I. Course Description

The course in advanced statistical procedures is a continuation of EDLD 6333. Special emphasis is placed on analysis of variance (ANOVA) techniques such as one-way and factorial ANOVA, analysis of covariance (ANCOVA), repeated measures ANOVA, and multivariate analysis of variance (MANOVA), as well as multiple regression analysis, logistic regression analysis, and discriminant analysis. Also included are selected nonparametric statistical techniques. The course includes hands-on experiences in the use of Statistical Package for the Social Sciences (SPSS) with exercises related to the topics covered. Prerequisite: EDLD 6333

II. Rationale

Students who complete the doctoral degree should be both knowledgeable and competent in advanced statistical procedures. The course will enable the students to not only become better and wiser consumers of the research done by others, but also better able to conduct high quality educational research themselves.

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 advanced statistical procedures by:

1. Successfully stating null and alternative/research hypotheses, given research questions.
2. Successfully selecting and performing appropriate statistical techniques, given research questions.
3. Successfully interpreting and reporting results, given research questions.
4. Successfully using the Statistical Package for the Social Sciences (SPSS) to perform statistical analyses of data.
VI. Course Topics

- Unit 1 - Review of Basic Statistics [Field, Chapters 1 – 5, Course Packet]
- Unit 2 - One-Way Analysis of Variance [Field, Chapter 10, Course Packet]
- Unit 3 - Post-Hoc and A Priori Comparisons [Field, Chapter 10, Course Packet]
- Unit 4 - Factorial Analysis of Variance [Field, Chapter 12, Course Packet]
- Unit 5 - Analysis of Simple Effects [Field, Chapter 12, Course Packet]
- Unit 6 - Analysis of Co-variance [Field, Chapter 11, Course Packet]
- Unit 7 – Univariate Repeated Measures ANOVA [Field, Chapter 13, Course Packet]
- Unit 8 – Split Plot Repeated Measures ANOVA [Field, Chapter 14, Course Packet]
- Unit 9 - Multiple Regression Analysis [Field, Chapters 6 & 7, Course Packet]
- Unit 10 - Logistic Regression Analysis [Field, Chapter 8, Course Packet]
- Unit 11 – MANOVA/Discriminant Analysis [Field, Chapter 16, Course Packet]
- Unit 12 - Nonparametric Statistics [Field, Chapters 15 & 18, Course Packet]
  - Spearman Rank Order and Kendal Rank-Order Correlation Coefficients
  - Kendal Coefficient of Concordance
  - Chi-Square Test of Independence and Chi-Square Goodness-of-Fit Test
  - Fisher’s Exact Test
  - Kappa Coefficient
  - The Mann-Whitney-Wilcoxon U Test
  - The Wilcoxon Matched-Pairs Signed-Ranks Test
  - The Kruscal-Wallis Test
  - The Friedman Test
  - Bonferroni Inequalities Approximation Post Hoc Procedure
- Unit 13 - Sample Size Estimation [Course Packet]

VII. Instructional Methods and Activities

- Lecture/discussion
- Practice problems
- Homework assignments
- Data analysis exercises

VIII. Evaluation and Grade Assignment

Homework (Data Analysis) Assignments 50%
Test 1 (Unit 1) 10%
Test 2 (Units 2 – 8) 20%
Test 3 (Units 9 – 13) 20%
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


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 Rule 13.02.99.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

If you have disability-related needs and/or are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the office of Disability Services (361-825-5816) and then inform the instructor. Every attempt is made in the course to conform to the University’s policies on disabilities.