

1. ERMA 7300 Design and Analysis I

3 credit hours

2. Semester Fall 2011

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Office Hours: Monday 3pm-4pm, Wednesday 3-4pm, and by appointment.

Teaching Assistants: Nafsaniath Fathema Yi Han
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3. Resources

Required: Ross, M. E. & Shannon, D. M. (2008). *Applied quantitative methods in education*. Kendall/Hunt Publishing Company. [A copy of this text will be on hold at the LRC in Haley Center.]

STRONGLY Recommended: Salkind, N.J. (2010). *Statistics for people who (think they) hate statistics* (4th edition). Thousand Oaks, CA: Sage. ISBN 9781412971027 [A copy of this text will be on hold at the MAIN library.]

Recommended: Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS*. Open University Press. [A copy of this text will be on hold at the MAIN library.]

4. Course Description

Knowledge of the concepts and application of quantitative analytical methods is critical to the producers and consumers of educational research. This course is designed to provide students the understanding of statistical methods pertaining to the design and analysis of experiments in educational research. Basic methods of descriptive and inferential analysis will be reviewed including chi-square, t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are used 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 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

Note: We will be using the new learning management system, Canvas, for this course. Check the Canvas site weekly for announcements and handouts for class.

6. Tentative Course Content and Schedule		Readings and Assignments due
Week 1 (1/9)	Class overview Brief introduction to Canvas (setting up notifications) Introduction to Research Design Form groups on shared topics of interest	
Week 2 (1/16)	Research Design cont'd Descriptive statistics	Ross & Shannon Ch 1-3 McMillan Ch 2 pp31-52 (on Canvas) Optional: Salkind Ch 1-4 Optional: Pallant Ch 6-7
Week 3 (1/23)	Hypothesis testing and one-sample designs (z-test and one-sample t-test)	Ross & Shannon Ch. 4 Optional: Salkind Ch 7-9 Optional: Pallant Ch 17 Homework due (from R&S Chs 1-3; for Ch 1, skip HW items 3, 6, and 8)
Week 4 (1/30)	Hypothesis testing with two means (t-test and ANOVA) Quiz 1 Ch. 1-4 distributed	Ross & Shannon Ch. 5 Optional: Salkind Ch 11-12 Homework due (R&S Ch. 4)
Week 5 (2/6)	Hypothesis testing with two means cont'd	Homework due (R&S Ch. 5) <i>Quiz 1 due</i>
Week 6 (2/13)	Non-parametric tests (Binomial, Chi-square)	Ross & Shannon Ch.16 Optional: Salkind Ch 17 (16 in old ed.) Optional: Pallant Ch 16
Week 7 (2/20)	Content review/catch up Midterm project: Comparing two groups	<i>Take home test distributed</i> (Chs. 1-5, 16)
Week 8 (2/27)	One-way ANOVA with more than two groups	Ross & Shannon Ch. 6 Optional: Salkind Ch 13 Optional: Pallant Ch 18 Midterm project due
Week 9 (3/6)	One-way ANOVA with more than two groups cont'd	Homework due (R&S Ch. 6) Take home midterm exam due 3/8
Spring Break: No class 3/13		
Week 10 (3/20)	Overview of remaining designs Two-way ANOVA	Ross & Shannon Ch. 7 Field Ch. 12 [SKIP 12.16 and 12.18] Optional: Salkind Ch 14

		Optional: Pallant Ch 19
Week 11 (3/27)	Two-way ANOVA cont'd Final project: Complex comparisons	
Week 12 (4/3)	Repeated measures and within-subjects ANOVA Quiz Ch. 7-8 distributed <i>April 1-5 Research Week at AU</i>	Field Ch. 13 Ross & Shannon Ch. 8 Optional: Salkind Ch 18 Optional: Pallant Ch. 20 Homework due (Ch. 7)
Week 13 (4/10)	Mixed Designs ANOVA	Field Ch. 14 OR Ross & Shannon Ch. 9 <i>Quiz 2 due</i>
Week 14 (4/17)	Content review/catch up <i>Time to work on final project</i>	<i>Take home test distributed</i> (all Chs.)
Week 15 (4/24)	In-class presentations of final project	All components of project due
Finals		Take home exam due 5/1

7. Course Requirements and Evaluation

Learning Methods: Lectures, discussions, readings, class exercises and projects.

Student Assessment

Exams	40%
Quizzes	10%
Homework, In-class Activities	10%
Projects, Presentations	40%

You MUST be in class to earn in-class activity points.

When appropriate, you must show your work for full credit.

Grading Scale

A:	90 – 100%
B:	80 – 89%
C:	70 – 79%
D:	60 – 69%
F:	below 60%

8. Class Policy Statements

Attendance Policy

- Excellent attendance is expected, but not required. If you miss class, you will need to get notes from another student.
- I will start class on time, so if you are late you will need to get notes from another student.

Late Assignments Policy

- Assignments turned in late will receive a 5% 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.

Note that a new incomplete grade (IN) policy is in effect. The new policy requires that students complete a form requesting that an IN grade be assigned. If this form is not completed and given to the instructor of the class, a grade will be assigned with a score of zero (0) for work that has not been completed and turned in by the time the instructor reports grades.

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 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 alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the PSD office, but need accommodations, make an appointment with The Program for Students with Disabilities, 1228 Haley Center, 844-2096 (V/TT).