AUBURN UNIVERSITY
SYLLABUS

I. **Course Number:** ERMA 7300/ERMA 7306
Course Name: Design and Analysis in Education I
Credit Hours: 3 Semester Credit Hours
Prerequisite: FOUN7200 or Equivalent
Corequesite: None

Professor: David M. Shannon
4028 Haley Center, 4-3071, 4-3072 (FAX)
shanndm@auburn.edu

Office Hours: Wednesdays, 9-12, and by appointment.

2. Date Syllabus Revised: August, 2015

3. Texts

Ross, M. E. & Shannon, D. M. (2011). Applied Quantitative methods in Education (2nd Edition). Dubuque, IA: Kendall/Hunt Publishing Company. ISBN# 978-0-7575-9156-3

The following tests may be helpful and are on reserve in the Learning Resources Center (LRC) and selected chapters may be posted on the course site.

Gravetter and Wallnau. (2009). Statistics for the Behavioral Sciences (8th edition). Belmont, CA: Wadsworth. ISBN# 0-495-60220-5

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

Salkind, N. J. (2010). Statistics for People (Who Think) They Hate Statistics. Thousand Oaks, CA: Sage Publications. ISBN# 978-1-4129-7102-7

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

4. 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.

5. 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

6. Course Content and Readings - Tentative Course Content and Schedule

Tentative Date(s)	Reading & Class activities	Readings and Assignments
8/19-9/2	**Introduction** Overview of Design and Analysis Research Problems, Questions, Variables Sampling Issues Descriptive Statistics Z Scores	Ross and Shannon, Chapters 1-3 Gravetter and Wallnau, Chapters 1-6 Huck – Chapters 1-2; Salkind, Chapter 1, 1a, 2, 3, 4; Shannon and Davenport, Chapters 1-9 **Lab Assignment 1 – DUE 9/9**
9/9	**Nonparametric Statistics** Chi-Square Binomial test	Gravetter, Chapters 18, 19; Salkind, Chapter 16
9/16	**Hypothesis Testing and One Sample Tests of Significance** One-sample *z*-test One-sample *t*-test Measurement and Research Design	Ross and Shannon – Chapter 4 Gravetter - Chapters 9-11; Huck – Chapter 10 Shannon, Chapters 15, 18 **Quiz 1 – DUE 9/23**
9/23	**Two Sample Tests of Significance** Two-sample *z* test Two-sample *t*-test Confidence Intervals Measurement and Research Design	Ross and Shannon, Chap. 5 Gravetter – Chapter 10 ; Huck – Chapter 11 Salkind, Chapter 10;Shannon – Chapter 15 **Lab Assignment 2 – DUE 9/30**
9/30-10/14	**Single Factor (ONEWAY) ANOVA** Assumptions of ANOVA Planned Comparisons Post-Hoc Comparisons Measurement and Research Design	Ross and Shannon, Chap. 6 Gravetter – Chapter 13; Huck – Chapter 13 Salkind, Chapter 12; Shannon – Chapter 16 **MIDTERM EXAM – DUE 10/14** **Lab Assignment 3 – DUE 10/21**
10/21-10/28	**Factorial ANOVA Designs** Two Factor Designs Main and Simple Effects Interaction Effects Three or more Factor Designs Measurement and Research Design	Ross and Shannon, Chap. 7 Gravetter – Chapter 15; Huck – Chapter 14-15 Salkind, Chapter 13; Shannon – Chapter 17 **Quiz 2 – DUE 10/28** **Lab Assignment 4 – DUE 11/4**
11/4, 11/11	**Within Subjects Designs** Assumptions of Within-Subjects Designs Single Factor Within-Subjects Two Factor Within-Subjects	Ross and Shannon, Chap. 8 Gravetter – Chapter 14; Huck – Chapter 16 Salkind, Chapter 11,17; Shannon – Chapter 19 **Lab Assignment 5 – DUE 11/18**
11/18	**Mixed ANOVA Designs** Assumptions One Between and One Within Models Multiple Mixed Variables Measurement and Research Design Issues	Ross and Shannon, Chap. 9 Huck – Chapter 17;Salkind, Chapter 17 Shannon – Chapter 20 **FINAL EXAM – DUE 12/2**

7. Course Requirements:

A. Attend all class sessions and participate in class discussions and activities
B. Complete all quizzes
C. Complete all examinations
D. Complete all homework lab assignments

8. Grading and Evaluation Procedures:

	Percentage of Final Grade
Homework assignments	25%
Quizzes	35%
Examinations	40%

Students missing more than 20% of course meetings will have their final grade reduced by one 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

The following grading scale will be used:

90% B 100% = A
80% B 89.99% = B
70% B 79.99% = C
60% B 69.99% = D
Below 60% = F

Homework Assignments (25%)

There will be 5 homework assignments throughout the semester. These assignments will focus primarily on the application of statistical software to perform procedures addressed in class. I will always illustrate an application prior to requiring of you for homework. We will illustrate and use SPSS in class. SPSS is loaded on several computer labs on campus (LRC, Wallace, etc..) and is available for purchase at a student rate. If you have access to a different software and can use it to accomplish the same outcome, great.

Quizzes (35%)

There will be approximately 2-3 quizzes over the duration of the semester. These quizzes will cover the concepts explored in class. These are to be completed without the assistance on any resources.

Examinations (40%)

There will be two examinations. These exams will be take-home and you will have one week to complete them. You are encouraged to use materials from class (handouts, readings, etc.) as you work on these exams.

9. Class Policy Statements:

A. All portions of the class attendance policy apply to this class. https://sites.auburn.edu/admin/universitypolicies/Policies/PolicyonClassAttendance.pdf.

B. All portions of the Auburn University Honesty Code will apply to this class. - https://sites.auburn.edu/admin/universitypolicies/Policies/AcademicHonestyCode.pdf

In addition, each student will be required to read and sign the following Honor Pledge when submitting class quizzes and exams.

Honor Pledge – On my honor as a student, I have neither given nor received assistance on this assignment.

C. Students who need special accommodations should make an appointment to discuss the Accommodation Memo within the first 2 weeks of class. If you do not have an Accommodation Memo, please contact the Office of Accessibility 1228 Haley Center, (334) 844-2096. https://fp.auburn.edu/disability/

D. The Computer classrooms have a no food and drink policy. There is an exception for bottled water, which should remain sealed when not being consumed. If laptops are present, bottled water should be kept away from laptops. This policy is to ensure the room remains free from liquid stains and food crumbs that result in room repairs or the expense of spraying for roaches. With the room being a technology room, it falls under OIT policy and violators can lose campus computer privileges (e-mail & Internet access) if not adhering to this policy. If accommodations are needed, please inform the LRC staff. Thank you for your cooperation.

ERMA 7300/7306 Student Information – Fall 2015

Place a picture of yourself here. This picture may be copied from you AU ID, passport, driver's license, mug shot from the post office, or self-drawn.

Name:

Major:

Advisor:

Contact Information
(phone, email, etc…)

Background in Research and Statistics

Describe your research interests.

How do you expect to apply this course to your specialty area?

Assignment:

Please write a brief autobiography (approximately 1-2 pages). Describe yourself in terms of your background, why you decided to enroll in graduate school, your career aspirations, your favorite statistical procedure (yeah, right?), or anything else of interest to you (or me). If you **have** been in one of my classes before, please feel free to take this opportunity to either verify what you said before was true or make up some more exciting things about yourself.