonstrate students' ability to apply effective learning strategies.

Special Materials Required of Student

- 1) Scientific calculator
- 2) Graphing calculator

Minimum Instructional Facilities

- 1) Smart classroom with writing boards covering three walls, overhead projector, graphing utility overhead viewing panels, projection screen
- 2) Basic skills math lab with 42 computers, writing board, overhead projector, projection screen; appropriate software for integrated computer instruction (word processing, spreadsheet and other workplace software)

Method of Instruction

- 1) Individualized instruction: computer aided instruction or in-class individualized tutoring
- 2) Collaborative learning: group work or peer review student work
- 3) Modeling: instructor led-demonstrations and discussion or guided-discovery
- 4) Active learning: use of manipulatives, interactive computer-based instruction, or in-class activities requiring student participation
- 5) Class activities and assignments developed by Cuyamaca math faculty and a consortium organized by the Carnegie Foundation for the Advancement of Teaching
- 6) Computer-assisted instruction

Out-of-Class Assignments

- 1) Problem sets
- 2) Exploratory activities and/or projects
- 3) Reading and/or writing assignments
- 4) Data analysis assignments

Texts and References

- 1) Required (representative example): Classroom activities developed by Cuyamaca College math faculty.
- 2) Supplemental: None

Exit Skills

Students having successfully completed this course exit with the following skills, competencies, and/or knowledge:

- 1) Evaluate expressions using order of operations
- 2) Perform basic arithmetic operations: addition, subtraction, multiplication and division using positive and negative numbers
- 3) Graph fractions, decimals, and signed numbers on a number line
- 4) Compare fractions with the same and with different denominators
- 5) Compare fractions, decimals, and percentages

- 6) Identify fractions and percentages that describe part of a whole (marginal distributions)
- 7) Identify fractions and percentages that describe the impact of one quantity on another (conditional distributions)
- 8) Perform calculations involving fractions, decimals and exponents
- 9) Express numbers in scientific (exponential) notation
- 10) Calculate percent; convert percentages into decimal form and vice versa
- 11) Calculate arithmetic average
- 12) Recognize plane geometric figures such as triangles and squares; differentiate among the terms linear, planar and three-dimensional
- 13) Graph in the Cartesian coordinate system
- 14) Solve linear algebraic equations; solve word problems involving linear equations
- 15) Use least squares regression to model linear relationships
- 16) Recognize constant rate of change
- 17) Interpret slope and y-intercept in context
- 18) Perform calculations and solve equations involving ratios and proportion techniques
- 19) Perform dimensional analysis and interpret the result

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1) Solve multi-disciplinary application problems and interpret the results in context;
- 2) Demonstrate relevant arithmetic, algebra, and technology skills in the context of Statistics; and
- 3) Apply study habits that promote success in Statistics.