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

1. **ERMA 7306**
   Design and Analysis in Education I
   3 credit hours

2. **Semester Fall 2012 (201310)**
   Instructor: Robin T. Taylor
   E-Mail: taylor1@auburn.edu
   Virtual Hours: To Be Determined

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3. **Resources**

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

                    Gravetter, F. J. & Wallnau, L. B. (2011). *Essentials of Statistics for the Behavioral Sciences*. (7th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Computer Software: SPSS Version 20, PDF file creator (e.g. Adobe Acrobat)

4. **Course Description**

This course is designed to provide students the understanding of statistical methods pertaining to the design and analysis of experiments in educational research. Descriptive statistics will be reviewed and inferential statistics used to analyze the relationship between one or more categorical variables and a continuous variable will be studied. This course emphasizes the conceptual application of statistics with little emphasis placed on the mathematical derivation of the formulas. Emphasis will be placed on conceptual understanding of t-test and ANOVA designs, correctly identifying the proper statistical test, and interpreting the output using SPSS for Windows.

5. **Course Objectives**

Students will:
- Gain an understanding of inferential statistics.
- Apply knowledge of inferential statistics by analyzing research problems and making decisions about the appropriate use of inferential procedures.
- Apply knowledge of inferential statistics using SPSS to determine significance.
- Apply knowledge of inferential statistics by interpreting results of statistical analyses.
- Interpret the results of the analyses in terms of the research hypothesis.

6. **Tentative Course Content and Schedule**

Class 1 (Week Aug 20-Aug 24)
Introduction to course as distance education (CANVAS, Resources, Computer Recommendations, ...)
Overview of course requirements and assignment completion
Introduction to statistics - overview of terminology

Class 2 (Week Aug 27-Aug 31)
Graphical / Visual representation of data
Measures of central tendency
Measures of variability

Class 3 (Week Sept 03-Sept 07)
Data distributions
Introduction of hypothesis testing (t-test and ANOVA designs)

Class 4 (Week Sept 10-Sept 14)
Outline of course project
Project rubric
Project deadlines

Class 5   (Week Sept 17-Sept 21)
Introduction to research design
Validity and reliability
Internal/External validity

Class 6 (Week Sept 24-Sept 28)
Independent samples t-test
One-sample t-test
Z-test and hypothesis testing (an eight step approach)

Class 7   (Week Oct 01-Oct 05)
One-way ANOVA with two levels

Class 8 (Week Oct 08-Oct 12)
One-way ANOVA with 3 or more groups
Planned comparisons (follow-up)
Post-hoc comparisons

Class 9 (Week Oct 15-Oct 19)

MIDTERM EXAM DUE FRIDAY, OCTOBER 19 BY 8:00 P.M. CST

Class 10 (Week Oct 22-Oct 26)
Two-way ANOVA/Three-way ANOVA
Follow-up analyses to multi-way ANOVA (simple effects, interaction contrasts)

Class 11 (Week Oct 29-Nov 02)
Paired sample t-test
Within subjects designs

Class 12 (Week Nov 05-Nov 09)
Mixed designs
Chi square

Class 13 (Week Nov 12-Nov 16)
Binomial

PROJECT DUE BY MIDNIGHT FRIDAY, NOVEMBER 16

Class 14 (Week Nov 19-Nov 23)

NO CLASSES – AUBURN UNIVERSITY THANKSGIVING HOLIDAYS

Class 15 (Week Nov 26-Nov 30)
Preparation for final exam

FINAL EXAM DUE BY MIDNIGHT WEDNESDAY, DECEMBER 05, 2012

7. Course Requirements and Evaluation
Learning Methods:

Lecture Presentations
Lectures will be created using Panopto recorder and can be accessed through Canvas. Weekly online meetings using the live broadcast feature in Panopto will be available to clarify questions concerning lectures, readings, assignments, and/or use of SPSS software. Day and time of this meeting will be determined according to classes' availability.

Course Assignments
Throughout the semester, students will be required to complete course assignments based on text readings and lectures. These assignments will be turned in weekly and will constitute 10% of your total grade.

Research Article Reviews
Students will be asked to review a minimum of six research articles throughout the semester. These reviews constitute 15% of your total grade. These reviews will be used to ensure that you can 1) identify components of the research and 2) critique the appropriateness of research findings according to evidence provided within the research article. A rubric for how reviews will be graded and assessed will be provided.

Authentic Project
Students will be provided a large SPSS dataset and be given a set of research questions in which you will use data analyses techniques presented in the class to summarize findings from the data set provided. Details about project requirements and a grading rubric will be provided soon with rolling due dates.

Examinations
A midterm exam and final examination will constitute 50% of your total grade (25% each). Students will be given a week to complete each take-home test. Students are responsible for upholding the Student Academic Honesty Code. If difficulties arise or issues are encountered after the first take-home exam, the decision of offering a final take-home exam may change and students will then be responsible for facilitating a proctor to take your final exam.

Student Assessment:

Midterm	25%
Final	25%
Project	25%
Article Discussions	15%
Assignments	10%

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

8. Class Policy Statements

Participation:
Continuous interaction will be a priority of the course. Discussion boards, chat rooms, e-mail and other electronic means will be used on a regular basis as a requirement for all course correspondence and will be conducted via the Canvas system. Students will need to have a current computer and access to the Internet via their own Internet Service Provider.

Technology:
Distance students are responsible for knowing how to access the electronic classroom tools and features via the Canvas system and for trouble-shooting and maintaining their own equipment. Any questions regarding Canvas should be directed to IMG (844-5181 or IMG@auburn.edu). All students will need to have access to SPSS software – requests for one copy of the software may be made through the Learning Resource Center.

Distance students should have a microphone/headset to use to communicate through the Canvas system.

All students are expected to check TigerMail and Canvas communications regularly. Students are responsible for reading and responding to messages from the instructor in a timely professional manner.

Attendance/Absences:
Although attendance is not required, students share a significant responsibility to keep up with all readings, course lectures, and assignments. Students will be held responsible for all content covered in the text and lectures and will be expected to participate in on-line discussions.

Late Assignments Policy:
All students will be required to submit assignments through Canvas. All assignments must be submitted by the due dates indicated and they must be submitted in the required format to receive credit. Late assignments will have points deducted (2% reduction in earned points per day). Incompletes will not be given except in cases of documented illness.

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 15th class day with no grade assignment. However, note that dropping the course between August 23 and September 06 will result in a $100 drop fee. From the 15th class day to mid-quarter (September 07 – October 05) 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 in 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 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.

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