AUBURN UNIVERSITY
Department of Educational Foundations, Leadership, and Technology
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Office Hours: Wednesday 3:00 p.m.- 4:00 p.m.

1.   **Course Number and Title:** ERMA 8340 Structural Equation Modeling

        Credit: 3 Semester Hours (Lecture 3)

Prerequisites: ERMA 7300 and ERMA 7310

2.   **Date:**   January 2010

Required Resource(s): TBD

Other Course Supplements: The professor may provide handouts from time to time to as
        supplemental information to lectures and required resource(s).

Recommended: (a) **mechanical pencil** that takes **0.9mm or 0.7mm** size lead. Use **black
        color lead** only and **HB or B** hardness. Flash drive or CD for data sets.

4.   **Course Description:**

The focus of this course is on testing theory-driven models of data using structural equation
modeling (SEM) methods. The course is designed to assist students in applying SEM to
real-life situations, so that they may begin to develop and apply their own critical thinking
and decision-making skills as future professional educators; consequently, applications of
SEM to problems in the social and behavioral sciences will be covered. Knowledge of the
technical and/or mathematical background for SEM is not necessary for this introductory
course. Content includes basic terminology, concepts, applications, interpretations, and
reporting of results of SEM procedures.

5.   **Course Objectives:**

The following objectives are designed to develop students' competence in knowledge, applications, and interpretations of basic SEM procedures used in educational research. The following objectives will be covered to the extent that time allows.

A. Use general research and basic statistical terminology appropriately and accurately

B. Use research and statistical terminology related to SEM appropriately and accurately

B. Demonstrate knowledge of the following subject matter:

1. Research problems, variables, measurement scales
2. Hypothesis testing, decision rule, alpha level
3. Type I and Type II error
4. Power
5. Effect size
6. Research and Procedures for
(a) Advanced multiple regression
(b) Confirmatory factor analysis
          (c) Path analysis
(d) Causal models with latent variables

C. Use statistical software (SPSS and AMOS) to create SEM models

D. Evaluate educational problems in terms of the appropriate model to create and create the model .

E. Interpret results of SEM models

6.   **Course Content:** The following content will be covered to the extent that time allows.

  A.   Course Overview
  B.   Logic of SEM
  C.   Advantages of SEM Designs
  D.   Review of advanced multiple regression procedures
  E.   Confirmatory factor Analysis
  F.   Path analysis
  G.   SEM applications and constructions
  H.   Introduction to AMOS

7.   **Course Requirements/Evaluation:**

A.   Read all assignments prior to class and be prepared to ask questions and to respond to questions in class.

B.	Complete all homework assignments. **Turn in homework before the class begins.**
C.	Complete all tests and the final examination.
	Final grades will be based on the following:
		1. Homework and Class Assignments* 100 points
		   (varied points each)
		2. Test 1 (Mid-term examination)	50 points
		3. Test 3 (Final examination)	100 points
					Total	250 points

*From time-to-time assignments to be completed in class will be required. These
	assignments cannot be made up. They will be unannounced as these assignments
	will occur depending on class progress and time available. Both the mid-term and
	the final examination may be project-based.

The following grading scale will be used.
93% - 100% = A (Superior)
81% - 92% = B (Above Average)
71% - 80% = C (Average)
60% - 70% = D (Below Average)
Below 60% = F (Failing)

8.	**Class Policy Statements:**

The following guidelines should help students to know the course expectations that will
	help them to complete the course requirements successfully.

A.	There will be no unannounced quizzes in this class. However, it is strongly
	recommended that students read the material before coming to class. Each student's
	grade in this course is based on his/her own performance and not in comparison to
	the performance of others.

**PLEASE NOTE THESE STATEMENTS. PLEASE ADHERE TO THESE
	POLICIES. ☺**

	Please ask for help if needed **at least 2 week days** before any homework is due.
	Email almost anytime works well if you have a quick question. **No late homework
	will be graded. Homework will be taken up before class begins. The class
	begins at 12:00 p.m. No homework will be graded that is submitted after the
	class starts.** Plenty of lead time is provided for students in case they have a planned
	or unplanned absence. The professor will provide due dates for homework
	assignments at the time that the assignments are made or earlier. **Only hard copies**
	of homework will be accepted. All assignments should be **typed, double-spaced on
	one side of the paper, using 12-point font and dark, sharp print and stapled in
	the upper left corner. Please do not minimize the size of
	charts/models/statistical output. Reduced print will not be graded.** Assignments
	should be clean and neat. **Unstapled pages** will not be graded. For example,

assignments held together with paper clips, folders, rubber bands, three-ring binders etc., will not be accepted. The first page should identify the student by full name, the assignment, and the date. The entire assignment must be turned in at the same time. **Partial assignments will not be graded.**

NOTE: Because of the nature of this course, students are expected to submit **computer printouts** showing results of analysis, solutions to problems, or supporting statistics for results sections. **No credit will be given for answers to questions without the supporting output.** The student should **copy and paste only the relevant part** of the computer output to a Word document, and then save and print the file to submit each assignment. The **relevant part** of the output means only the part that responds to the question. Homework items must be in the correct chronological order to be graded correctly.

The answers to Home Work problems should be **clearly stated with the output** on the **SAME PAGE as the answer if room permits. Tables may not be broken** between pages unless the length of the table requires it. It is O.K. to circle appropriate statistics on the output. **NO CREDIT FOR HIGHLIGHTED ANSWERS ON THE OUTPUT, AS I WILL NOT BE ABLE TO SEE THEM CLEARLY. DO NOT USE ANY HIGHLIGHTING.** You must **write the answer** whether you circle it or not. I must be able to tie your written response to the output. Report the answer and the relevant output only.

NOTE: **SOLUTIONS TO PROBLEMS ON HOMEWORK MUST BE TURNED IN WITH APPROPRIATE STATISTICAL TABLES, ETC., SHOWING THE RESPONSE. COPY AND PASTE THE APPROPRIATE STATISTICAL OUTPUT TO A WORD DOCUMENT. HOMEWORK TURNED IN WITHOUT THE APPROPRIATE OUTPUT WILL NOT BE GRADED. ALL STEPS IN THE SOLUTION MUST BE SHOWN TO RECEIVE CREDIT.**

From time-to-time assignments to be completed in class may be required. These assignments cannot be made up. They will be unannounced as these assignments will occur depending on class progress and time available.

C.   Academic dishonesty is an offense that will be reported to the Academic Honesty Committee. (See related pages in the Tiger Cub.)

D.   Attendance/Absences: Attendance is required at each class meeting. It is the student's responsibility to arrange for a classmate to take notes for him/her and to get a copy of all handouts for him/her in the event of an absence.

E.   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 alternative time can be arranged. To set up this meeting, please contact

me by e-mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with the Program for Students with Disabilities at 1244 Haley Center, 844-2096 (V/TT).

F.   Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

G.   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

9   Justification for Graduate Credit

Graduate courses "should be progressively more advanced in academic content than undergraduate programs" and should "foster independent learning" (SACS guidelines 3.6.1 and 3.6.2). Further, the guidelines presented in the Statement of Clarification of the Definition and Use of 6000-level courses as approved by the Graduate Council, May 21, 1997 apply:

Factors to consider in evaluating a course for graduate credit include but are not limited to the following:
--use of specific requisites
--content of sufficient depth to justify graduate credit (materials beyond the introductory level)
--content should develop the critical and analytical skills of students including their application of the relevant literature
--rigorous standards for student evaluation (all students in a 6000-level course must be evaluated using the same standards)
--course instructor must hold graduate faculty status or be approved by the Dean of the Graduate School

10.   Methodologies and Course Evaluation:

The principal methods of instruction will be short lectures, demonstrations, and question/answer. Students will evaluate the course using a checklist of criteria.
Please check email BEFORE each class meeting to be sure there are no class announcements. Thanks. ☺ Dr. K.