HRD 6352 – Structural Equation Modeling
Course Syllabus (Rev A)

Contact Information

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Office Hours:	https://calendly.com/kimnimon *Feel free to schedule more than one appointment on calendly.* *If the times on calendly don't work for you, please call me on my cell to make an appointment.*
Open Office Hours	7:30 p.m. – 8:30 p.m. Thursdays in weeks that assignments are due https://uttyler.zoom.us/my/knimon?pwd=dlFoemlyOVplMXp5RVE3ekJEaHkvdz09
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Preferred Contact Method:	Canvas Discussion Board for non-personal issues Canvas e-mail for personal issues

Credit Hours

3 semester hours

Course Description

This course covers an advanced set of quantitative statistical analyses that are key to creating new knowledge in human resource development. Students will learn how to interpret, conduct, and report select structural equation models.

Course Philosophy

Learning quantitative statistical analyses is similar to learning a new language. There are often words that are hard to pronounce, difficult to remember, and may have similar meanings. However, by continually practicing the new language through observation, reading, and writing, learners have the opportunity to pick up the language quickly and sound like a native speaker. Therefore, this course has weekly assignments to give learners the opportunity to regularly practice the new language of quantitative statistical analyses. Learners will be expected to work individually and will be offered opportunities to facilitate peer learning. To facilitate a safe learning environment, learners will have opportunities to build from mistakes as they practice the new language of structural equation modeling.

Grading Philosophy

I understand that the process of receiving grades can inhibit the learning process. I endeavor to create a safe learning environment. As part of that environment, you have several opportunities to maintain a high grade in the course, including:
- Two attempts at each module quiz, where you receive the highest grade of the attempts made
- Opportunity to resubmit attempted module assignments
- Bonus points opportunity for each module

- An assignment that allows you to submit a draft version of your final paper
- Feedback provided on assignments turned in late
- End of semester provisions to replace grades assigned 0 because work was not turned in or late

It is possible to get to the end of the semester with a very high grade that can be drastically reduced based on your performance on the final project. The idea is that by the end of the semester, you should have the requisite knowledge and skills to perform at a higher level than when you were first learning the material. Therefore, the grading of the final project is less lenient than the grading of the module assignments.

Course Design

The course was designed according to the 4MAT method. According to Bernice McCarthy, developer of the 4MAT system, there are four major learning styles, each of which asks different questions and displays different strengths during the learning process. The course has 7 learning modules, each with four sections except for the final module that contains three sections. Learning modules begin with a "getting started" activity to answer *why*. To answer *what*, learners will read a chapter from the required text and/or published articles and test their knowledge over the required reading via quizzes. To answer *how*, learners will complete the necessary steps to conduct, interpret, and/or report on a particular statistical analysis. To answer *if*, learners will have the opportunity to conduct peer reviews and provide constructive feedback on module activities.

Course Objectives

At the conclusion of the course, learners will be able to:

1. Understand zero order, semi-partial, and partial correlation calculation and interpretation.
2. Understand terms common to regression analysis.
3. Be able to compute and interpret regression analysis output.
4. Understand path coefficient calculation and interpretation.
5. Understand path models and terms common to path analysis.
6. Be able to compute and interpret path analysis output.
7. Understand factor loadings, pattern and structure matrices calculation and interpretation.
8. Understand factor models and terms common to factor analysis.
9. Be able to compute and interpret factor analysis output.
10. Understand structural weights calculation and interpretation.
11. Understand terms and models common to structural equation model analysis.
12. Be able to compute and interpret structural equation model analysis output.
13. Test for model fit in regression, path, factor, and structural equation model analyses.
14. Be able to use computer software to conduct regression, path, factor, and structural equation model analyses.

Required Software

- IBM® SPSS® Statistics Standard GradPack 28 (Available at http://www.onthehub.com/spss/)
- IBM® SPSS® AMOS 28 (Available at http://www.onthehub.com/spss/)
- MAC users may need to purchase a virtual machine (e.g., VMWare Fusion) and Windows so that they can run Windows programs (e.g., AMOS).

Required Texts

American Psychological Association. (2019). *Publication manual of the American Psychological Association* (7th ed.). Washington, DC: Author.

Grimm, L. G., & Yarnold, P. R. (2000). *Reading and understanding MORE multivariate statistics*. Washington, DC: American Psychological Association.

Hair, J. E., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis*. (8th ed.). Upper Saddle River, NJ: Prentice-Hall.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York: Guilford.

Schumacker, R. E., & Lomax, R. G. (2016). *A beginner's guide to structural equation modeling* (4th ed.). New York: Routledge.

Recommended Texts

Boyle, G. J., Saklofske, D. H., & Matthews, G. (Eds.) (2015). *Measures of personality and social psychological constructs*. London: Academic Press.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. New York: Guilford Publications.

Byrne, B. M. (2010). Structural equation modeling with AMOS: Basic concepts, applications, and programming (2nd ed.). New York: Routledge.

Crawley, M. J. (2013). *The R Book* (2nd ed.). West Sussex, England: John Wiley and Sons.

Creswell, J. W. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed).Thousand Oaks, CA: Sage.

Fields, D. L. (2013). *Taking the measure of work: A guide to validated scales for organizational research and diagnosis.* Thousand Oaks, CA: Sage.

Fowler, F. J. Jr. (2014). *Survey Research Methods* (4th ed.). Thousand Oaks, CA: Sage.

Thompson (2004). *Exploratory and confirmatory factor analysis.* Washington, DC: APA.

Course Evaluation

Component	Points
Module Quizzes	70 (7 @ 10 points each)
Module Activities	70 (7 @ 10 points each)
Final Project	140
Total	280

A = 90% – 100% B = 80% – 89% C = 70% – 79% D = 60% – 69% F = < 60%

Class Meeting Schedule

#	Date	Topics
1	08/27	Facilitator Presentations • Course Overview Student Presentations • Project Proposals
2	09/24	Student Presentations • Regression Models Facilitator Presentation • Path Models & CFA
3	10/15	Student Presentations • CFA Facilitator Presentation • Structural Equation Models
4	11/05	Student Presentations • Structural Equation Models Facilitator Presentation • Final Project
5	12/03	Student Presentations • Final Project

Note. Class meetings held 8:00 to noon in COB 251. Topics may flex in order to meet learner needs.

Course Schedule

Wk	Module	Getting Started[a]	Quiz	Assignment	Peer Review[b]
1	Class Meeting 1 (8/27)				
2*	Introduction	**1** (09/05)	**10** (09/05)	**10** (09/05)	**1** (09/12)
3*	SEM Basics & Model Fit	**1** (09/12)	**10** (09/12)	**10** (09/12)	**1** (09/19)
4	Regression Models	**1** (09/19)	**10** (09/19)	**10** (09/19)	**1** (09/26)
5	Class Meeting 2 (9/24)				
6	Path Models	**1** (10/03)	**10** (10/03)	**10** (10/03)	**1** (10/10)
7**	Construct Validity	**1** (10/10)	**10** (10/10)	**10** (10/10)	**1** (10/17)
8	Class Meeting 3 (10/15)				
9	Structural Equation Models	**1** (10/24)	**10** (10/24)	**10** (10/24)	**1** (10/31)
10	SEM Learner Selected Adhoc Analysis				
11	Class Meeting 4 (11/05)				
12	SEM Learner Selected Adhoc Analysis				
13	Final Project Draft			**10** (11/21)	**1** (11/28)
14	Thanksgiving				
15	Class Meeting 5 (12/03) Final Project Presentation			**20** (12/03)	
16	Final Project Sample Size	**1** (12/11)	**10** (12/11)	**110** (12/09) **10** (12/11)	
	Total	*7 bonus*	70	210	*7 bonus*

Note. Course schedule may be adapted during the semester to meet learner needs. Bolded numbers indicate maximum possible point value. Work due on Sundays will not be counted late if submitted within <u>48 hours of due date/time</u>. [a]Participation in *getting started* is worth 1 bonus point if substantive post and reply is posted by the due date. [b]Participation in *peer review* is worth 1 bonus point if post of student's own work (.5 pt) and review of peer's work is posted by due date (.5 pt). Bonus points are only awarded if all other module work (e.g., quiz, assignments) has been completed and/or submitted and is not late. *Pilot learner provided dataset is beneficial for this week's assignment. **Complete learner provided dataset needed for this and remaining weeks' assignments.

<u>**Course Policies:**</u>

Assignment Resubmission
Assignments that receive less than 70% may be resubmitted and reevaluated pending the following conditions: (a) Original submission was not assigned a grade of 0. (b) Resubmissions are submitted within one week of the date that the original grade was assigned. (c) Resubmission includes all files identified on assignment directions. (d) Resubmissions clearly indicate what has changed since the original submission (e.g., tracked changes in MS Word). (e) Resubmission includes a separate file that provides the graded rubric as well as an additional column that indicates how the assignment was changed based on the feedback provided. Resubmitted assignments may only receive a maximum of 70% credit.

Class Meeting Attendance
Attending all five class sessions demonstrates the learner's personal commitment to learning. Therefore, physical attendance is expected for the accomplishment of course objectives. The facilitator recognizes that learners may have special issues and responsibilities that may impact physical attendance. If physical absences occur, the learner is responsible for contacting the facilitator in advance so that adjustments can be made to the instructional activities planned for a specific session. With approval from the instructor and the department chair, the learner may participate virtually. The instructor may provide limited access to the class through Zoom. However, it is the learner's responsibility to arrange with an in-class peer to provide virtual access to the class to ensure the quality of classroom learning. The learner is responsible for all work that is missed due to their absence from any class meeting, or portion thereof. It should be expected that physical absence from classes for reasons other than documented illnesses, emergencies, or other matters that prohibit the learner from traveling due to COVID restrictions may affect the final course grade. Excused absences for religious holy days or active military services are also permitted according to the policies outlined in the UT Tyler Graduate Handbook. One unexcused absence may result in a final grade reduced by one letter grade. Two or more unexcused absences from class will likely result in a grade of Incomplete (I) requiring the student to retake the course.

Late Work
No credit will be given for late assignments unless the learner's provider and/or UT Tyler's system prevents the student from submitting a discussion post, assignment, or quiz. The student is responsible for contacting the instructor, providing evidence of the outage and submitting any missed work within 24 hours of resolution of any system outage. **Students may request to take a comprehensive exam to replace grades of 0 for quizzes and/or to use their <u>final project draft grade</u> to replace grades of 0 for assignments, other than peer reviews and getting started activities, up to 70%. Such requests must be made by the Thursday of the 15th week of class.**

Academic Dishonesty Statement
The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrates a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment of the award of a degree, and/or the submission, as one's own work of material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

University regulations require the instructor to report all suspected cases of academic dishonesty to the Dean of Students for disciplinary action. In the event disciplinary measures are imposed on the student, it becomes part of the students' official school records. Also, please note that the handbook obligates you to report all observed cases of academic dishonesty to the instructor.

Plagiarism will not be tolerated and learners should be aware that all written course assignments will be checked by Plagiarism detection software. Violations of academic integrity will be reported and processed according the guidelines established by the University.

Student Standards of Academic Conduct
Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

    i.   "Cheating" includes, but is not limited to:
- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

    ii.   "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

    iii.   "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

    iv.   All written work that is submitted will be subject to review by plagiarism software.

University Policies and Information
For University policies and information, please see the UT Tyler Syllabus Module in Canvas.

College of Business Statement of Ethics
The ethical problems facing local, national, and global business communities are an ever-increasing challenge. It is essential the College of Business and Technology help students prepare for lives of personal integrity, responsible citizenship, and public service. In order to accomplish these goals, both students and faculty of the College of Business and Technology at The University of Texas at Tyler will:

- Ensure honesty in all behavior, never cheating or knowingly giving false information.
- Create an atmosphere of mutual respect for all students and faculty regardless of race, creed, gender, age, or religion.
- Develop an environment conducive to learning.
- Encourage and support student organizations and activities.
- Protect property and personal information from theft, damage, and misuse.
- Conduct yourself in a professional manner both on and off campus.