EDF 7412 - Structural Equation Modeling

Fall 2024

Tuesdays, Periods 6-8 (12:50 to 3:50) Norman 2014

Instructor: Walter Leite
Office: NRNA 2711J
Phone: 352-273-4302
Email: walter.leite@coe.ufl.edu

Objective:
To enable students to understand, critique, apply, and generate models under the structural equation modeling framework, including path analysis, confirmatory factor analysis, latent growth models, and structural equation models.

- To help me keep track of email messages, please include EDF 7412 in the subject line of any email message you send to me.

Course Web Page: elearning.ufl.edu

Office Hours: Link to Book 30-Minute Meeting

Required Textbook

Title: PRINCIPLES AND PRACTICE OF STRUCTURAL EQUATION MODELING
Author: REX B. KLINE Edition: 5th Copyright: 2023 Publisher: GUILFORD

TOPICS

1. Overview

2. Path Analysis

- **a) Implied covariance matrix**
- **b) Model identification**
- **c) Estimation**
- **d) Hypothesis Testing and model fit**
- **e) Mediation analysis**
- **f) Moderation**

3. Confirmatory Factor Analysis (CFA) of continuous indicators

- **a) Implied covariance matrix**
- **b) Model identification**

   c) **Estimation**
   d) **Hypothesis testing and model fit**
   e)

4. **Confirmatory Factor Analysis (CFA) of categorical indicators**
   a) **Polychoric and Tetrachoric correlations**
   b) **Model identification**
   c) **Estimation**
   d) **Hypothesis testing and model fit**
   e) **Multiple-group confirmatory factor analysis**
   f) **Latent means**
   g) **Measurement Invariance**

5. **Structural Equation Models (SEM)**
   a) **Implied covariance matrix**
   b) **Model identification**
   c) **Estimation**
   d) **Hypothesis testing and model fit**
   e) **Latent variable interactions**
   f) **Multilevel SEM**

6. **Latent growth models (LGM)**
   a) **Linear models**
   b) **Nonlinear models**
   c) **Implied covariance matrix**
   d) **Model identification**
   e) **Estimation**
   f) **Hypothesis testing and model fit**

Course Requirements

The course will follow Team Based Learning (http://www.teambasedlearning.org/) principles. Students are expected to read course materials and watch the lecture video associated with each class meeting in advance of the meeting. The assessments are based on targeting different levels of Bloom's taxonomy.

Readiness Assessments: The Individual Readiness Assessment Test (IRAT) should be completed before each class meeting. They target the Knowledge (Recognizing, Recalling) and Comprehension (Interpreting, Exemplifying, Classifying, Comparing) levels of Bloom's taxonomy.

Team assignments: Students will review papers and perform analyses. The assignments will target the Application and Analysis levels of Bloom's taxonomy.

Research Project: The students will submit a final paper, which can have at most two authors (pairs

of students). The paper should follow the format of proposals for the Annual Meeting of the American Educational Research Association (AERA). The research project will target the Application, Analysis, Synthesis and Evaluation levels of Bloom's taxonomy.

Extra credit - No planned opportunities for extra credit exist in this course.

General policy on missed work - It is expected that no students will miss any assignments. No make-ups will be possible unless due to special circumstances (e.g., conference presentations, disease) which will require documentation. Assignments not turned in by their due date will incur grade reduction of 5% per day after the due date.

Assessment - weight

1. Readiness Assessments – 28 %
2. Team assignments - 40%
3. Research Project – 32 %

Course Grades

Final grades will be assigned based on the scale below:

Overall course percent	*grade*
93.0% - 100%	A
90.0% - 92.9%	A-
87.0% - 89.9%	B+
83.0% - 86.9%	B
80.0% - 82.9%	B-
77.0% - 79.9%	C+
73.0% - 76.9%	C
70.0% - 72.9%	C-
67.0% - 69.9%	D+
63.0% - 66.9%	D
60.0% - 62.9%	D-
59.9% or less	E

Unless a computational error has been made, grades will not be changed after the end of the semester.

Class Attendance

As a matter of mutual courtesy, please let the instructor know when you're going to be late, when you're going to miss class, or if you need to leave early. Please try to do any of these as little as possible. Students are expected to be present for all classes, since much material will be covered only once in class. Attendance will not be checked or graded, but you are responsible for the content of all classes, including issues raised in the spontaneous class discussions. If you must miss a class, please request notes from your classmates.

Academic dishonesty
For University's honesty policy regarding cheating and use of copyrighted materials, see: http://www.dso.ufl.edu/judicial/procedures/honestybrochure.php
Written assignments will be checked for plagiarism against published works, other papers submitted by classmates at the current and previous semesters and internet pages using Turnitin, which is UF's plagiarism detection software. It is expected that submitted work for individual assignments will solely reflect the student's own efforts. Students are expected not to collaborate in writing answers, or interpreting results. However, collaborations in running statistical software are acceptable, as long as each student works on his/her report separately.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/ . Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/ . Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/ .

Accommodations for Students with Disabilities: If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (http://oss.ufl.edu/). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health
Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: http://www.counsel.ufl.edu/ or http://www.health.ufl.edu/shcc/smhs/index.htm#urgent
Crisis intervention is always available 24/7 from:
Alachua County Crisis Center: (352) 264-6789