GROSSMONT COLLEGE

Official Course Outline

ANTHROPOLOGY 215 (PSYCHOLOGY/SOCIOLOGY 215) – STATISTICS FOR THE BEHAVIORAL SCIENCES

1. Course Number	Course Title	Semester Units	Hours
ANTH 215 (PSY 215, SOC 215)	Statistics for the Behavioral Sciences	3	2 hours lecture 3 hours laboratory

2. Course Prerequisites

A "C" grade or higher in Mathematics 103 or 110 or equivalent.

Recommended Preparation

None.

3. Catalog Description

Methods and experience in defining and solving quantitative problems in the behavioral sciences. Emphasis is on the design of experiments and the application of a variety of parametric and nonparametric techniques to the analysis of data.

4. Course Objectives

The student will:
a. Use a variety of statistical techniques to analyze representative data from the behavioral sciences.
b. Compose written discussions of statistical problems.
c. Integrate statistical hypothesis-testing into the framework of scientific methodology.
d. Explain the statistical decision relative to probabilities.
e. Evaluate the limitations of statistical inference.
f. Apply statistical considerations to the formulation of hypotheses and the specific design of experiments.
g. Use SPSS and other software for the presentation and analysis of quantitative data.

5. Instructional Facilities

a. Standard classroom.
b. Computer laboratory equipped with SPSS software.

6. Special Materials Required of Student

Calculator capable of the four functions of arithmetic, with a square root function and at least two memory storages.

7. Course Content

   a. Introduction: definitions, statistical thinking, basic concepts of statistics, descriptive vs. inferential statistics and sampling techniques.
   b. Introduction to probability distributions: the normal probability distribution and the binominal distribution.
   c. Estimation and hypothesis testing.
      (1) Distribution, variance of means and other statistics.
      (2) Student's "t" distribution: single, paired, nonpaired means.
      (3) Confidence limits and hypotheses testing.

   d. Analysis of variance.
      (1) Variances of samples and their means, "F" distribution.
      (2) Null hypothesis, partitioning the total sum of squares and degrees of freedom.
      (3) Heterogeneity among sample means.
   e. Single classification ANOVA: comparison of means (a priori and a posteriori testing.
   f. Two way ANOVA with and without replicating; significance testing.
   g. Assumptions of analysis of variance: nonparametric methods in lieu of ANOVA.
   h. Regression: basic computations, tests of significance, uses.
   i. Correlation: product-moment correlation coefficient, significance tests, applications, nonparametric methods.
   j. Analysis of frequencies: test for goodness of fit, e.g., Chi-Square.

8. Method of Instruction

   a. Lecture and group discussions.
   b. Multimedia presentations.
   c. Supervised problem-solving.
   d. Discussion of written assignments.
   e. Cooperative learning structured exercises.
   f. Discussion of library materials and textbook readings.

9. Methods of Evaluating Student Performance

   a. One or more midterm exams evenly spaced over the semester.
   b. A written final examination that is comprehensive in scope.
   c. Exams may include both objective and essay questions.
   d. Written discussion of solutions, emphasizing behavioral sciences applications.
   e. A research paper may be assigned.
   f. Oral presentation of research findings may be assigned.

10. Outside Class Assignments

   a. Readings from textbook.
   b. Statistical problem solving assignments.
   c. Written assignments.

11. Texts

   a. Required Text(s):
      (1) Heiman, G.W. Basic Statistics for the Behavioral Sciences. Boston, MA: Houghton Mifflin, 2003.

b. Supplementary texts and workbooks:
   (1) Heiman, G.W. Students Workbook and Study Guide for Basic Statistics for the Behavioral Sciences. Boston, MA: Houghton Mifflin, 2001.

Date approved by the Governing Board: 4/02

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