I. Course Description

This is a course in applied univariate statistics, which includes the use of the Statistical Package for the Social Sciences (SPSS) with exercises related to various descriptive and inferential statistical techniques. The primary purpose of the course is to introduce the learner to the basic concepts, procedures, and practices in statistics as related to education and other social sciences.

II. Rationale

Early in their studies, doctoral students should gain knowledge and competency in basic statistical procedures. This course will enable the students to acquire statistical vocabulary, to better understand research studies in their professional fields, to become more critical of statistical presentations in their fields and in the mass media, and to become prepared to learn more complex procedures to analyze and interpret quantitative data.

III. State Adopted Proficiencies for Teachers and/or Administrators/Counselors - NA

IV. TExES Competencies - NA

V. Course Objectives/Learning Outcomes

Upon successful completion of the course, students will demonstrate knowledge and understanding of basic statistical procedures by:

- Differentiating among the scales of measurement.
- Constructing frequency distribution tables and graphs.
- Calculating and describing the measures of central tendency and variability.
- Converting raw scores into standard scores.
- Explaining the Central Limit Theorem.
- Constructing and explaining confidence intervals.
- Computing and explaining selected effect sizes.
- Testing hypotheses in one-sample and two-sample designs, simple correlation and regression, chi-square test of independence, and chi-square goodness of fit tests.
- Using the Statistical Package for the Social Sciences (SPSS) for the purpose of data entry, manipulation, and analysis.
VI. Course Topics

- Unit 1 – Introduction
  Field, pp. xix – xxix, Chapter 1; Course Packet, Unit 1

- Unit 2 – Basic Measurement Concepts
  Field, Chapter 1; Course Packet, Unit 2

- Unit 3 – Frequency Distributions
  Field, Chapters 1 & 4; Course Packet, Unit 3

- Unit 4 – Measures of Central Tendency and Variability
  Field, Chapter 2; Course Packet, Unit 4

- Unit 5 – The Normal Distribution and Standard Scores
  Field, Chapter 5; Course Packet, Unit 5

- Unit 6 – Sampling, Sampling Distributions, Confidence Intervals, and Central Limit Theorem
  Field, Chapter 2; Course Packet, Unit 6

- Unit 7 – Hypothesis Testing
  Course Packet, Unit 7
  - One-Sample z-test
  - One-Sample t-test
  - Sample Size Estimation

- Unit 8 – Testing Hypothesis About Two Means
  Field, Chapter 9; Course Packet, Unit 8
  - Two Independent Samples
  - Two Correlated Samples
  - Sample Size Estimation
  - Effect Size Computation

- Unit 9 – Simple Correlation
  Field, Chapter 7; Course Packet, Unit 9
  - Statistical Significance
  - Practical Significance
  - Sample Size Estimation

- Unit 10 – Simple Regression
  Field, Chapter 8; Course Packet, Unit 10
  - Raw-Score Formula
  - Z-Score Formula
  - Standard Error of Estimate
Unit 11 – Chi-Square Test
Field, Chapter 18; Course packet, Unit 11
  ➢ Chi-Square Test of Independence
  ➢ Chi-Square Goodness-Of-Fit Test

Unit 12 – SPSS
Field, Chapter 3

VII. Instructional Methods and Activities

• Lecture/discussion
• Practice problems
• Homework assignments
• Analyzing data, using SPSS

VIII. Evaluation and Grade Assignment

Homework Assignments 30%
SPSS Assignment 10%
Test 1 (Units 1 – 5) 30%
Test 2 (Units 6 – 11) 30%

Grading Scale:
90 - 100 A
80 - 89 B
70 – 79 C
60 - 69 D
< 60 F

Incomplete, I - “An incomplete notation may be given to a student who is passing but has not completed a term paper, examination, or other required work for reasons beyond the student’s control other than lack of time.”

IX. Course Schedule and Policies

1. Course schedule follows the course topics (see VI).
2. Late assignments are not accepted except in extenuating circumstances at the discretion of the instructor. Students who find that they are unable to be at an examination session because of illness or extenuating circumstances should contact the instructor as soon as the condition becomes apparent to arrange fair and practical extensions.
3. The instructor expects complete honesty in the completion of test and assignments. Plagiarism, “the act of taking the work/writings of another person and passing them off as one's own,” is not tolerated.
4. Cell phones must be off. Text messaging is not allowed. No food or drink in the computer lab.
X. Textbooks


Course Packet (derived from various sources)

XI. Bibliography


Online References/Sources:

http://www.ats.ucla.edu/stat/spss/default.htm

http://www.statsoft.com/textbook/esc.html

http://www.amstat.org/publications/jse/

http://statpages.org/

http://vassarstats.net/

http://www.uvm.edu/~dhowell/StatPages/

http://elite.tamucc.edu/tutoring/index.html

XII. Grade Appeals

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.
XIII. Disability Accommodations

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall, Room 116. If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.