

OHLONE COLLEGE
Ohlone Community College District
OFFICIAL COURSE OUTLINE

I. Description of Course:

1. **Department/Course:** MATH - 159
2. **Title:** Elements of Statistics and Probability
3. **Cross Reference:**
4. **Units:** 5
Lec Hrs: 5
Lab Hrs:
Tot Hrs: 90.00
5. **Repeatability:** No
6. **Grade Options:** Grade Only (GR)

7. **Degree/Applicability:**
Credit, Degree Applicable, Transferable -
CSU & UC (T)
8. **General Education:** CSU General
Education (Plan B)
B2 - Mathematics/Quantitative Reasoning
District General Education (Plan A)
IV-B. Analytical Thinking and Oral
Communication IV-C. Math Proficiency
IGETC (Plan C)
2. Mathematical Concepts/Quantitative
Reasoning
9. **Field Trips:** Not Required
10. **Requisites:**
Prerequisite
MATH 152 Algebra II or
MATH 153 Intermediate Algebra
or equivalent or Placement Evaluation

12. Catalog Description:

This course examines the elements of probability, binomial and normal distributions, measures of location, measures of variation, hypothesis testing, point and interval estimation, small sample tests, linear correlation, analysis of variance, and use of technology for statistical applications.

13. Class Schedule Description:

Probability distributions, confidence intervals, hypothesis testing, regression and analysis of variance.

14. Counselor Information:

This course content is the generally accepted material in probability and statistics for a first course. The treatment is not rigorous in a mathematical sense however excellent reading comprehension is required.

II. Student Learning Outcomes

The student will:

1. Understand basic statistical concepts and vocabulary.
2. Understand basic probability concepts and vocabulary.
3. Use statistical formulas.
4. Choose correct statistical tool for analysis of word problems.
5. Use technology for statistical applications.

III. **Course Outline:**

- A. Samples and Populations
- B. Numerical Descriptive Statistics: Measures of location and variation
- C. Graphical Descriptive Statistics: Bar charts, Pie charts, Histograms, Scatter Plots
- D. Probability Laws
- E. Unconditional Probability, Conditional Probability, Joint Probability, Independent Events, and Mutually Exclusive Events
- F. Probability Distributions: Binomial, Normal, T and F Distributions
- G. Sampling and Sampling Distributions
- H. The Standard Error of the Mean; The Central Limit Theorem
- I. Inferential Statistics: Confidence Intervals; Statistical Hypotheses and Statistical Tests; Type I and Type II Errors
- J. The Method of Least Squares; The Coefficient of Correlation; Regression Analysis
- K. Analysis of Variance
- L. Technology will be used for the above statistical problems.

IV. **Course Assignments:**

- A. Reading Assignments
- B. Projects, Activities, and other Assignments
 - 1. Homework
 - 2. Computer projects
- C. Writing Assignments
 - 1. Writing summary reviews of studies that use statistical analysis.

V. **Methods of Evaluation:**

- A. Quizzes
- B. Tests
- C. Projects

VI. **Methods of Instruction:**

- A. Lecture
- B. Discussion
- C. Demonstration
- D. Audiovisual
- E. Computer Assisted Instruction
- F. Collaborative Learning

VII. **Textbooks:**

Recommended

Supplemental

- A. Mario F. Triola *Elementary Statistics* 9th Edition, Addison-Wesley, 2004 ISBN: 0201775700

VIII. **Supplies:**