

Prairie View A&M University

Educational Statistics

Department of Educational Leadership & Counseling College of Education

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Prairie View, TX 77446

Office Hours: M 1 - 2; T 10 – 11; W 9 – 12 , 1 – 2; R 9 – 12 (Tentative)

Course Location: Delco Bldg. 241

Class Meeting Days & Times: Saturday 11:00 Spring 2013

Course Abbreviation and Number: CNSL 5093 Educational Statistics

Catalog Description: Basic educational statistics course for master's degree candidates in counseling. Includes concepts and operations as applied to frequency distributions, graphing techniques, measurement of central tendency and variability, normal distribution curves, sampling theory and tests of significant differences between related and independent samples. Computer application packages and their utilization in classrooms and social agencies are also introduced.

Required Text: Spatz, Chris (2011) *Basic Statistics: tales of distributions*. (10th ed). Belmont, CA. Wadsworth/Thompson Learning. ISBN10: 0-495-80891-1, ISBN13: 978-0-495-80891-6

You will also need a calculator capable of computing squares and square roots. You SHOULD bring your calculator to EVERY class meeting.

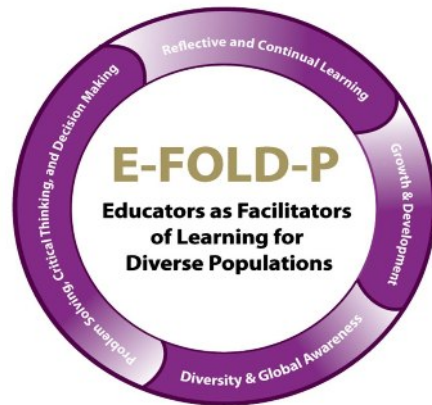
Access to Learning Resources: PVAMU Library:
phone: (936) 261-1500;
web: <http://www.pvamu.edu/pages/3585.asp>
University Bookstore:
phone: (936) 261-1990;
web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

This course is in part based on the "E-FOLD-P" model of the College of Education. The acronym refers to the preparation of educators as facilitators of learning for diverse populations.

The major goals of this model are

1. To prepare professionals as problem solvers, critical thinkers, and decision makers who are able to communicate these skills to others.
2. To prepare professionals as facilitators of growth and development who exhibit a positive self-esteem and self-concept and are able to transmit these affective components to others.
3. To prepare professionals as reflective and continual learners who initiate and distribute knowledge and skills and utilize effective teaching practice.

4. To prepare professionals who understand and appreciate human diversity and demonstrate global awareness.



Course Goals or Overview:

The goals of this course are to

1. Explain, calculate and interpret descriptive statistics including: basic terminology, scales, notation, frequency distributions, measures of central tendency, measures of dispersion, and the normal distribution..
2. Read and analyze basic charts and graphs, contingency tables, and computer results
3. Explain, calculate, and interpret inferential statistics including probability and hypothesis tests.
4. Identify and apply the correct statistical technique to the research question.

Artifacts

Several assignments will be considered "artifacts" (items of coursework that serves as evidence that course objectives have been met) and will be loaded into eCourse.

The assignments to be used as artifacts will be identified late during the semester.

Course Objectives

At the end of this course, the student will be able to

1. Discriminate between: descriptive statistics and inferential statistics; populations and parameters, samples and statistics.
2. Use standard summation notation.
3. Construct and utilize grouped and ungrouped frequency distribution tables, histograms.
4. Identify distributions' shapes (skewness, modality).
5. Discriminate between random and nonrandom sampling procedures.
6. Summarize the differences among nominal, ordinal, interval, and ratio scales of measurement.
7. Discuss the relationship between scale of measurement and choice of inferential statistic.
8. Discriminate between discrete and continuous variables.
9. Given an example of psychological research, identify independent, dependent, and extraneous variables.
10. Compute mean, median, mode, range, interquartile range, and standard deviation.
11. Use SPSS in performing statistical computations.
12. Compute and utilize percentiles and percentile ranks.
13. Compare and contrast three different measures of central tendency and three measures of variability.
14. Compute and utilize z -scores and other standard scores.
15. Use the normal curve table to obtain areas under the curve given values of z and vice versa.
16. Describe how one would empirically construct the sampling distribution of a specified statistic (mean, median, mode, difference between means, etc.).
17. Explain the logic used in hypothesis testing, referring to null and alternative hypotheses, sampling distributions, critical values, rejection and nonrejection regions, alpha, exact significance level (p), and test statistics.
18. Define Type I and Type II errors, alpha, beta, and power. Succinctly define p , the exact significance level, and state the decision rule that compares p to alpha and decides whether or not to reject a null hypothesis.
19. Produce, utilize, and discriminate between directional and nondirectional hypotheses, and one- and two-tailed probabilities.
20. Describe the sampling distribution used to test hypotheses about means when the population variance is unknown. Referring to the distribution of sample variances, explain why the sampling distribution used to test hypotheses about means when population variance is unknown is different from a normal curve and how it is different from a normal curve.
21. Give a simple example explaining the concept of degrees of freedom.
22. Explain how to construct a 95% confidence interval for some parameter. Explain what "95% confidence" means.
23. Define and give (or recognize) examples of independent samples designs vs. correlated samples designs (within subjects or repeated measures and matched pairs or randomized blocks). Be able to choose and compute the inferential statistic appropriate for a particular design.
24. List and explain the assumptions of the independent t-test.
25. Construct and interpret bivariate scatter plots.
26. Explain the utility of the coefficient of determination.
27. Describe the assumptions involved in testing null hypotheses about bivariate regression coefficients.
28. Describe the possible effects of **a**) range restriction and **b**) extraneous variance upon the value of r .

29. Discuss the relationships among the independent *t*-test, the product moment correlation coefficient, and the point-biserial correlation coefficient.
30. Discuss the relationships between the product moment correlation coefficient and the chi-square analysis of 2 X 2 contingency tables.
31. Compute Pearson and Spearman Rank-order correlation coefficients.
32. State null and alternative hypotheses used in analyses of variance.
33. Given sample variance, sample mean, and sample size for each of *k* groups, with sample size constant across groups, compute treatment and error mean squares for a one-way independent samples ANOVA.
34. Given a set of not more than 20 scores, integers ranging from 1 to 10, divided equally into 2 to 4 one-way groups with integer means, compute by hand an independent sample ANOVA on these scores, presenting the results in a standard source table.
35. Describe the assumptions of a one-way independent sample ANOVA, comment on the violations of one or more of these assumptions, and discuss methods of correcting for violation of assumptions.
36. Give examples of how chi-square can be used to: a) test null hypotheses about variance, b) do a goodness of fit test, and c) do contingency table analyses OR, given one of these research situations, prescribe the appropriate analysis.
37. Identify two inferential statistics that use one-tailed tests of nondirectional hypotheses and explain why they do so.
38. Discuss the differences between parametric and nonparametric inferential procedures. Contrast the hypotheses they test and the assumptions they make.
39. Given a hypothetical research example with data, choose and conduct an appropriate statistical analysis. Interpret the results. Be able to compute any of the statistics mentioned in this document or in the textbook. Be able to interpret and critique published research reports using these statistics.

Course Evaluation Methods

This course will utilize the following instruments to determine student grades:

Exams – written tests(multiple choice and problems) designed to measure knowledge of presented course material

A suggested way to study the material is to read the text before coming to class, listen carefully in class, follow along with the problems, take notes, reread carefully the text at home, follow the examples and answer all provided study questions.

Grading Matrix

Instrument	Value (points or percentages)	Total
Exams	3 exams at 100 points each	300
Total:		300

Grade Determination:

A = 285 pts or higher;

B = 255 – 284pts;

C = 225 – 254pts;

D = 195 – 224pts;

F = 195 pts or below

Exam Policy

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented

emergencies (See Student Handbook). **Such an exam must be completed prior to the next class meeting and in my office during scheduled office hours. The format for a makeup exam may change.**

TENTATIVE WEEKLY SCHEDULE

Date	Topic	Chapter
Week 1	Introduction	1
Week 2	Data Organization, Graphs	2
Week 3	Central Tendency, Variability	3, 4
Week 4	Exam 1	1 – 4
Week 5	Z-scores, Correlation	5, 6
Week 6	Correlation	6
Week 7	Normal Distribution	7
Week 8	Exam 2	5 – 7
Week 9	Samples, Sampling Distribution	8
Week 10	Hypothesis Testing – One Sample Design	9
Week 11	Hypothesis Testing – One Sample Design	
Week 12	Hypothesis Testing – Two Sample Design	10
Week 13	Holiday	
Week 14	Chi Square	13
Week 15	Exam 3	8+

Departmental Web Page

[ELAC](http://pvamu.edu/pages/174.asp) (<http://pvamu.edu/pages/174.asp>)

SUPPORT MATERIALS

In support of your efforts to master statistics and SPSS, the labs on campus and at the NW Campus provide SPSS on the computers. Additionally, a list of statistics help URLs are provided on the website for this course.

Getting Started with SPSS for Windows by John Samuel

<http://core.ecu.edu/psyc/wuenschk/SPSS.htm>

Descriptive Statistics

<http://onlinestatbook.com/>

Electronic Reference Formats Recommended by the American Psychological Association

<http://www.apastyle.org/apa-style-help.aspx>

Text Publisher Support Page **

[Wadsworth](#)

Class material page ECOURSES
Class notes, practice quiz, lecture (audio), etc

Deadline Dates (Check [registrar's calendar](#) to confirm registrar dates)

Jan 30 Census Date; LAST DAY to withdraw from course(s) **without** academic record
Jan 30 LATE DEADLINE to apply for Spring 2013 Graduation
Jan 31 Withdrawal from courses **with academic record** ("W") Begins
Apr 1 Withdraw from Course(s) with record ("W") Ends
Apr 9 Priority registration **Begins** for Summer/Fall 2013 semester
Apr 12 Graduation Application Deadline for SUMMER 2013 and FALL 2013
April 30 Last day to Withdraw from University (From **ALL** Courses) for Spring 2013
Semester
Apr Apr 29 - May 4 Final Examination Period

Certification Students ONLY

All student pursuing Principal and School Counselor certification are required to make contact with the Office of Teacher Certification and have on file with that office a deficiency plan. If you do not have one please contact the office below.

Whitlowe R. Green College of Education
Office of Teacher Education
Delco Bldg., Room 302
P. O. Box 519; Mail Stop 2425
Prairie View, Texas 77446-0519
Tel: (936) 261-3605

Technical Support Contacts

Students should call the Prairie View A&M University Helpdesk at 936-261-2525 (or the toll free number: 877-241-1752) for technical issues with accessing your course online if any . The helpdesk is available 24 hours a day/7 days a week.

For other technical questions regarding your course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282.

University Rules and Procedures

Prairie View A&M University does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. The following person(s) has been designated to handle inquiries regarding the non-discrimination policies:

Name: *Renee R. Williams*
Title: *Equal Opportunity Compliance Officer/Title IX Coordinator*
Institution: *Prairie View A&M University*
Office of Student Affairs & Institutional Relations
Address: *P.O. Box 519: MS 1107*
A.I. Thomas Building, St 013
Prairie View, Texas 77446

Telephone: *936-261-2123*
Fax: *936-261-2138*
Email: rwilliams@pvamu.edu

Individuals requesting a disability accommodation should contact:

Name: *Dr. Kay Norman*
Title: *Administrator for Diagnostic Testing and Disability Services*
Institution: *Prairie View A&M University*

Email: kfnorman@pvamu.edu

ACADEMIC PERFORMANCE STANDARDS

Students whose semester GPA for courses leading to the Master's degree in Administration/Counseling falls below 3.0 for two consecutive semesters, and whose overall GPA falls below 3.0, will be suspended from the program.

Academic Suspension

Academic suspension is an administrative action taken by the Department Head and/or Dean of the College of Education. It bars a student from enrollment in graduate courses for at least one term. Students may request return to the program in a probationary status through written petition to the Department Head and/or Dean, who will refer the request to a committee of graduate faculty for review and recommendation. Students are limited to one suspension. The second suspension will result in dismissal from the program of study.

Probationary Status

A condition in which a student must maintain at least a 3.0 GPA each semester until his/her cumulative GPA reaches 3.0.

The Two-C Rule

Students who earn more than two grades of "C" or below may be dismissed from the program. This applies to courses repeated and to those taken for the first time.

A Grade below a C

Students earning a grade below a "C" shall be dismissed from the program.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

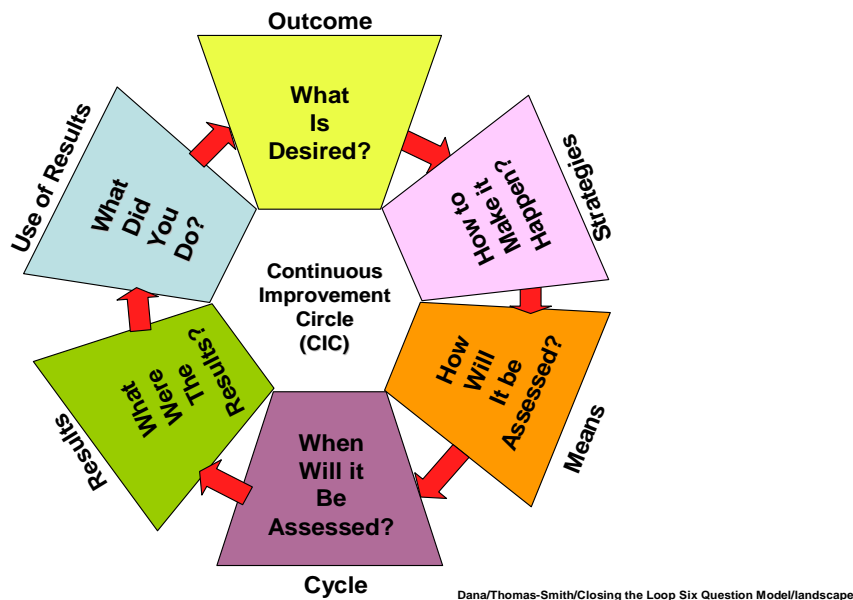
Attendance Policy:

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

Quality Without Compromise
Closing the Loop
The Six Question Model at Prairie View A&M University



McKinney-Vento Act (Federal Law) 2011

The McKinney-Vento program for Pre-K–16 is authorized under Title VII-B of the McKinney-Vento Homeless Assistance Act (42 USC 11431 et seq.). The program was originally authorized in 1987 and, most recently, reauthorized by the No Child Left Behind Act of 2001.

The program is designed to address the problems that homeless children and youth have faced in enrolling, attending, and succeeding in school. Under this program, State educational agencies must ensure that each homeless child and youth has equal access to the same free, appropriate public education, including a public preschool education, as other children and youth. Homeless children and youth should have access to the educational and other services that they need to enable them to meet the same challenging State student academic achievement standards to which all students are held. In addition, homeless students may not be separated from the mainstream school environment. States, school districts, colleges and universities are required to review and undertake steps to revise laws, regulations, practices, or policies that may act as a barrier to the enrollment, attendance, or success in school of homeless children and youth.