I. COURSE DESCRIPTION

This course is offered in support of the doctoral programs in the College of Education. It is designed to introduce the fundamentals of applied statistics. Much emphasis will be placed on the students’ understanding of the basic concepts and procedures of statistics and their applications. Descriptive and inferential statistics will be presented in the contexts of research in education, social sciences and medicine.

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. TExES COMPETENCIES - NA

IV. COURSE OBJECTIVES

Upon successful completion of this course, the student should be able to demonstrate knowledge and understanding of:

1. Differentiating among the scales of measurement.
2. Constructing frequency distribution tables and graphs.
3. Calculating and describing the measures of central tendency and variability.
4. Converting raw scores into standard scores.
5. Explaining the Central Limit Theorem.
6. Constructing and explaining confidence intervals.
7. Computing and explaining selected effect sizes.
8. 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.
10. Using the Statistical Package for the Social Sciences (SPSS) for the purpose of data entry, manipulation, and analysis.

V. TOPICAL OUTLINE

Unit 1 – Measures of Central Tendency, Scales of Measurement
Unit 2 – Variables, Types of Correlation Coefficients
Unit 3 – The Normal Distribution
Unit 4 – Variability
Unit 5 – Standardization and z Scores
Unit 6 – Sampling
Unit 7 – Sampling Distributions, Central Limit Theorem, Standard Error of the Mean
Unit 8 – Confidence Intervals, Hypothesis Testing
Unit 9 – Simple Linear Regression
Unit 10 – The Chi-Square Test of Independence

VI. TENTATIVE CLASS SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Readings</th>
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</thead>
<tbody>
<tr>
<td>8/28</td>
<td>Course Introduction, Measures of Central Tendency, Scales of Measurement</td>
<td>Lecture notes, Ch. 2</td>
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<tr>
<td>9/4</td>
<td>Labor Day-No Class</td>
<td>Lecture notes, Ch. 2</td>
</tr>
<tr>
<td>9/11</td>
<td>Scales of Measurement, The Normal Distribution</td>
<td>Lecture notes, Ch. 4</td>
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<tr>
<td>9/18</td>
<td>Pearson Correlation Coefficient</td>
<td>Lecture notes, Ch. 8</td>
</tr>
<tr>
<td>9/25</td>
<td>Quiz 1, Sampling</td>
<td>Lecture notes, Ch. 1</td>
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<tr>
<td>10/2</td>
<td>Variables, Types of Correlation Coefficients</td>
<td>Lecture notes, Ch. 1 &amp; 8</td>
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<tr>
<td>10/9</td>
<td>Variability</td>
<td>Lecture notes, Ch. 3</td>
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<tr>
<td>10/16</td>
<td>Standardization and z Scores</td>
<td>Lecture notes, Ch. 5</td>
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<tr>
<td>10/23</td>
<td>Standardization and z Scores</td>
<td>Lecture notes, Ch. 5</td>
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<tr>
<td>10/30</td>
<td>Quiz 2, Sampling Distributions, Central Limit Theorem, Standard Error of the Mean</td>
<td>Lecture notes, Ch. 6</td>
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<td>11/6</td>
<td>Sampling Distributions, Central Limit Theorem, Standard Error of the Mean</td>
<td>Lecture notes, Ch. 6</td>
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<td>11/13</td>
<td>Confidence Intervals, Hypothesis Testing</td>
<td>Lecture notes, Ch. 7</td>
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<td>11/20</td>
<td>Confidence Intervals, Hypothesis Testing</td>
<td>Lecture notes, Ch. 7</td>
</tr>
<tr>
<td>11/27</td>
<td>Simple Regression, The Chi-Square Test of Independence</td>
<td>Ch. 13 &amp; 14</td>
</tr>
<tr>
<td>12/4</td>
<td>The Chi-Square Test of Independence</td>
<td>Ch. 14</td>
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<tr>
<td>12/11</td>
<td>Final Exam</td>
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VII. INSTRUCTIONAL METHODS AND ACTIVITIES

1. Lecture/discussion
2. Practice problems
3. Individual homework assignments
4. In-class group assignments
5. Critique of a research article

VIII. EVALUATION AND GRADE ASSIGNMENT

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework Assignments*</td>
<td>5%</td>
</tr>
<tr>
<td>Attendance and Class Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Quiz 1</td>
<td>30%</td>
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<tr>
<td>Quiz 2</td>
<td>30%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>30%</td>
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* Homework assignments include reading selected journal articles.

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

IX. REQUIRED TEXTBOOKS


X. RECOMMENDED READINGS


XI. COURSE POLICIES

Late work and Make-up Exams

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, extenuating circumstances, etc., should contact the instructor as soon as the condition becomes apparent to arrange fair and practical extensions.

Incomplete Grade

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.

Academic Integrity/Plagiarism

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in receiving an “F” in the course.

Dropping a Class

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class.

Classroom/professional behavior

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

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.

**Disabilities 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 Driftwood 101. 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.

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**Statement of Academic Continuity**

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.