ERMA 7300

Design and Analysis in Education I

Fall, 2010

Educational Foundations, Leadership, and Technology

College of Education

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COLLEGE OF EDUCATION

CONCEPTUAL FRAMEWORK

Faculty, staff and students strive to prepare and be professionals who are:

Competent

equipped with the knowledge, skills and technological expertise to help all individuals learn and develop

Committed

dedicated to the ethical practices and collaboration that serve as the foundation of a diverse and intellectually vibrant society

Reflective

devoted to analyzing their own past practices in ways that fuel ongoing learning and improve future practices

A Keystone in Building a Better Future for All

AUBURN UNIVERSITY

Syllabus

Course Number: ERMA 7300

Course Title: Design and Analysis in Education I

Semester: Fall, 2010

Credit Hours: 3 credit hours

Prerequisites: ERMA7200 or Equivalent

Meeting Time: Wednesday 4:00~6:50 pm (Haley 3328)

Instructor: Chih-hsuan Wang
4098Haley
wangchi@auburn.edu

Office Hour: Tuesday 9:30~11:30
Wednesday 9:30~11:30 or make an appointment

Date Syllabus Prepared: July, 2010

Texts:

Ross, M. E. & Shannon, D. M. (2008). *Applied Quantitative methods in Education*. Dubuque, IA: Kendall/Hunt Publishing Company.

Recommended Reading:

Gravetter and Wallnau. (2005). *Statistics for the Behavioral Sciences (6th ed.).* Belmont, CA: Wadsworth. ISBN# 0-534-60246-0

Shannon and Davenport (2001). *Using SPSS to Solve Statistical Problems*. Columbus, OH: Merrill/Prentice Hall. ISBN# 0-13-267576-5

Huck. (2004). *Reading research and Statistics (4th ed.).* Boston, MAS: Pearson Education. ISBN # 0-205-38081-6

American Psychology Association (2009). *Publication Manual of the American Psychological Association (6th ed.)*. Washington D.C., American Psychological Association.

IMPORTANT:

I will post additional materials on the Blackboard. Please check the Blackboard before you come to the class, and print out the materials. I am not going to provide hard copies.

Course Description:

Basic methods of descriptive and inferential analysis including chi-square, t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research.

Course Objectives:

Upon completion of this course, the student will be able to:

- explain the process of hypothesis testing and apply to research problems
- identify different types of research designs and variables found in published articles
- describe the strengths and limitations of different research designs
- identify applications of a wide variety of statistical procedures
- solve educational research problems using statistical tests of significance
- make accurate interpretations of statistical findings
- use data analysis software (SPSS) to solve statistical problems
- review published research literature to examine the application of measurement, design, and analysis procedures
- prepare a written summary of data analysis results in APA format

Tentative Course Content and Schedule

Week	Date	Reading & Class activities
1	08/18	Individual Meeting
2	08/25	Syllabus & Introduction Review of Descriptive Statistics Reading: Ross and Shannon, Chapter 1~3
3	09/01	Reliability and Validity Hypothesis Testing Reading: Ross and Shannon, Chapter 15
4	09/08	One Sample Tests: z-test and t-test Reading: Ross and Shannon, Chapter 4
5	09/15	Two Samples Tests Reading: Ross and Shannon, Chapter 5
6	09/22	Review
7	08/29	**Exam I**
8	10/06	One-way ANOVA Reading: Ross and Shannon, Chapter 6
9	10/13	Factorial ANOVA Reading: Ross and Shannon, Chapter 7
10	10/20	**Exam II**
11	10/27	Within Subjects Designs Reading: Ross and Shannon, Chapter 8
12	11/03	Mixed Design

Week	Date	Reading & Class activities
		Reading: Ross and Shannon, Chapter 9
13	11/10	Binomial Test and Chi-square Test
14	11/17	**Exam III**
15	11/24	Thanksgiving Break
16	12/01	Round Table Presentation

Course Requirements:

- Attend all class sessions and participate in class discussions and activities
- Complete all examinations
- Complete all computer exercises
- Review published research literature to examine applications of course content

Grading and Evaluation Procedures:

Attendance/Participation	10%
Examinations	50% (15%, 15%, 20%)
Computer Exercises	15%
Review of Published Literature	10%
Article Critique	15%

Students missing more than 20% of course meetings will have their final grade reduced by <u>one</u> letter grade.

Any assignment presented or turned in late will be penalized 5% for each day past the assignment deadline. Assignments more than 2 weeks overdue will not be accepted

Grading Scale:

Grade	Percentage
A	***90-100% of possible points and excellent attendance and participation***
B	***80-89% of possible points and at least good attendance and participation***
C	**70~79%**
D	**60~69%**
F	**<60%**

- Class Attendance (10%)

  In order to explore topics effectively, attendance and class participation are essential. You are expected to attend class and participate in the group discussion.

- Examinations (50%)

  There will be three examinations. These exams will be in class exams. You can have a cheat sheet for the exams.

- Computer Exercises (15%)

  Computer exercises are designed to introduce you to the use of SPSS to complete analyses taught in class. Due to time restraints, it is NOT intended to provide you with enough practice to memorize procedures. You should have reference books to help you complete analyses via SPSS when you do are completing analyses on your own. Sometimes the computer exercises will double as an assignment and must be turned in at the end of the class session. In this case, you will need to have the output printed. You can work in pairs on lab assignments and turn in one lab assignment per pair if you wish.

- Review of Published Literature (10%)

Students are expected to find an article for each topic in this class. The data analysis technique in this article has to be the method discussed in the previous class. Students are expected to briefly present the research (about 5 minutes) at the beginning of the class.

- Article Critique (15%)

  Students are expected to write an article critique. The data analysis technique in the research article has to be one of the topics discussed in this semester.

Class Policy Statements

- *Class Attendance*

  Points are not attached to attendance directly. However, excellent class attendance is expected. If you need to be absent for school or work-related requirements, illness, or an emergency, you are allowed to make up points for no more than two classes. Students are responsible for initiating arrangements for missed work.

- *Assignment Policy*
  - Due to the potential incompatibility of word processing programs and formats, and the potential for the transmission of viruses, absolutely no work for the course will be accepted as an E-mail and/or as an E-mail attachment, or on a disk etc. All graded work must be printed off by you and delivered to me in hard copy format.
  - All work submitted for the course must be typed.
- *Late Assignments Policy*
  - Assignments turned in late will receive a 3% reduction in earned points per day. The only exception will be in the case of emergency.

- Except for work requiring calculations, all work must be typed or it will **not** be graded. Late penalty will be applied to work completed in writing and then turned in late in typed format for a grade.

- *Incompletes and Withdrawals*

  Grades associated with incomplete course work or withdrawal from class will be assigned in strict conformity to University policy (see Auburn University Bulletin). If you wish to drop this course you may do so by the 10th class day with no grade assignment. From the 10th class day to mid-quarter a W (withdrawn-passing) grade will be recorded in your transcripts. After this period withdrawal from the course will only be granted under unusual circumstances and must be approved by the Dean of the College of Education.

- *Academic Misconduct*

  The Department of EFLT recognizes university policy regarding academic misconduct. Violations include, but are not limited to: plagiarism, unauthorized assistance during examinations, submitting another's work product as your own, using another's words as your own without appropriate citation, sharing unauthorized materials with another that contain questions or answers to examinations, altering or attempting to alter assigned grades. In accordance with University policy regarding academic misconduct, students may be subject to several sanctions upon violations of the Student Academic Honesty Code. See the Tiger Cub publication for the current year for specifics regarding academic misconduct as well as student's rights and responsibilities associated with the Code.

- *Disability Accommodations*

  Students who need special accommodations in class, as provided for by the American Disabilities Act, should arrange a confidential meeting with the instructor during office hours the first week of classes - or as soon as possible if accommodations are needed immediately. You must bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have these forms but need accommodations, make an appointment with the Program for Students with Disabilities, 1244 Haley Center, 844-2096.

NOTE: This is a tentative syllabus. Any changes will be announced in class. Students are responsible for being aware of the changes made.