I. Course Description

This research methodology course is designed to provide doctoral students with application experience in quantitative, qualitative, and mixed-method data analytic procedures. Students will address promises and pitfalls using advanced univariate, multivariate, and non-parametric techniques introduced in CNEP 6360 and CNEP 6370. This course is designed to help students address data analytic applications relevant to professional consulting and clinical and counseling practice as well as contexts involving program evaluation in a wide range of professional settings. Prerequisites: CNEP 6320; CNEP 6360; CNEP 6370.

II. Rationale

This is an interdisciplinary research course, emphasizing designing quantitative and qualitative research, coding and analyzing data, computing statistical results, and using statistical software. Outcomes include the ability to develop hypotheses, execute statistical tests, analyze the results, and communicate the results.

III. State Adopted Proficiencies

Coursework may be applied toward LPC licensure in the State of Texas.

IV. This course is designed to meet the following CACREP Standards:

- CACREP Section 6-B-4-a- Research designs appropriate to quantitative and qualitative research questions
- CACREP Section 6-B-4-b- Univariate and multivariate research designs and data analysis methods
- CACREP Section 6-B-4-c- Qualitative designs and approaches to qualitative data analysis
- CACREP Section 6-B-4-f- Models and methods of program evaluation
- CACREP Section 6-B-4-g- Research questions appropriate for professional research and publication
- CACREP Section 6-B-4-h- Professional writing for journal and newsletter publication
- CACREP Section 6-B-4-j- Design and evaluation of research proposals for a human subjects/institutional review board review
V. Course Objectives/Learning Outcomes

Course Objectives:

Each student will develop and be able to demonstrate an understanding of the following:

1. Student will understand, apply and interpret correlational and experimental designs using multivariate procedures
   advanced correlational analyses
   nonparametric tests

2. Student will conceptualize and analyze qualitative data.

3. Students will have the knowledge and understanding of the following:
   - models and methods of assessment and use of data
   - univariate and multivariate research designs and data analysis methods
   - formulate research questions appropriate for professional research and publication in counseling
   - create research designs appropriate for professional research and publication in counseling
   - qualitative designs and approaches to qualitative data analysis

Student Learning Outcomes

1. Students will design, identify, and evaluate research designs through examination, projects, and homework assignments focused on nonparametric statistics, univariate and multivariate parametric statistics, and covariates in univariate and multivariate parametric statistics.
2. Students will formulate research questions specific to counseling research as evidenced by performance on exams and project with a focus on nonparametric statistics, univariate and multivariate parametric statistics, and covariates in univariate and multivariate parametric statistics.
3. Students will differentiate between descriptive, experimental, and correlational designs focused on nonparametric statistics, univariate and multivariate parametric statistics, and covariates in univariate and multivariate parametric statistics and will demonstrate appropriate application through examination, homework assignments, and project.
4. Students will complete a research paper consistent with guidelines for publication relevant to the counseling profession in the project component of the class.
5. Students will apply quantitative evaluations specific to counseling effectiveness through completion of a research paper and examination.
6. Students will complete a literature review on a counseling-related topic as evidenced by completion of a research project.
7. Students will identify differences in quantitative sampling procedures through examination, homework, and paper with a focus on nonparametric statistics, univariate and multivariate parametric statistics, and covariates in univariate and multivariate parametric statistics and qualitative research design.
8. Students will utilize statistical concepts appropriate for descriptive, experimental, and correlational designs focused on nonparametric statistics, univariate and multivariate parametric statistics, and covariates in univariate and multivariate parametric statistics in examination, project, and homework assignments.
9. Students will evaluate various coding methods for qualitative research through assignments and research project.

VI. Course Topics

Each student will develop and be able to demonstrate an understanding of:
Model assumptions involved in univariate and multivariate techniques
Advanced skills in univariate statistics
Overview of multivariate techniques
Designing and analyzing qualitative data

VII. Instructional Methods and Activities

Lectures, Homework, SPSS Exercises, Computations, Exams, and a Research Project

VIII. Evaluation and Grade Assignment

Midterm Exam (30 points)
Research Paper (40 points)
Homework assignments (60 points)
Research Presentation (30 points)

GRADING POLICIES: Finally, your grade will be assigned based on the following schemata:
A = 135-150
B = 120-134
C = 105-119
D = 90-104
F = 89 & BELOW

You are encouraged to work in groups to complete your homework. Students tend to perform better in this class when small study groups are used for homework and exam preparation. While each student is required to turn in homework, working together is permissible and encouraged. However, all other projects are to be done individually. Students who work together on other work will have committed a serious infraction and will be referred to the graduate school, consistent with university policy, if cheating is suspected.
Midterm:
The midterm exam (worth 30 points) will consist of short and long answer questions, as well as the interpretation of SPSS output and an APA style write up of findings. Students will not be allowed to use any notes or textbooks. A review of the material that will be covered on the midterm will be conducted the class session prior to the exam.

Homework Assignments:
A point value is given for each graded section (see instructions for each assignment). Partial credit is possible for all computations and written responses (e.g., short essay, open-ended questions). Partial credit will be awarded when minor errors due to computation or a qualified understanding of a concept is noted. No credit is given when several minor errors or major errors/omissions are apparent.

Research Paper:
To get full credit on the research paper, use American Psychological Association Publication Manual (6th Ed.) guidelines. All written assignments should use 12-point font, Times New Roman, 1” margins on top and bottom; 1” to 1.25” (default on MS Word) for left and right margins (see instructions and rubric for further guidance).

Research Presentation:
This presentation will be an introductory review of a data analysis procedure we have not covered in class. Students are encouraged to choose a topic that will challenge them and increase their knowledge in quantitative or qualitative analysis (see instructions and rubric for further guidance).

Participation in Class:
To receive all of the participation points, students are expected to attend class on time, complete all assigned readings beforehand, refrain from any cell phone/superfluous technology use in class, act respectfully towards the instructor, actively participate in class activities and discussion, and respond professionally and appropriately to feedback.

Extra Credit Opportunity:

IX. Course Schedule and Policies

Attendance

Much of the learning in the course occurs in the context of discussion, demonstration, and class activities. Students are expected to be on time and actively participate in class. Students with more than 5 hours of absences (for any reason) will have their final grade dropped one letter for the semester.

Late Work

All late assignments receive a letter grade deduction. No late assignment will be accepted one week after due date. Any assignments not turned in by the last day of class will not be graded.

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, 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 may be applied by the faculty member to individual cases of academic dishonesty include one or more of the following:

1. Written reprimand;
2. Requirement to re-do work in question;
3. Requirement to submit additional work;
4. Lowering of grade on work in question;
5. Assigning grade of "F" to work in question;
6. Assigning grade of "F" for course;
7. Recommendation for more severe punishment, such as dismissal from the program or from the 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.

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.
This schedule is tentative and may change at the instructor's discretion

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<thead>
<tr>
<th>Date</th>
<th>Reading</th>
<th>Assignment/Presentation</th>
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<tbody>
<tr>
<td>1/18</td>
<td>CH. 6 &amp; 7</td>
<td>Review</td>
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<tr>
<td>1/25</td>
<td>CH. 5</td>
<td>Data cleaning&lt;br&gt;&lt;br&gt;Assign HW 1</td>
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<tr>
<td>2/1</td>
<td>CH. 8</td>
<td>Multiple Regression</td>
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<tr>
<td>2/8</td>
<td>CH. 10</td>
<td>Multiple Regression Continued/ Mediator and Moderator Variables&lt;br&gt;&lt;br&gt;H W 1 due&lt;br&gt;&lt;br&gt;Assign HW 2</td>
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<td>2/15</td>
<td>CH. 19</td>
<td>Logistic Regression&lt;br&gt;&lt;br&gt;H W 2 due&lt;br&gt;&lt;br&gt;Assign HW 3</td>
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<tr>
<td>2/22</td>
<td>CH. 16</td>
<td>MANOVA&lt;br&gt;&lt;br&gt;H W 3 due&lt;br&gt;&lt;br&gt;Assign HW 4</td>
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<td>3/1</td>
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<td>MANCOVA&lt;br&gt;&lt;br&gt;H W 4 due&lt;br&gt;&lt;br&gt;Assign HW 5</td>
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<tr>
<td>3/8</td>
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<td>Review for Midterm&lt;br&gt;&lt;br&gt;H W 5 due</td>
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<td>3/17</td>
<td>NO CLASS</td>
<td>Spring Break</td>
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<td>3/15</td>
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<td>MIDTERM</td>
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<td>3/22</td>
<td>Assigned readings on Blackboard</td>
<td>Single Case Research Design&lt;br&gt;&lt;br&gt;Assign HW 6</td>
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<td>3/29</td>
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<td>Other Advanced Statistical Techniques&lt;br&gt;&lt;br&gt;Presentations&lt;br&gt;&lt;br&gt;H W 6 due</td>
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<td>4/5</td>
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<td>Presentations</td>
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<td>4/12</td>
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<td>Presentations</td>
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<td>4/19</td>
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<td>Presentations</td>
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<tr>
<td>5/3</td>
<td></td>
<td>Presentations&lt;br&gt;&lt;br&gt;Research Paper Due</td>
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X. Textbook(s)

Required:


**Recommended:**


In addition, a number of supplementary articles may be discussed during the course. These will be used to supplement the texts and to exemplify how certain examined statistical methods are used in psychological research. Each of these supplementary readings will be made available by the instructor.

**SOFTWARE:**

SPSS® Graduate Pack 20 or higher

Software is also loaded on several computers on campus and Metroplex.

There is a Student Pack that is also sold. Do not purchase this as it will not run all of the analyses we will be doing in this class.

**XI. References/Resources**


**INTERNET RESOURCES:**


[http://www.anselm.edu/homepage/jpitocch/biostatstime.html](http://www.anselm.edu/homepage/jpitocch/biostatstime.html) -- History timeline for statistics

[http://www.psychstat.smsu.edu/introbook/sbk00.htm](http://www.psychstat.smsu.edu/introbook/sbk00.htm) A very good on-line text for introductory statistics.


http://www.dartmouth.edu/~chance/ -- The Chance Database; includes videos and audio on topics related to chance, statistics, probability, randomness, etc. An excellent site.

http://nilesonline.com/data/ -- Where to find data on the Internet; many sources, from agriculture to education to economics and more.

http://www.fedstats.gov/ -- More than 70 agencies in the United States Federal Government produce statistics of interest to the public. The Federal Interagency Council on Statistical Policy maintains this site to provide easy access to the full range of statistics and information produced by these agencies for public use.

http://lib.stat.cmu.edu/

http://lib.stat.cmu.edu/datasets/

http://lib.stat.cmu.edu/DASL/DataArchive.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 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. 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) 825-581
Research Paper

For this paper you will need to design a study based on research questions of your choosing. Your answer should be a minimum of 14 pages, and not exceed 25 pages, excluding bibliography, and must be written in APA style. Use the following outline for your answer:

Quantitative

1. Justification of study (2-3 pages) – Provide a brief discussion of relevant literature that states the problem, the importance of the problem, and your approach to the problem.

2. Research Design and Procedure (6-10 pages) – Include in this section the following:
   - Research Questions
   - Overview: A general description of the type of research to be conducted (e.g. experimental, correlational, explanatory non-experimental) Identify the design using sources such as Campbell and Stanley (1963) and justify your choice for this design.
   - Validity (1 page): Threats to internal and external validity
   - Participants: The population studied, sampling method (justify your choice), and presumed description of the study participants. Conduct an a priori statistical power analysis. What is your target sample size, and why? Use citations as appropriate.
   - Setting: Describe the setting in detail
   - Variables: Operationalize the independent (or explanatory) and dependent (or criterion) variables including their measurement and scaling (e.g., sex is categorical and nominal with two levels, male and female). Describe psychometric properties of any formalized assessments you will be using.
   - Procedure: Describe the actual steps you will undertake to obtain your data, and how it will be stored.

3. Recommended Data Analysis (5-10 pages) – Based upon the anticipated research design, identify the method of data analysis you would use and provide specific steps in the process (e.g., if regression, how will the variables be entered and why). Be sure to justify why you chose this method, and highlight its pros and cons. Be as specific as possible, although you do not need to provide numerical examples. Include: model assumptions, control for error, test results, and effect size

4. Limitations (1-2 pages)- Identify potential limitations of your study and how these might be addressed by future researchers.

Qualitative

1. Justification of study (2-3 pages) – Provide a brief discussion of relevant literature that states the problem, the importance of the problem, and your approach to the problem.

2. Research Design and procedure (6-10 pages)
   - Research Questions
   - Discuss theoretical position as it influences your research design, appropriateness of the methodology for answering your research questions, and adequate description of your particular theoretical approach
• Overview: discuss the parameters of the study, describe the overall research strategy and give a rationale for it. Extended discussion of research tactics should be covered under the appropriate headings (observations, interview, document collection). Create a conceptual diagram- in what sequence will you execute your study and why?
• Participants and Sampling- The population studied, sampling method (justify your choice), and presumed description of the study participants. What is your target sample size, and why? Use citations where appropriate.
• Setting- describe the setting in detail
• Researcher’s role management- discuss personal experience, professional experience, personal knowledge of the literature and analytic rigor
• Data Collection: How will you collect and store data that will answer your question? What will be the relationship between various data collection types?
• How will you ensure trustworthiness? prolonged engagement, persistent engagement, triangulation, peer debriefing, member checks, audit trail

3. Recommended Data Analysis (5-10 pages)
• How will you analyze the data? State specifically how you will proceed to analyze each type of data (observation, interview, documents) during each stage of analysis (for example, open coding, axial coding, or selective coding).
• Grounding the theory- How will you validate your theory against the data? Explain domain and dimensional analysis if you intend to use them.

4. Limitations (1-2 pages)- Identify potential limitations of your study and how these might be addressed by future researchers.

Note: Qualitative research terms are not common knowledge and do differ in meaning depending upon which author you are citing; therefore, it is not sufficient to merely refer to a term. Always explain exactly what you mean by each qualitative term the first time you use it in a qualitative research proposal. In addition, you should state how that term is relevant to your study.
<table>
<thead>
<tr>
<th>Research Paper (40 points)</th>
<th><strong>Excellent</strong> Section is thorough and covers all required aspects. APA style is excellent with appropriate references and free from grammatical errors</th>
<th><strong>Good</strong> Section covers all required aspects at least briefly and/or Minimal APA style and grammatical errors</th>
<th><strong>Fair</strong> Some aspects are not covered, or are incomplete, and/or APA style and grammatical errors.</th>
<th><strong>Poor</strong> Significant aspects missing and/or Significant APA style and grammatical errors</th>
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</thead>
<tbody>
<tr>
<td>Justification of Study</td>
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<td>4</td>
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<td>1</td>
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<tr>
<td>Research Design &amp; Procedure</td>
<td>15</td>
<td>14-10</td>
<td>9-6</td>
<td>5 - 1</td>
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<tr>
<td>Recommended Data Analysis</td>
<td>15</td>
<td>14-10</td>
<td>9-6</td>
<td>5 - 1</td>
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<tr>
<td>Results &amp; Discussion</td>
<td>5</td>
<td>4</td>
<td>3 2</td>
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**Research Presentation**

You will select an advanced methods topic and complete a 50-minute presentation to the class. **I must approve your topic, and another student in class may not cover the topic.** Some examples include the following:

1. Confirmatory factor analysis
2. Hierarchical linear modeling
3. Meta-analysis
4. Structural equation modeling
5. Advanced qualitative theory *and* coding strategy. This must go beyond Patton or other survey texts to focus on a specific scholar as opposed to a combination of theorists. For example:
   - Narrative
   - Grounded Theory according to specific theorist(s) (e.g. Charmaz)
   - Ethnography
   - Phenomenology according to Moustakas, Van Manen, or any other major theorist,
   - Feminist epistemology

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<tr>
<th><strong>Research Presentation</strong> (30 points)</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
<td>Ability to use method to formulate research questions appropriate for professional research and publication in counseling</td>
<td>10</td>
<td>9-8</td>
<td>7-5</td>
<td>4-1</td>
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<td>Provides information related to method including procedures (i.e., how to do it), theory, and limitations</td>
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<td>9-8</td>
<td>7-5</td>
<td>4-1</td>
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<td>Explains design and approach to quantitative/qualitative data analysis. What do you get? What does it tell you?</td>
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<tr>
<td>Presentation is clear, free from grammatical/spelling errors. Handouts and resources are helpful and clear. Presentation is at least 50 minutes long</td>
<td>5</td>
<td>4</td>
<td>3-2</td>
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