TEXAS A&M UNIVERSITY-CORPUS CHRISTI
CNEP 6370 ADVANCED QUANTITATIVE ANALYSIS

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Semester: Spring 2019
Class Date: Tuesday
Class Time: 4:20-6:50PM
Class Location: OCNR 116

Course Description

CNEP 6370: Advanced Quantitative Analysis (3 SCH). This class will focus on expanding students’ knowledge of research design and applied statistical analyses. Specific topics covered include general linear model approaches to between group designs and regression analyses. Students will utilize SPSS to complete regularly assigned problems in order to demonstrate their understanding and proficiency, with special emphasis placed on the development of advanced skills needed to evaluate individual and program outcomes within a counselor education context.

Rationale

This is an advanced research course emphasizing the skills needed to develop testable research hypotheses, collect and prepare data for analysis, execute appropriate statistical tests, analyze and interpret results, and communicate the results consistent with professional writing standards.

Course Topics

Major topics to be considered include:
- Data preparation and cleaning
- T-tests
- One-Way Analysis of Variance (ANOVA)
- Statistical Power and Effect Size
- Factorial Design ANOVA
- Repeated Measures ANOVA
- Analysis of Covariance (ANCOVA)
- Nonparametric Designs (Kruskal-Wallis, Friedman, and Chi Square Tests)
- Multiple Linear Regression Models
- Linear Discriminant Analysis (LDA)

Learning Objectives

This course is designed to meet 2016 CACREP standards included in Section 6 (doctoral professional identity). The following standards represent the learning objectives established for this course. Upon completion of the course, students will be knowledgeable of:

- CACREP Standard 6-B-1-e: methods for evaluating counseling effectiveness. [Students will successfully complete this learning objective by achieving a score of 80% or higher on the midterm and final examinations]
• **CACREP Standard 6-B-4-a:** research designs appropriate to quantitative and qualitative research questions. *Students will successfully complete this learning objective by achieving a score of 80% or higher on proficiency demonstrations*

• **CACREP Standard 6-B-4-b:** univariate and multivariate research designs and data analysis methods. *Students will successfully complete this learning objective by achieving a score of 80% or higher on the proficiency demonstrations and midterm and final examinations*

• **CACREP Standard 6-B-4-g:** research questions appropriate for professional research and publication. *Students will successfully complete this learning objective by achieving a score of 80% or higher on the research presentation project*

• **CACREP Standard 6-B-4-i:** professional conference proposal preparation. *Students will successfully complete this learning objective by achieving a score of 80% or higher on the research presentation project*

**Major Course Requirements**

1) Proficiency Demonstrations (200 points; 10 assignments @ 20 points each)

A series of proficiency demonstrations will be assigned throughout the semester to assess students’ understanding of the material being presented. These assignments are designed to provide students with experience conducting various statistical analyses using current statistical software packages (SPSS, G*Power, Excel, etc.) and interpreting their results. Each assignment will be graded on a 20-point scale with points awarded using the scoring rubric included in the appendices at the end of this document. Students are to submit their assignments electronically through Blackboard as MS Word files. Once graded, students will receive their assignments with the track changes feature enabled so they can review any comments and/or edits made by the instructor and submit a revised version of the assignment should they choose to do so (this option is not available to students who earn an *unacceptable* score – see Appendix A). Submitting a revised homework provides students the opportunity to potentially earn back half of the points originally missed. At the end of the semester, all proficiency demonstration scores will be totaled, and a composite score computed for this course evaluation. The maximum number of points that can be earned for this course requirement is 200.

*NOTE 1:* Students are permitted, and even encouraged, to work together in groups to complete their proficiency demonstration assignments. My experience teaching this course has shown that students tend to perform better when small study groups are used to complete proficiency demonstrations and prepare for examinations. Though students may be working in groups, each student still is required to turn in his/her own assignment.

2) Examinations (200 points; 2 examinations @ 100 points each)

There will be two (2) examinations administered, a midterm and a final. The examinations will emphasize lecture material, assigned readings, problems worked in class, and proficiency demonstration assignments. Examinations will not be cumulative. The midterm will cover
material discussed in the first half of the course and the final will cover all new material presented after the midterm examination. Examinations will be constructed using a variety of question types including multiple choice, short answer, computational, and SPSS output interpretive questions. The maximum number of points to be earned on each examination is 100.

3) Research Presentation Project (100 points)

During the semester, students will select a research or data analysis project requiring some design(s) covered in the course, identify appropriate research hypotheses to test, obtain a dataset, analyze the data, and present the findings (written up in APA 6th edition style) as a poster presentation suitable for use at a professional conference. Students must have their topic and the scope of their presentation approved in advance by the instructor. A more detailed description of this assignment will be distributed at the beginning of the semester. Posters will be presented on the date specified in the course syllabus and will be evaluated by a panel of reviewers using the rubric included in this syllabus (see Appendix B). Scores will be averaged, and the mean score will be used as the student’s grade for this assignment. The maximum number of points that can be earned on this presentation is 100.

**NOTE 2:** Students are expected to adhere to the APA style guidelines (6th ed.) for all written assignments submitted. Papers are expected to be of professional quality including clear and concise language, free of any grammar and punctuation errors, and organized to flow. In addition, all work submitted should be the result of the student’s own original efforts. Submitted assignments that do not meet these standards will be graded accordingly. Finally, please note that faculty, staff, and students will be invited to attend the presentations to simulate the experience of presenting at a professional conference.

**Point Allocation**

| Proficiency Demonstrations (10 @ 20pts each) | 200 points |
| Midterm Examination | 100 points |
| Final Examination | 100 points |
| Research Presentation Project | 100 points |
| **TOTAL** | 500 points |

**Grade Distribution**

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<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>450-500</td>
<td>400-449</td>
<td>350-399</td>
<td>300-349</td>
<td>Below 300</td>
</tr>
</tbody>
</table>

**Required or Recommended Readings**

**Textbook:**

Statistical Software Package:

SPSS® Graduate Pack V.23.0 or higher (Software is loaded on several campus computers)

Recommended or supplemental readings:


State Adopted Proficiencies for School Counselors

School Counselor Standard I: Learner-Centered Knowledge
The professional school counselor must have a broad knowledge base.

School Counselor Standard III: Learner-Centered Process
The professional school counselor participates in the development, monitoring, and evaluation of a developmental school guidance and counseling program that promotes learners’ knowledge, skills, motivation, and personal growth.

TExES Competencies (COE)

**Competency 004 (Program Management):** The school counselor understands how to plan, implement, and evaluate a developmental guidance program, including counseling services, which promotes all students’ success.

**Competency 006 (Counseling):** The school counselor understands how to provide effective counseling services to individuals and small groups.
Competency 010 (Professionalism): The school counselor understands and complies with ethical, legal, and professional standards relevant to the profession.

Course Policies

Attendance

Students are expected to attend each scheduled class session. When unexpected events or emergencies such as personal illnesses, family crises, or a death in the family arise, students are asked to communicate with their instructor as soon as possible so the instructor is aware of the situation and can work together with the student to devise a mutually agreeable course of action. Under these circumstances, absences will be considered “excused” upon receipt of appropriate documentation (doctor’s note, court paperwork, obituary, etc.). Additional excused absences for participation in a religious holy day as outlined in the University catalog may be granted if addressed in advance with the course instructor.

For absences that are not excused, the follow attendance policies are in place:

- The first unexcused absence will result in a 5% reduction in the student’s final grade.
- A second unexcused absence will result in a 10% reduction in the student’s final grade.
- Following a third unexcused absence, students will either receive a failing grade for the course or be administratively dropped from the course.
- Arriving late or leaving early to class is discouraged. Two such instances will count as an unexcused absence.
- Students acting unprofessionally in class will be asked to leave. Should a dismissal result in the student missing more than 50% of the class period, an unexcused absence will be issued.

**NOTE 3:** Please note, unexcused absences may adversely affect your performance as examinations missed or failure to submit assignments by their due date will result in a grade reduction.

Communication

Each TAMUCC student has access to an individual e-mail account assigned to them by the university. This is the primary method through which I will communicate with you throughout the semester. At the beginning of the course, students should make sure they have activated their account and make plans to check the account regularly. Students can expect a response to their questions from me within 48 hours (excluding weekends & university-recognized holidays).

Late Submissions of Student Work

All assignments are to be submitted online to the course Blackboard page prior to the beginning of class on the due date specified in the course calendar (see end of syllabus). Assignments not received prior to the beginning of class will be considered late. A letter grade deduction will be applied to all late submissions that were not discussed with your instructor in advance. After five days, late assignments will no longer be accepted and a grade of zero will be issued.
Extra Credit

Generally, extra credit opportunities will not be extended in this course. Course grades should be reflective of the proficiency level students are able to demonstrate through all course assignments and assessments. Requests to award additional points without just cause or to assign alternative/additional work for credit will be denied.

Academic Integrity and Plagiarism

TAMUCC Graduate Catalogue (please refer to current version)

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, forgery, or plagiarism (plagiarism is the presentation of the work of another as one's own work).

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanction to any student involved. Penalties that the instructor might possibly apply to individual cases of academic dishonesty include:

- Written reprimand
- Requirement to re-do work in question
- Requirement to submit additional work
- Lowering of grade on work in question
- Assigning grade of "F" to work in question
- Assigning grade of "F" for course
- Recommendation for more severe punishment, such as dismissal from program or University

If the faculty member determines that assigning a grade of "F" to the course is the appropriate penalty and this disciplinary action occurs prior to the deadline for dropping courses, the student forfeits his/her right to drop the course in question.

If the faculty member recommends more severe punishment, such as dismissal from the program or from the University, the faculty member will notify the appropriate chair/college dean, who in turn will notify the Office of Student Affairs. If dismissal from the University is recommended, the Office of Student Affairs will follow its procedure for such cases.

The faculty member must file a record for each case of academic dishonesty, including a description of the disciplinary action taken, along with any materials involved, with his or her college dean, who will forward a copy to the Office of Student Affairs. The office of the academic dean of the college in which the offense took place will maintain records of all cases of academic dishonesty reported for a period of five years. The Office of Student Affairs will also maintain records of such cases for a period of five years. The Office of Student Affairs will inform the Graduate Dean as appropriate.
Any student who has been penalized for academic dishonesty has the right to appeal the judgment or the penalty assessed. Students who wish to appeal an academic dishonesty decision should contact the Office of Student Affairs for guidance on the appropriate steps for initiating the process.

**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. Simply discontinuing your attendance and participation **WILL NOT** automatically result in you being dropped from the class. Students are responsible for checking the official academic calendar for the last day to drop a course with an automatic grade of “W” for the semester.

**Classroom/Professional Behavior**

Texas A&M University-Corpus Christi, as an academic community, requires individuals to 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.

**Statement of Civility**

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. The University’s goal is to provide you with a high-quality educational experience that is free from repression. To assist in meeting this goal, you are responsible for following the rules of the University, city, state, and federal government. You are expected to behave in a manner that is dignified, respectful, and courteous to all people; regardless of gender, ethnic/racial origin, religious background, age, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

**Grade Appeals**

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 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](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Dean’s office in the college in which the course is taught or the Office of the Provost.

**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 Corpus Christi Hall 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.

**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 using 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.
## Tentative Course Schedule (Spring 2019)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics Discussed</th>
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</table>
| January 15 | Course introduction  
Data cleaning procedures  
Statistical power                                    |
| January 22 | Mean comparison testing ($t$-tests)  
Effect size and confidence intervals  
**Proficiency Demonstration #1 DUE (submit on Blackboard by 4:20pm)** |
| January 29 | Analysis of Variance  
**Proficiency Demonstration #2 DUE (submit on Blackboard by 4:20pm)** |
| February 5 | Analysis of Variance                                                                 |
| February 12| Repeated Measures Analysis of Variance  
**Proficiency Demonstration #3 DUE (submit on Blackboard by 4:20pm)** |
| February 19| Factorial Analysis of Variance  
**Proficiency Demonstration #4 DUE (submit on Blackboard by 4:20pm)** |
| February 26| Analysis of Covariance  
**Proficiency Demonstration #5 DUE (submit on Blackboard by 4:20pm)** |
| March 5    | **MIDTERM EXAMINATION**                                                        |
| March 12   | **NO CLASS SCHEDULED – Spring Break**                                            |
| March 19   | Multiple Regression  
**Proficiency Demonstration #6 DUE (submit on Blackboard by 4:20pm)**             |
| March 26   | Multiple Regression                                                                 |
| April 2    | Linear Discriminant Analysis  
**Proficiency Demonstration #7 DUE (submit on Blackboard by 4:20pm)** |
| April 9    | Nonparametric Designs (Chi-square)  
**Proficiency Demonstration #8 DUE (submit on Blackboard by 4:20pm)** |
| April 16   | Nonparametric Designs (Kruskal-Wallis and Friedman)  
**Proficiency Demonstration #9 DUE (submit on Blackboard by 4:20pm)** |
| April 23   | Review/Catch-Up Day  
**Proficiency Demonstration #10 DUE (submit on Blackboard by 4:20pm)** |
| April 30   | **RESEARCH POSTER PRESENTATION DAY**                                                 |
| May 7      | **FINAL EXAMINATION**                                                            |
**APPENDIX A**  
*Proficiency Demonstration Evaluation Rubric*

<table>
<thead>
<tr>
<th>Rating</th>
<th>Qualitative Interpretation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excellent</strong></td>
<td>Student has correctly answered all the questions included in the assignment. Steps are clearly labeled, and the student has shown all his/her work.</td>
<td>18-20</td>
</tr>
<tr>
<td></td>
<td>Data interpretation is accurate, and results are reported in the style and format (i.e., APA) appropriate for counseling research.</td>
<td></td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td>Student has either responded to one or two questions incorrectly or has made minor computation errors in several problems. Steps are clearly labeled, and the student has shown all his/her work.</td>
<td>16-17</td>
</tr>
<tr>
<td></td>
<td>Data interpretation is accurate, and results are reported in the style and format (i.e., APA) appropriate for counseling research with only minor errors.</td>
<td></td>
</tr>
<tr>
<td><strong>Marginal</strong></td>
<td>Student has either responded to one or two questions incorrectly and has made significant computation errors in several problems. Steps are vaguely labeled, and the student has shown all of his/her work.</td>
<td>14-15</td>
</tr>
<tr>
<td></td>
<td>Data interpretation is slightly inaccurate, and results are reported in the style and format (i.e., APA) appropriate for counseling research with several errors being noted.</td>
<td></td>
</tr>
<tr>
<td><strong>Unacceptable</strong></td>
<td>Student has either failed to address every question or provided incorrect responses to most problems presented. There is no work shown for any of the problems and the entire assignment is of poor quality.</td>
<td>13 or below</td>
</tr>
<tr>
<td></td>
<td>Data interpretation is wholly inaccurate, and the reporting style used is not consistent with generally accepted practice in counseling research.</td>
<td></td>
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</tbody>
</table>
## APPENDIX B

**Research Poster Presentation Evaluation Rubric**

<table>
<thead>
<tr>
<th></th>
<th>Unacceptable (0-9 pts)</th>
<th>Marginal (10-11 pts)</th>
<th>Good (12-13 pts)</th>
<th>Excellent (14-15 pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of Poster Content</strong></td>
<td>Main points of the introduction, statement of the problem, purpose of the study, and research questions are either not addressed or poorly organized.</td>
<td>Main points of the introduction, statement of the problem, purpose of the study, and research questions are adequately addressed though not as well-organized.</td>
<td>Main points of the introduction, statement of the problem, purpose of the study, and research questions are sufficiently addressed in a fairly well-organized manner.</td>
<td>Main points of introduction, statement of the problem, purpose of the study, and research questions are addressed in thorough, concise, and organized manner.</td>
</tr>
<tr>
<td><strong>Discussion of Methods and Analyses Used</strong></td>
<td>Analyses selected are inappropriate for the research questions asked. No explanation for the selection of these analyses is presented.</td>
<td>Analyses selected are appropriate though not the best choice for the research questions asked. Little to no explanation for the selection of these analyses is presented.</td>
<td>Analyses selected are appropriate for the research questions asked. A brief explanation for the selection of these analyses is presented.</td>
<td>Analyses selected are appropriate for the research questions asked. A thorough explanation for the selection of these analyses is presented.</td>
</tr>
<tr>
<td><strong>Presentation of Results</strong></td>
<td>Results are poorly communicated. No apparent organization was used in the design. Results are not tied to the research questions asked.</td>
<td>Communicates the most important results in a manner that is unclear and disorganized. Results are minimally tied to the research questions.</td>
<td>Communicates the most important results in a manner that is mostly organized, specific, and concise. Results ties to research questions.</td>
<td>Communicates the most important results obtained in an organized, specific, and concise manner. Results are tied to research questions.</td>
</tr>
<tr>
<td><strong>Discussion Section and Conclusions</strong></td>
<td>Connection between results and how they can be utilized was not made. Limitations of the study were not addressed, and not suggestions for future research were offered.</td>
<td>Partially mentions how results can be utilized and by whom. Major limitations of the study are overlooked and the next steps to be taken are not well thought out.</td>
<td>Mentions how results can be utilized and by whom. Briefly addresses limitations and the next steps to be taken.</td>
<td>Mentions how results can be utilized and by whom. Clearly addresses limitations to the study and describes the next steps to be taken.</td>
</tr>
<tr>
<td><strong>Visual Aesthetics</strong></td>
<td>Graphics used do not enhance the presentation in any way. Use of font sizes/variations and headings is mostly distracting to the viewer.</td>
<td>Graphics used adequately enhance the presentation. Use of font sizes/variations and headings is inconsistent and distracting.</td>
<td>Graphics used enhance the presentation. Use of font sizes/variations and headings make the overall flow of the poster clearer for the audience.</td>
<td>Graphics used are engaging and enhance the presentation. Use of font sizes/variations and headings help the overall clarity of the poster.</td>
</tr>
<tr>
<td><strong>Oral Presentation</strong></td>
<td>Narration and/or the answering of questions is wholly lacking.</td>
<td>Narration and/or the answering of questions is somewhat lacking.</td>
<td>Narration and/or the answering of questions is adequate and adds to the presentation.</td>
<td>Narration and/or the answering of questions is engaging, thorough, and adds greatly to the presentation.</td>
</tr>
<tr>
<td><strong>Adherence to APA Format</strong></td>
<td>Data obtained from other sources is not cited at all. APA style is incorrectly used throughout.</td>
<td>Some data obtained from other sources is appropriately cited. APA style is either inconsistent or incorrect.</td>
<td>Most data obtained from other sources is appropriately cited. APA style is accurate.</td>
<td>All data obtained from other sources is appropriately cited. APA style is accurate.</td>
</tr>
<tr>
<td><strong>Grammar and Spelling</strong></td>
<td>Poor presentation with excessive spelling and/or grammar mistakes evident.</td>
<td>Adequate presentation although several noticeable spelling and/or grammar mistakes evident.</td>
<td>Good presentation with minimal spelling and/or grammar mistakes evident.</td>
<td>Clean presentation, with no spelling and/or grammar mistakes evident.</td>
</tr>
</tbody>
</table>