

## Department of Educational Psychology

**COLLEGE OF EDUCATION**

**COE Vision Statement**

We develop educational leaders who create tomorrow's opportunities.

**COE Mission Statement**

Our mission is to prepare competent and committed professionals who will make positive differences for children, young adults, and others in schools.

**Department of Educational Psychology**

**EPS 525 Spring 2020**

**Introduction to Statistics**

**3 semester credit hours**

- Instructor:
- Format:
- Time:
- Dates:
- Office:
- Office hours:
- Phone:
- E-mail:

- I. **Catalog description:** 3 hours. This course is designed to introduce statistical concepts and applications and build a foundation for students to become intelligent consumers of research. This course covers descriptive and inferential statistics including central tendency, dispersion, standard scores, correlation, regression, hypothesis testing, one-sample tests, dependent-samples and independent-samples t test, chi-square, and an introduction to the one-way analysis of variance.
- II. **Core Curricular Experiences Provided:** Curricular experiences will provide an understanding of the following:

Core Curricular Experiences/SLO	CACREP	EVALUATION
1. statistical concepts, including scales of measurement, measures of central tendency, indices of variability, shapes and types of distributions, and correlations	7g	Weekly tests and module tests
2. statistical methods used in conducting research and program evaluation	8h	Weekly tests and module tests

III. **Methods of Instruction:** Statistics is a challenging, yet can ultimately be a rewarding subject. Statistics is a tool course. It is something that you use to do research, or to interpret the results of research. As such, it is a means to an end rather than an end in itself. Acquiring skills with statistics can facilitate your other research endeavors. One's knowledge of statistics becomes a tool that they can use to interpret the results of research or to do research individually or collectively. This course is based on the strong belief that student learning is achieved through theory, application, and reflection. Throughout the semester, students will have a variety of opportunities to apply the concepts that they learn to practical in-class and homework assignments. The course learning expectations and outcomes will be accomplished through the use of lecture, guided problem solving, whole-group participation, small-group work, text/handout readings, homework assignments, working with a calculator, and the use of SPSS. Successful mastery of the subject matter of statistics does require regular attendance, text and handout reading (and re-reading), problem-solving, application of the material, and, of course, study time. While the specific amount of time required to master the material will vary for each individual, you should expect to study a minimum of 2 hours outside of class for every hour in class. For some students, more time may be required. Expect to read the material more than once, as it may take multiple readings to better understand the information. While we will occasionally discuss various aspects of research design, it is not the primary focus of this course.

IV. **Required texts and/or readings:**

Pagano, R. R. (2013). *Understanding statistics in the behavioral sciences*. Belmont, CA: Wadsworth, Cengage Learning

V. **Evaluation Criteria**

- Review (Weekly) tests- 75 points
- Module tests- 180 points
- Participation- 25 points

Grading Criteria

A = 252-280; B = 224-251; C = 196-223; D = 168-195; F < 167

## VI. Schedule

### Class Schedule with Lesson Details

Date	Lessons	Readings/Assignments
Jan 16 <sup>th</sup>	Lessons 1, 2, 3	Same ch. number as lessons
Jan 23 <sup>rd</sup>	Lesson 4 & 5	Same ch. number
	Module-1 Exam Book Chapters: 1,2,3,4,and 5	
Jan 30 <sup>th</sup>	Lessons 6 & 7	Chapters 6 & 7
Feb 6 <sup>th</sup>	Lesson 7 (contd.) & Lesson 8 (Chi-Square)	Chapter 17
	Module-2 Exam Book Chapters: 6, 7 & 17	
Feb 13 <sup>th</sup>	<b>Lesson 9</b> (Random Sampling), <b>10</b> (hypothesis testing) & <b>11</b> (Sampling distributions, Sampling Distributions of the Mean, the Normal Deviate Z test)	Ch.8, Ch.10, Ch. 12
Feb 20 <sup>th</sup>	<b>Lesson 11</b> (contd.), <b>Lesson 12</b> (Students t-test)	Ch. 13
	Module-3 Exam Book Chapters: 8, 10, 12 & 13	
Feb 27 <sup>th</sup>	Lessons 13 (Dependent t-test) and 14	Chs. 14, 15 independent-sample's t test from the student's t test for correlated and independent groups chapter
March 5 <sup>th</sup>	Lesson 15 (ANOVA)	Ch.15
	Module-4 Exam Book Chapters 14 & 15	

## **VII. Assignments:**

- Review tests (75 points): Students will complete fifteen lesson quizzes (one for each lesson) that will test your understanding of the statistical concepts covered in the applicable lessons. Quizzes consist of a random selection of 10 to 20 true-false and multiple-choice style questions. You will be able to take the lesson quizzes up to three (3) times, with each attempt generating a new set of random questions. While you do not have to use all three attempts, your best score will be recorded in the grade book and become part of your course total points. Each quiz is worth 5 points, with 3 attempts. Review quizzes will be due on the Sunday following the completion of each module. See schedule for specific date.
- Module Tests (180 points): Students will complete four examinations, which will consist of assigned chapters, handouts, data interpretations, and lecture and course materials covered up to that point in the course. Each of these tests will be limited to one attempt and will be timed.
- Class Participation (25 points): Class participation points are at the professor's discretion for student's adherence to class policies and interaction inside and outside classroom. Missing class, arriving late, leaving class early, and/or poor participation will also result in the loss of points. The number of points deducted will be dependent upon circumstances and frequency. The instructor reserves the right to make the judgement. Note: If students are found using laptops for non-educational purposes, they will be given a 0 for that class. Same applies for cellphone. See rubric below to understand how participation will be evaluated.

## **VIII. Class policies and Late work policies**

I understand life happens; we get busy with work, family, and other commitments. Having said that, it is important to recognize that a graduate level course is demanding and requires hard work and commitment. Deadlines are what they are- deadlines. Please do not contact the professor seeking extensions unless there is an emergency. Students are expected to review all material and class noted before taking the module exams.

Late Work Policy: There is no scope for tardiness or late work. If a student submits an assignment after the due date the instructor may grade it for up to 50% credit. However, anything submitted 24 hours past the due date will NOT BE GRADED. Absences: Missing more than 1 class will lead to a grade reduction. If a student is not present in class, it is the student's responsibility to make up for the lost material and information. Class assignments will not be accepted later than 24 hours after the class. If a student misses 2 classes- student will only be eligible for a B grade in the class.

Missing more than 2 classes may lead to an incomplete or failing grade If there is any reason you cannot participate fully in this course or meet all the requirements, please consider taking the course later, or contact the instructor within the first week of the class to discuss options.

### Class Participation Rubric

<b><i>Meets professional expectations</i></b>	<b><i>Below professional expectations</i></b>	<b><i>Significantly below expectations</i></b>
<ul style="list-style-type: none"> <li>▪ 0 – 1 absences</li> <li>▪ Rarely tardy or late from break</li> <li>▪ Balanced contributions reflect routine, careful preparation for class and allow for other students to participate</li> <li>▪ Attentive and respectful toward others when not contributing directly</li> <li>▪ No concerns regarding personal characteristics</li> <li>▪ Shows ethical integrity and adheres to ACA Code of Ethics</li> <li>▪ No concerns regarding academic integrity</li> </ul> <p>Indicators show potential for continued success in graduate school and beyond.</p>	<ul style="list-style-type: none"> <li>▪ 2 absences* (see below)</li> <li>▪ Frequent, minor tardiness (&lt; 5 minutes)</li> <li>▪ Contributions reflect only occasional preparation for class or inhibits others' participation</li> <li>▪ Sometimes distracted or disrespectful nonverbally when not contributing directly (e.g., texts, sidebars in class)</li> <li>▪ Occasional or minor personal characteristic concerns</li> <li>▪ If ethical violation present, concern is minor and student takes action to remedy</li> <li>▪ Minor, unintentional violation of academic integrity</li> </ul> <p>Grade adjustment of ½ - 1 letters (5-10 points), conference with instructor, and/or competency concern report filed with Counseling Program.</p>	<ul style="list-style-type: none"> <li>▪ 3 + absences</li> <li>▪ Persistent, minor tardiness</li> <li>▪ Recurrent, major tardiness</li> <li>▪ Contributions are rare or not productive</li> <li>▪ Contributions reflect consistent lack of preparation for class</li> <li>▪ Behaviors detract from safe, scholarly learning environment</li> <li>▪ Serious concerns regarding personal characteristics</li> <li>▪ Major ethical violation OR inability to understand ethical concerns/implications</li> <li>▪ Intentional violations of Academic Integrity Policy</li> </ul> <p>Grade adjustment of 1-2 letters (10-20 points), conference with instructor, and/or competency concern filed with Counseling Program. Serious violations may require repeating course (e.g., 3+ absences), assignment of F in course (e.g., ethical or integrity concerns), or other remediation per competency concern report.</p>

## COVID-19 REQUIREMENTS AND INFORMATION

Additional information about the University's response to COVID-19 is available from the **Jacks are Back!** web page located at <https://nau.edu/jacks-are-back>.

## SYLLABUS POLICY STATEMENTS

### ACADEMIC INTEGRITY

NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people's ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU's online academic integrity workshop available in the E-Learning Center and should review the full *Academic Integrity* policy available at <https://policy.nau.edu/policy/policy.aspx?num=100601>.

### COURSE TIME COMMITMENT

Pursuant to Arizona Board of Regents guidance (ABOR Policy 2-224, *Academic Credit*), each unit of credit requires a minimum of 45 hours of work by students, including but not limited to, class time, preparation, homework, and studying. For example, for a 3-credit course a student should expect to work at least 8.5 hours each week in a 16-week session and a minimum of 33 hours per week for a 3-credit course in a 4-week session.

### DISRUPTIVE BEHAVIOR

Membership in NAU's academic community entails a special obligation to maintain class environments that are conducive to learning, whether instruction is taking place in the classroom, a laboratory or clinical setting, during course-related fieldwork, or online. Students have the obligation to engage in the educational process in a manner that does not interfere with normal class activities or violate the rights of others. Instructors have the authority and responsibility to address disruptive behavior that interferes with student learning, which can include the involuntary withdrawal of a student from a course with a grade of "W". For additional information, see NAU's *Disruptive Behavior in an Instructional Setting* policy at <https://nau.edu/university-policy-library/disruptive-behavior>.

### NONDISCRIMINATION AND ANTI-HARASSMENT

NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, or veteran status. Due to potentially unethical consequences, certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the *Consensual Romantic and Sexual Relationships* policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU's *Nondiscrimination and Anti-Harassment* policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at [equityandaccess@nau.edu](mailto:equityandaccess@nau.edu), or visit the EAO website at <https://nau.edu/equity-and-access>.

## **TITLE IX**

Title IX is the primary federal law that prohibits discrimination on the basis of sex or gender in educational programs or activities. Sex discrimination for this purpose includes sexual harassment, sexual assault or relationship violence, and stalking (including cyber-stalking). Title IX requires that universities appoint a "Title IX Coordinator" to monitor the institution's compliance with this important civil rights law. NAU's Title IX Coordinator is Elyce C. Morris. The Title IX Coordinator is available to meet with any student to discuss any Title IX issue or concern. You may contact the Title IX Coordinator by phone at 928-523-3515, by fax at 928-523-0640, or by email at [elyce.morris@nau.edu](mailto:elyce.morris@nau.edu). In furtherance of its Title IX obligations, NAU will promptly investigate and equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. Additional important information about Title IX and related student resources, including how to request immediate help or confidential support following an act of sexual violence, is available at <https://in.nau.edu/title-ix>.

## **ACCESSIBILITY**

Professional disability specialists are available at Disability Resources to facilitate a range of academic support services and accommodations for students with disabilities. If you have a documented disability, you can request assistance by contacting Disability Resources at 928-523-8773 (voice), 928-523-6906 (TTY), 928-523-8747 (fax), or [dr@nau.edu](mailto:dr@nau.edu) (e-mail). Once eligibility has been determined, students register with Disability Resources every semester to activate their approved accommodations. Although a student may request an accommodation at any time, it is best to initiate the application process at least four weeks before a student wishes to receive an accommodation. Students may begin the accommodation process by submitting a self-identification form online at <https://nau.edu/disability-resources/student-eligibility-process> or by contacting Disability Resources. The Director of Disability Resources, Jamie Axelrod, serves as NAU's Americans with Disabilities Act Coordinator and Section 504 Compliance Officer. He can be reached at [jamie.axelrod@nau.edu](mailto:jamie.axelrod@nau.edu).

## **RESPONSIBLE CONDUCT OF RESEARCH**

Students who engage in research at NAU must receive appropriate Responsible Conduct of Research (RCR) training. This instruction is designed to help ensure proper awareness and application of well-established professional norms and ethical principles related to the performance of all scientific research activities. More information regarding RCR training is available at <https://nau.edu/research/compliance/research-integrity>.

## **MISCONDUCT IN RESEARCH**

As noted, NAU expects every student to firmly adhere to a strong code of academic integrity in all their scholarly pursuits. This includes avoiding fabrication, falsification, or plagiarism when conducting research or reporting research results. Engaging in research misconduct may result in serious disciplinary consequences. Students must also report any suspected or actual instances of research misconduct of which they become aware. Allegations of research misconduct should be reported to your instructor or the University's Research Integrity Officer, Dr. David Faguy, who can be reached at [david.faguy@nau.edu](mailto:david.faguy@nau.edu) or 928-523-6117. More information about misconduct in research is available at <https://nau.edu/university-policy-library/misconduct-in-research>.

## **SENSITIVE COURSE MATERIALS**

University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.