[ERMA 8330 Nonparametric Data Analysis in Education Research, Spring 2012]

[Educational Foundations, Leadership, and Technology]

College of Education

[Dr. Kraska]

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[Office: Tuesday 3:00 p.m. - 4:00 p.m.]

Conceptual Framework

Candidate Profiencies

The following proficiencies reflect professional, state and institutional standards.

Competent Professionals…

1. understand the central concepts, tools of inquiry and structures of the content they teach or practice.
2. create learning experiences that make the content they teach or practice meaningful for individuals.
3. understand how individuals differ in their approaches to learning and create instruction or implement other professional practices adapted to this diversity.
4. use knowledge of how individuals learn and develop to provide educational opportunities that support intellectual, social and personal development.
5. understand and use a variety of evidence-based professional practices in reasoned and flexible ways to encourage individual development of critical thinking, problem solving and performance skills.
6. use an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
7. use knowledge of effective verbal and non-verbal communication to foster active inquiry, collaboration and supportive interaction in learning environments.
8. plan professional practices based upon knowledge of subject matter, individuals, the community and identified goals.
9. understand and use formal and informal assessment strategies to evaluate and ensure continuous progress toward identified goals.
10. use technology in appropriate ways.

Committed Professionals…

11. engage in responsible and ethical professional practices.
12. contribute to collaborative learning communities.
13. demonstrate a commitment to diversity.
14. model and nurture intellectual vitality.

Reflective Professionals…

15. analyze past practices to stimulate ongoing improvement of future practices.

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Competent
Committed
Reflective

Professionals

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Office Hours: Tuesday 3:00 p.m. – 4:00 p.m.

1. **Course Number and Title:** ERMA **8**330 Nonparametric Data Analysis in Educational Research

Credit: 3 Semester Hours

Prerequisites: None

2. **Date:** January 2012

3. **Required Readings:** The professor will announce required readings prior to the discussion date. No textbook is required.

Recommended: (a) Calculator with basic algebraic functions and
(b) **mechanical pencil that takes 0.9mm or 0.7mm size lead. Black color lead and HB or B hardness.**

4. **Course Description:**

The focus of this course is on the terminology, concepts, applications, interpretations, and reporting of basic and practical nonparametric statistical procedures related to problems in the social and behavior sciences. Specifically, the course covers applications of nonparametric statistics for the single-sample case, paired replicates, independent samples, and measures of association. Statistical procedures will be conducted using the SPSS software. In addition, the course is designed to assist students in applying theory and applications to practical situations, so that they may begin to develop and apply their own critical thinking and decision-making skills as future professional educators.

Objectives, Content, Student Activities, and Student Evaluation

5. Course Objectives:

The following objectives are designed to develop students' competence in knowledge, applications, and interpretations of basic nonparametric statistical procedures used in educational research.

A. Use research and statistical terminology appropriately and accurately

B. Demonstrate knowledge of the following subject matter:

1. The research process
2. Differences between parametric and nonparametric statistics
3. Assumptions of nonparametric statistics
4. Data requirements for nonparametric statistics
5. Hypothesis testing, decision rule, alpha level
6. Type I and Type II error
7. Region of rejection
8. Power
9. Choice of statistical test
10. Research and Procedures for
    - (a) Single-sample designs
    - (b) Paired replicates designs
    - (c) K related samples
    - (d) Two independent samples designs
    - (e) K independent samples
    - (f) Measures of association

C. Use statistical software (SPSS) to perform nonparametric procedures.

D. Evaluate educational problems in terms of the appropriate analysis to perform and conduct the procedures.

E. Interpret results of nonparametric statistical analyses.

6. Course Content:

The following content will be covered to the extent that time allows.

A. Course Overview
B. The research process
C. Introduction to nonparametric statistics
D. Use of statistical tests in research
E. Choosing an appropriate statistical test
F. Research and Procedures for
    - (a) Single-sample designs

(b) Paired replicates designs
(c) K related samples
(d) Two independent samples designs
(e) K independent samples
(f) Measures of association

7. Course Requirements/Evaluation:

A. Read all assigned materials prior to class and be prepared to respond to questions in class.

B. Three projects -----100 points (Two 30-point and one 40-point project)

C. In-class Assignments (Group and Individual Lab Work) -------50 points

The following grading scale will be used.
91% - 100% = A (Superior; very high performance)
81% - 90% = B (Above average performance)
71% - 80% = C (Average to above average performance)

8. Class Policy Statements:

The following guidelines should help students to know the course expectations that will help them to complete the course requirements successfully.

A. There will be no unannounced quizzes in this class. No tests. No homework, only the readings from time-to-time and in-class assignments. Each student's grade in this course is based on his/her own performance and not in comparison to the performance of others. The in-class assignments and projects are the only objective indicators that I will have of student performance, so please take these seriously.

B. Please ask for help in plenty of time before a project is due should the need arise. The professor will provide due dates for the projects and will try to accommodate students' schedules as to when a project is due.

C. All lab assignments will be done in class. These cannot be made up. Only hard copies of the projects will be accepted. The projects should be typed, double-spaced on one side of the paper, using 12-point font and dark, sharp print. The project hard copy presentation should be clean and neat. Unstapled pages will not be graded. For example, projects held together with paper clips, folders, rubber bands, three-ring binders etc., will not be accepted. The first page should identify the student by full name, the project name, and the date. The entire project must be turned in at the same time. Partial projects are not acceptable. Every effort should be made to present your project on the scheduled date/time.

C. Academic dishonesty is an offense that will be reported to the Academic Honesty Committee. (See related pages in the Tiger Cub.)

D. Attendance/Absences: I do not grade based on attendance; only your performance is calculated for your grade in this course. However, attendance is required at each class meeting. It is the student's responsibility to arrange for a classmate to take notes for him/her and to get a copy of all handouts for him/her in the event of an absence, planned or unplanned.

E. Accommodations: Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternative time can be arranged. To set up this meeting, please contact me by e-mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with the Program for Students with Disabilities at 1244 Haley Center, 844-2096 (V/TT).

F. Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

G. Professionalism: As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College's conceptual framework. These professional commitments or dispositions are listed below:

--Engage in responsible and ethical professional practices

--Contribute to collaborative learning communities

--Demonstrate a commitment to diversity

--Model and nurture intellectual vitality

9. Justification for Graduate Credit

Graduate courses "should be progressively more advanced in academic content than undergraduate programs" and should "foster independent learning" (SACS guidelines 3.6.1 and 3.6.2). Further, the guidelines presented in the Statement of Clarification of the Definition and Use of 6000-level courses as approved by the Graduate Council, May 21, 1997 apply:

Factors to consider in evaluating a course for graduate credit include but are not limited to the following:

--use of specific requisites

--content of sufficient depth to justify graduate credit (materials beyond the introductory level)

--content should develop the critical and analytical skills of students including their application of the relevant literature

--rigorous standards for student evaluation (all students in a 6000-level course must be evaluated using the same standards)
--course instructor must hold graduate faculty status or be approved by the Dean of the Graduate School

10. <u>Methodologies and Course Evaluation:</u>

A variety of teaching techniques and strategies will be used in the instruction of this course. The principal methods of instruction include lectures and demonstrations. Student feedback is always welcome.

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NOTE: Please check your email before each class meeting for any announcements. Thanks.