AUBURN UNIVERSITY
Department of Educational Foundations, Leadership, and Technology
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Office Hour: Monday 3:00 p.m. – 4:00 p.m.

1.Title: ERMA 7200 Basic Methods in Educational Research

Credit: 3 Semester Hours

Prerequisites: Graduate Student Status

2. Date: August 2010

3. Required Textbook: Ary, D., Jacobs, L. C., Razavieh, A., and Sorensen, C. (2006). Introduction to Research in Education (7th ed.). Wadsworth Thomson Learning

Recommended: Calculator with basic algebraic functions

4. Course Description:

The focus of this course is on the processes of the scientific method, research methodology, research design, hypothesis testing, sampling, descriptive and inferential statistical concepts and methods, evaluation of experimental and quasi-experimental studies, research writing; and use of various databases and sources. The course offers an applied approach to the scientific method of research and applied statistical analysis. Specialized terminology unique to research and statistics, definitions, procedures, and practical applications are emphasized.

OBJECTIVES, CONTENT, STUDENT ACTIVITIES, AND STUDENT EVALUATION

5. Course Objectives:

Based on classroom instruction and activities, reading assignments, and related activities, each student should be able to demonstrate basic knowledge in the following areas:

a. The research process and the scientific method

b. Terminology associated with the concepts and constructs of educational research

c. Descriptive statistics

d. Sampling procedures

e. Inferential statistics

f. Experimental research designs

g. Ex post facto research

h. Correlation research

i. Survey research

j. Qualitative inquiry

k. Sources of data and scales of measurement for research data

l. Validity and reliability

m. Research prospectus preparation

n. Retrieval and use of educational references and other sources of information

6. **Course Content:** The following content will be covered to the extent that time allows.

I. Introduction to the Course and Overview of Educational Research (Week 1)

A. Introductions
B. Overview of Course
C. Course Syllabus
D. Conceptual Framework College of Education

II. Introduction to the Nature and Process of Educational Research (Weeks 2 and 3—Chapters 1-4)

A.. Scientific thinking and sources of knowledge
B.. Assumptions and attitudes of scientists
C. Application of scientific procedures to educational research
D. Limitations of the scientific approach in the social and behavioral sciences
E. Basic characteristics of quantitative and qualitative research
F. Stages in the research process
G. Language of research (constructs, variables, constant, population, sample)
H. The research problem statement
I. Review of research and related literature
J. Conceptual Framework College of Education

III. The Hypothesis (Week 4—Chapter 5)

A. Sources of research problems
B. Writing hypotheses
C. Identifying populations and variables

IV. Descriptive Statistics (Weeks 5 and 6—Chapter 6)

A. Types of measurement scales
B. Organizing and summarizing research data
C. Measures of central tendency
D. Measures of variability
E. Measures of relative position
F. The normal curve
G. Correlation
H. Effect size

I. Meta analysis
J. Interpretation of research data

V. Sampling and Inferential Statistics (Weeks 4 and 5—Chapter 7)

A. Rationale for sampling
B. Types of sampling procedures
C. Inferential statistics
D. Level of significance
E. The t-test
F. Analysis of variance
G. Chi-Square test of significance

VI. Experimental Research Designs (Weeks 6 and 7—Chapter 10)

A. Characteristics of experimental research
B. Experimental designs
C. Internal validity
D. External validity

VII. Ex Post Facto Research (Week 8—Chapter 11)

A. Steps in conducting an ex post facto study
B. Partial control in ex post facto research
C. Role of ex post facto research

VIII. Correlation Research (Week 9—Chapter 12)

A. Uses of correlation
B. Design of correlation studies
C. Correlation coefficients and interpretation
D. Correlation and causation
E. Partial and multiple correlation
F. Special correlation procedures

1. Discriminant analysis
2. Factor analysis
3. Canonical correlation
4. Path analysis

IX. Survey Research (Week 10—Chapter 13)

A. Types of surveys
B. Survey techniques
C. Sample selection
D. Construct of instruments
E. Interviews
F. Use of mailed questionnaires
G. Validity and reliability in surveys
H. Statistical analysis

X. Qualitative Inquiry (Week 11—Chapter 14)

A. Characteristics of qualitative research
B. Data collection methods
C. Types of qualitative research methods
D. Validity and reliability of qualitative research studies
E. Analyzing and reporting qualitative research data

XI. Measuring Instruments (Week 12--Chapter 8)

A. Measures of personality
B. Attitude scales and rating scales
C. Direct observations and contrived observations

XII. Validity and Reliability (Week 13--Chapter 9)

A. Evidential bases to support validity
B. Theory of reliability
C. Approaches to reliability
D. Standard error of measurement

XIII. Continue Validity and Reliability(Week 14—Chapter 9)

XIV. Review of Course (Week 15)

7. <u>Course Requirements/Evaluation:</u>

1. Read all assigned materials
2. Complete all examinations
3. Participate as a contributing member of the class

Assignments will be graded based on the following points.

Test 1	50 points
Test 2	50 points
Test 3	50 points
Test 4	50 points
Total	200 points

The following scale will be used to compute grades.

93% - 100% =A (Superior; Consistently very high performance on assignments/tests: prepared/contributes to class)
81% - 92% = B (Above average performance on assignments/tests; consistently prepared/ contributes to class)
71% - 80% = C (Average to above average performance on assignments/tests; usually prepared; usually contributes to class)
60% - 70% = D (Unacceptable performance)
Below 60% = F (Failing)

NOTE: This course is not graded on the curve. How well you do in this course is dependent solely on you. I want to encourage each of you to consult with me throughout the semester as you have questions and concerns. I think this kind of professor-student contact is especially important in a research course where students are developing their research skills. An appointment is a good idea; however, I am generally available for a few minutes for walk-ins.

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. However, it is strongly recommended that students read the material before coming to class. Each student's grade in this course is based on his/her own performance and not in comparison to the performance of others.

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

C. Students are expected to participate in all class discussions and exercises. No specific points are given for class participation because participation is expected in a graduate

level course. Reading the assignment before class time is critical and being ready to respond to questions is an expectation of the course. It is vitally important that reading assignments be completed before coming to class so that you may participate as a contributing member of the class and so that appropriate and necessary clarifications may be made. See the sections on Course Requirements (#1) and the Grading Scale.

D. Students are responsible for initiating arrangements for any missed tests, including any special arrangements for taking the final examination at a time other than the scheduled time.

E. **Attendance/Absences: Attendance is required at each class meeting. However, I realize that if you are absent, what you are doing is more urgent or important to you than this class. Therefore, I do not require excuses from class.. If you have a planned or unplanned absence, it is your responsibility to arrange for a classmate to take notes for you, and to get a copy of all handouts for you in the event of an absence.**

F. Unannounced quizzes: There will be no unannounced quizzes.

G. 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).

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

I. 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. Methodologies and Course Evaluation:

A variety of teaching techniques and strategies will be used in the instruction of this course. The principal methods of instruction include, but may not be limited to lectures and the Socratic method. Students will evaluate the course using a checklist of criteria.