

1. **ERMA 7310**
Design and Analysis in Education II
3 credit hours
Prerequisite: FOUN 7300 Design and Analysis in Education I
 2. **Spring Semester 2015**
Meeting Time: Tuesdays
Room: Haley Center
Instructor: Margaret E. Ross
4018 Haley Center
(334) 844-3084
rossma1@auburn.edu (the first 1 = one)
Office Hours: Tuesdays 3-5 PM and Wednesdays 10 AM to noon
-

3. Resources

Required

Ross, M. E. & Shannon, D. M. (2008). Applied Quantitative Methods in Education. Kendall/Hunt, Publishing Company, Dubuque, Iowa.

Recommended

Publication Manual of the American Psychological Association (any recent edition). Washington D.C., American Psychological Association.

4. Course Description

This course is designed to provide students the understanding of statistical methods pertaining to the design and analysis of educational research. Descriptive statistics will be reviewed and analyses that assess the strength of relationships between or among variables as well as analyses to predict will be studied. This course emphasizes the conceptual application of statistics with some emphasis placed on the mathematical derivation of the formulas to facilitate understanding of the statistics. A part of the course will be learning SPSS as it pertains to correlation and regression and learning to interpret output.

5. Course Objectives

Students will:

- Gain an understanding of correlation and regression procedures.
- Apply knowledge of correlation and regression procedures by analyzing research problems and making decisions about the appropriate use of these procedures.
- Apply knowledge of correlation and regression statistics using SPSS. (Technology)
- Apply knowledge of correlation and regression procedures by interpreting results of statistical analyses.
- Interpret the results of the analyses in terms of the research hypothesis.

6. Tentative Course Content and Schedule

Week 1 1/20

Introduction to the Course)

Review of hypothesis testing basics and Conceptual/Visual presentation of correlation and line of best fit
IRB discussion (this is part of your project grade)
Discussion of project revisions, refinements, and additional research questions
Project Group Meeting (2-3)

Week 2 1/27

Overview of Regression Design

Review of least squares

Variance and Covariance

Calculation of correlation

Coefficient of Determination (r^2)

Authentic project variables and correlation

IRB Modules

Week 3 2/3

Line of Best Fit

Bivariate regression (continuous IV variable)

R^2 and r^2

Test preparation

Week 4 2/10

TEST 1

Week 5 2/17

Correlated Predictors (IVs)

Uncorrelated Predictors (IVs)

Part and Partials

Authentic project correlation/regression questions updating ANOVA project (due next week)

Week 6 2/24

Regression with three or more continuous independent variables (predictors)

Curvilinear relationships

Methods of Entering Data

Correlation/regression questions due

Authentic Project planning/data analyses

Week 7 3/3

Project Paper Rubrics

Covariance

Test Preparation

Week 8 3/10

TEST 2

Spring Break

Week 9 3/17

Review of ANOVA using the General Linear Model

The General Linear Model and Regression

Regression with categorical independent variables and coding

Regression with categorical and continuous variables

Authentic Project paper/power points group work

Review Rubric **for project paper (due 4/14)**

3/24 Spring Break

Week 10 3/31

Assumptions

Theoretical Issues

Practical Issues

Ratio of cases to IV

Outliers

Multicollinearity

Homoscedasticity

Analysis of Residuals

Introduction to Path Analysis/Factor Analysis

Validity

Reliability

Planning the presentation (who? when? where?)

Week 11 4/7

Logistic Regression

Preparation for Test

Week 12 4/14

Preparation for Test

Week 13 4/21

TEST

Week 14 4/28

Presentations

7. Course Requirements/Evaluation

Learning Methods

Lectures, discussions, readings, class exercises and lab assignments.

Student Assessment

Three Tests	55% (15% test 1, and 20% test 2, 20% test 3)
Project Paper (revise & expand/original)	20%
Presentation	10%
Assignments/labs (2 make up allowed)	15%

Lab

- Lab is 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 lab will double as an assignment and must be turned in at the end of the lab session. You can work in pairs on lab assignments and turn in one lab assignment per pair if you wish.

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.

Proposal and Presentation

The following is the outline that will be used for this assignment. You must use a correlation/regression design taught in this class. If you do not use a correlation/regression design, I will not accept the paper.

Use the following major sections:

Introduction Section

- Argument of worth or purpose of the study
- Literature - Integrated by themes/points made
- Hypothesis or research question - written first but presented at the end of the literature section

Methodology Section

- Participants (descriptive statistics)
- Measures (Validity and Reliability important here! - describe scale(s), composite scores, how scores are used in the study)
- Procedures (detailed description of what you did step by step, data processing and analysis - how will you analyze the data and why)?

Results Section

- Are **all** appropriate statistics clearly stated in APA style?
- Are tables or graphs appropriately used?

Discussion Section (Discussion is the major heading, the following information should be included in this major section)

- State results in words
- Discuss Limitations, including statistical assumptions

A more detailed rubric will be handed out closer to the time the proposal and presentation are due. The paper is to be written in APA style.

Grading Scale

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

8. Class Policy Statements

Class Attendance (see attendance requirements under section 7 above)

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 Student Policy eHandbook, www.auburn.edu/studentpolicies). 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 Student Policy eHandbook (www.auburn.edu/studentpolicies) 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 electronically submit their approved accommodations through AU Access and 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 Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT)."