Department of Human Services
SPSY 6331.020– Quantitative Research Methods
Fall 2020

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Office: Human Services 213
Office Hours: T 11 pm – 1 pm; W 2:30 pm – 4:30 pm (virtual zoom meeting room: 401 891 2199)

Class meeting time and place: 4:30 pm – 7:00 pm, Thursdays, Human Services 317
Credits: 3

Course Description
This course is designed to familiarize students with the basic principles and procedures in experimental data analysis. Research methods, emphasizing use of experimental control, and analysis of data for reporting experimental and non-experimental results in the psychological study of human behavior.

SPSY 5331: Quantitative Research Methods (3 credit hours) Students have weekly reading assignments, complete three statistics assignments, complete one large research proposal, analyze and present mock research findings, and prepare for and take a midterm and final examination. These activities average at a minimum 6 hours of work each week to prepare outside of classroom hours.

The James I. Perkins College of Education Diversity Statement is found at the following link: http://coe.sfasu.edu/about-us/

Program Learning Outcomes
The complete listing of the standards associated with the PLOs, SLOs, assignments, and assessments are located on the PCOE website.

This course reflects the following core values of the College of Education:

- Academic excellence through critical, reflective, and creative thinking
- Life-long learning
- Collaboration and shared decision-making
- Openness to new ideas, to culturally diverse people, and to innovation and change
- Integrity, responsibility, diligence, and ethical behavior
- Service that enriches the community
The mission of the College of Education is to prepare competent, successful, caring, and enthusiastic professionals from diverse backgrounds dedicated to responsible service, leadership, social justice, and continued professional and intellectual development in an interconnected global society.

This course also supports the mission of the Human Services Department.

**Student Learning Outcomes**

1. Explain the assumptions associated with univariate statistics and best practice in research methodology
2. Utilize Jamovi software, and interpret research findings.
3. Discuss the advantages of univariate procedures and procedures based on randomization tests.
4. Test the assumptions associated with linear and multiple regression and various univariate tests.
5. Employ scatterplots for checking the assumptions of linear and multiple regression procedures. PCOE Syllabus Template Check-Off List Revised December 4, 2019
6. Understand and discuss the general purpose and types of research questions pertaining to univariate analysis of variance, main effects, interactions among variables, specific comparisons and trend analysis, and effect size.
7. Identify and employ univariate analysis of variance and covariance tests in areas where they are most appropriate.
8. Identify and employ analysis of variance tests as they pertain to two-factorial designs, repeated measures designs, and various interaction effects.
9. Use small data sets to perform hand calculations of all basic statistical procedures discussed in this course and verify the accuracy of hand calculations using SPSS software.
10. Read, discuss, and analyze a wide range of recent and classic studies within the behavioral sciences and provide a critical review of findings from these studies.
11. Complete a review of literature on a novel research topic, develop a brief method and procedures section /research and null hypotheses/decision rules clearly stated.
12. Provide results section for the above in which you elaborate on what was accomplished, and a discussion section in which you provide a summary of the main findings.

**NASP Domains addressed by this course:**

**Domain 1: Data-Based Decision Making and Accountability**

- School psychologists have knowledge of varied models and methods of assessment and data collection for identifying strengths and needs, developing effective services and programs, and measuring progress and outcomes.
• As part of a systematic and comprehensive process of effective decision making and problem solving that permeates all aspects of service delivery, school psychologists demonstrate skills to use psychological and educational assessment, data collection strategies, and technology resources and apply results to design, implement, and evaluate direct interventions, psychological services, and programs.

**Domain 3: Interventions and Instructional Support to Develop Academic Skills**

• School psychologists have knowledge of biological, cultural, and social influences on academic skills; human learning, cognitive, and developmental processes; and evidence-based curricula and instructional strategies.

• School psychologists, in collaboration with others, demonstrate skills to use assessment and data collection methods and to implement and evaluate services that support cognitive and academic skills.

**Domain 4: Interventions and Mental Health Services to Develop Social and Life Skills**

• School psychologists have knowledge of biological, cultural, and social influences on behavior and mental health, behavioral and emotional impacts on learning and life skills, and evidence-based strategies to promote social-emotional functioning, and mental and behavioral health.

• School psychologists, in collaboration with others, demonstrate skills to use assessment and data collection methods and to implement and evaluate services that support socialization, learning, and mental and behavioral health.

**Domain 8: Diversity in Development and Learning**

• School psychologists have knowledge of individual differences, abilities, disabilities, and other diverse student characteristics; principles and research related to diversity factors for children, families, and schools, including factors related to culture, context, and individual and role difference; and evidence-based strategies to enhance services and address potential influences related to diversity.

• School psychologists provide professional services that promote effective functioning for individuals, families, and schools with diverse characteristics, cultures, backgrounds and across multiple contexts.

• Understanding and respect for diversity in development and learning, advocacy for social justice, are foundations for all aspects of service delivery.

**Domain 9: Research and Program Evaluation**
School psychologists have knowledge of research design, statistics, measurement, varied data collection and analysis techniques, and program evaluation sufficient for understanding research and interpreting data in applied settings.

School psychologists demonstrate skills to evaluate and apply research as a foundation for service delivery and, in collaboration with others, use various techniques and technology resources for data collection, measurement, and analysis to support effective practices at the individual, group, and/or systems levels.

Text

Assignments
1. Final: In this course, there will be a final exam based on the content presented in class lecture and the book). Exams will have true/false, multiple choice and essay items. (Communication; Empirical and Quantitative Skills) (1, 9, 10)
2. Take Home Exams: There will be 2 take home exams based on lecture notes. These will be open format questions. These will be reviewed prior to due date.
3. CITI Training Certificate: Students will complete the required and supplemental Social-Behavioral and Educational Modules (see attached list). The certificate should be uploaded to the appropriate folder on D2L Dropbox by Sunday, 5 pm, at the end of the week it is due. (Social Responsibility)
4. Statistics Assignments: Students will complete 3 assignments based on statistics problems. To complete each assignment, students will utilize Jamovi to complete each problem. Completed assignments will be submitted to the appropriate D2L Dropbox folder by Sunday, 5 pm, at the end of each week they are due (see course schedule below). (Empirical and Quantitative Skills)
5. Discussion Questions: A total of three discussion questions will be submitted by students to the Dropbox. Students may submit only one DQ per week. DQ’s should be submitted by Wednesday, 8 am, of the week we are discussing that content in class. Students may choose whichever three weeks to submit a DQ, but it is recommended to submit DQ’s for content that is unclear or confusing. For example: A student reads the chapters and attends class on Monday but still has some questions about content. The student develops a question for discussion on the areas he/she/they is unclear and submits it to the Dropbox by Wednesday at 8 am. In class Wednesday afternoon, this question is discussed by the course instructor and peers. (Critical Thinking; Communication)
6. Research Planning Outline: Students will design a research project targeting an area of interest, approved by the instructor. The planning outline should include a brief rationale for the study, a description of ideal participants and setting, defined variables, including measurement system, study procedures, and additional considerations/limitations. A template will be provided by the instructor. (Communication; Empirical and Quantitative Skills) (9, 10)
7. **Research Project**: Students will write a 5-7 page research paper that includes a brief literature review, purpose, hypotheses, methods, and proposed data analyses sections (see rubric in appendices). The paper should follow APA format. Rough drafts of the paper will be due throughout the semester to provide feedback and assess progress (see schedule). Based on the methods used, the instructor will provide simulated data, which students will analyze and interpret for a results and discussion section. The final paper should take into account feedback of all prior drafts. (Communication; Empirical and Quantitative Skills) (1, 9, 10). **PHD students will complete this project as an actually research study, they will submit a proposal to IRB and collect data as part of this project.

8. **Professional Presentation**: Given mock data from their proposed research, students will complete a presentation of their project, including an abstract, introduction, methods, results, and discussion. The presentation can be either a poster or PowerPoint presentation. This assignment is an extension of the Research Proposal assignment. (Communication; Empirical and Quantitative Skills) (1, 9, 10)

9. **Participation and Attendance**: Students will be required to participate in discussions. To receive credit for attendance and participation, students must sign in on the attendance sheet. Attendance and participation will count towards 12 % of final grades (each class is worth 2 points). (Personal Responsibility; Communication; Teamwork).

**Assignments will be submitted to the appropriate Dropbox folder on D2L. Assignments must be submitted before the start of the next class. Late assignments will receive a 5 % reduction in possible points each day they are late. Research Project not submitted on time will result in the above schedule of point reduction on the final Research Project assignment. Assignments not submitted by midnight on the last day of finals will be graded and recorded as a 0.

**All research project activities will be in groups (Research Planning Outline, Research Project, Professional Presentation. Groups will be assigned by the instructor, and all group members will receive the same grade for each assignment, with the exception of the professional presentation. If any group member is absent from the professional presentation, he/she will receive a score of 0, unless otherwise approved by the instructor.

**Evaluation and Assessments (Grading):**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exams (50 points each)</td>
<td>100</td>
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<tr>
<td>Final</td>
<td>100</td>
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<td>100 CITI Training Certificate</td>
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<td>Take home exam (30 points each)</td>
<td>60</td>
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<td>Statistics Assignments (20 points each)</td>
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<td>Discussion Questions (10 points each)</td>
<td>30</td>
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<tr>
<td>Research Planning Outline</td>
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<tr>
<td>Research Project</td>
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### Course Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Subject</th>
<th>Readings Due</th>
<th>Assignments Due</th>
<th>Project Step</th>
<th>Modality of Class</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Syllabus/Introduction</td>
<td>Syllabus</td>
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<td>In Person</td>
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<td>Week 2</td>
<td>The Scientific Method</td>
<td>Ch.1</td>
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<td>Initial discussion, Post Idea on on DB 1.</td>
<td>In Person</td>
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<td>Week 3</td>
<td>Ethically designed research/Research design</td>
<td>Ch. 2-3</td>
<td>CITI Training</td>
<td>Finalized Topics on DB 2</td>
<td>In Person</td>
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<td>and variables</td>
<td>SFA IRB</td>
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<tr>
<td>Week 4</td>
<td>Ethically designed research/Research design</td>
<td>Ch. 2-3</td>
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<td>Zoom Meeting</td>
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<td></td>
<td>and variables continued</td>
<td>SFA IRB</td>
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<td>Week 5</td>
<td>Learning about a populations from a sample</td>
<td>Ch. 4</td>
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<td>Zoom Meeting</td>
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<td>Week 6</td>
<td>Categorizing Participants</td>
<td>Ch. 5 and 6</td>
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<td>Research Planning Outline Due</td>
<td>Zoom Meeting</td>
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<td>Week 7</td>
<td>Examining Relationships between variables</td>
<td>Ch. 7</td>
<td>Stats Homework 1</td>
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<td>Zoom Meeting</td>
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<tr>
<td>Week 8</td>
<td>Scale development and Prediction</td>
<td>Ch. 8 and 9</td>
<td>Introduction</td>
<td></td>
<td>Zoom Meeting</td>
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<tr>
<td>Week 9</td>
<td>Midterm (take home exam 1)</td>
<td>Take home exam 1</td>
<td>Stats 2 Homework</td>
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<td>Zoom Meeting</td>
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<tr>
<td>Week 10</td>
<td>Between Subjects</td>
<td>Ch. 10</td>
<td>Take Home Exam</td>
<td>Methods Due</td>
<td>Zoom Meeting</td>
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<td>Due</td>
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**Week 11: November 5** | Within Subjects | Ch. 11 and 12 | Stats Homework 3 Due | Proposed Analysis Due | D2L Video only Dr. Dawes class, 2 videos
---|---|---|---|---|---
**Week 12: November 12** | Single Subject Design | Horner et al., 2005 |  |  | Zoom Meeting plus video
**Week 13: November 19** | Professional Presentations | Take home Exam 2 |  |  | Zoom Meeting
**Thanksgiving Break (November 23 – 27)**
**Week 15: December 3** | Professional Presentations |  | Research Paper Due |  | Zoom meeting
**Week 16: December 10** | Final |  |  |  | D2L

**Attendance Policy**
Regular, punctual attendance, documented participation, and, if indicated in the syllabus, submission completed assignments are expected at all classes, laboratories, and other activities for which the student is registered. Based on university policy, failure of students to adhere to these requirements shall influence the course grade, financial assistance, and/or enrollment status. The instructor shall maintain an accurate record of each student’s attendance and participation as well as note this information in required reports (including the first 12-day attendance report) and in determining final grades. Students may be excused from attendance for reasons such as health, family emergencies, or student participation in approved university-sponsored events. However, students are responsible for notifying their instructors in advance, when possible, for excusable absences. Whether absences are excused or unexcused, a student is still responsible for all course content and assignments. Students with accepted excuses may be permitted to make up work for up to three weeks of absences during a semester or one week of a summer term, depending on the nature of the missed work. Make-up work must be completed as soon as possible after returning from an absence.

**Academic Integrity (A-9.1)**
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

**Definition of Academic Dishonesty**
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

**Course Evaluations:**

Near the conclusion of each semester, students in the Perkins College of Education electronically evaluate courses taken within the PCOE. Evaluation data is used for a variety of important purposes including:

1. Course and program improvement, planning, and accreditation;
2. Instruction evaluation purposes; and
3. Making decisions on faculty tenure, promotion, pay, and retention.
As you evaluate this course, please be thoughtful, thorough, and accurate in completing the evaluation. Please know that the PCOE faculty is committed to excellence in teaching and continued improvement. Therefore, your response is critical!

In the Perkins College of Education, the course evaluation process has been simplified and is completed electronically through MySFA. Although the instructor will be able to view the names of students who complete the survey, all ratings and comments are confidential and anonymous, and will not be available to the instructor until after final grades are posted.

**Student Code of Conduct: Policy 10.4**

Disruptive Behavior--Interference or disruption of students, faculty, administration, staff, the educational mission, or routine operations of the university is prohibited. Such activity includes, but is not limited to, behavior in a classroom or instructional program that interferes with the instructor or presenter's ability to conduct the class or program, or the ability of others to profit from the class or program. To remain in the vicinity of activity that is disrupting normal university functions when requested to leave by a university official is prohibited. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program at SFA.

Masks (cloth face coverings) must be worn over the nose and mouth at all times in this class and appropriate physical distancing must be observed. Students not wearing a mask and/or not observing appropriate physical distancing will be asked to leave the class. All incidents of not wearing a mask and/or not observing appropriate physical distancing will be reported to the Office of Student Rights and Responsibilities. Students who are reported for multiple infractions of not wearing a mask and/or not observing appropriate physical distancing may be subject to disciplinary actions.
