Instructor/TA Info

Instructor Information

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Course Information

Description

Spring 2015
Tuesdays 9-11am
Thursdays 9-11:30am
102 SWKT
IP&T 747 (Structural Equation Modeling) is an advanced statistics class focusing primarily on techniques of inferential analysis using Structural Equation Modeling with the program Mplus 7.3. We will cover: (a) confirmatory factor analysis, (b) SEM with latent variables, (c) Latent growth curve models for longitudinal data, (d) Multi-group modeling, (e) Mixture Modeling, and (f) Monte Carlo simulations in Mplus.
Required Software Mplus. This will be provided in the lab.
Required Book: Wang, J. & Wang, X. (2012) Structural equation modeling: Applications using Mplus. Wiley
To access the book free through BYU:
This link will take you to the page on the library's website. From here, you just have to click Online and then login with your BYU credentials to access the book online.
https://search.lib.byu.edu/byu/record/lee.5824379?holding=3l3o9au70a8yp2to&t_ltype=record-holding (https://search.lib.byu.edu/byu/record/lee.5824379?holding=3l3o9au70a8yp2to&t_ltype=record-holding)

Prerequisites

Multiple Regression Statistics, Knowledge of Statistical Software such as SPSS

Materials

Item	Price (new)	Price (used)
 STRUC EQUATION MODELING WITH MPLUS 3E - Required by WANG, J	113.00	84.75

Learning Outcomes

Confirmatory Factor Analysis
Mastery over doing confirmatory factor analysis in a structural equation modeling context, using the computer program Mplus.
SEM with latent variables
Mastery over structural equation modeling in the presence of latent variables using the program Mplus.
Latent Growth Curve Modeling
Gain a familiarity with longitudinal data analysis in an SEM context. Using the program Mplus.
Multigroup Modeling
Gain Mastery of multigroup modeling in an SEM context. Using the program Mplus.
Mixture Modeling
Mastery over mixture modeling in an SEM context. Using the Mplus program.
Written report
Analyze a real dataset and professionally write up the results in a professional way.

Grading Scale

Grades	Percent
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	63%
D-	60%
E	0%

Grading Policy

Because the course meets twice a week, with hands-on data analysis examples and quizzes conducted during each meeting absence from class will greatly interfere with students' ability to succeed in the class. For this reason, **each student is expected to attend all classes, carefully complete all readings in advance of class, complete all assignments on time, and actively participate in class discussion.**

Assignments

Assignment Descriptions

CFA presentation

May
12
Due: Tuesday, May 12 at 11:59 pm

Final Presentation

Jun 16 Due: Tuesday, Jun 16 at 11:59 pm

Students will prepare a short Powerpoint presentation which they share on the last day of class.

Final Project

Jun 18 Due: Thursday, Jun 18 at 11:59 pm

The individual project will consist of a write-up of a hypothesis the student has come up with and data analysis of a secondary dataset to confirm or deny that hypothesis. The project will consists of a paper (15-20pages) double-spaced, APA style where: (a) student will state hypothesis, (b) check assumptions for SEM, (e) run SEM , and (f) write a short conclusion.

University Policies

Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education and pertains to admissions, academic and athletic programs, and university-sponsored activities. Title IX also prohibits sexual harassment of students by university employees, other students, and visitors to campus. If you encounter sexual harassment or gender-based discrimination, please talk to your professor or contact one of the following: the Title IX Coordinator at 801-422-2130; the Honor Code Office at 801-422-2847; the Equal Employment Office at 801-422-5895; or Ethics Point at http://www.ethicspoint.com, or 1-888-238-1062 (24-hours).

Student Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and

instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

Academic Honesty

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

Schedule

Date	Column 1	Column 2
Week 1		
T Apr 28 Tuesday	Course Introduction	
Th Apr 30 Thursday	Model Formulation (Chapter 1)	
Week 2		
T May 05 Tuesday	Confirmatory Factor Analysis (Chapter 2)	
Th May 07 Thursday	Confirmatory Factor Analysis (Chapter 2)	
Week 3		
T May 12 Tuesday	SEM with latent variables (Chapter 3) **CFA presentation**	
Th May 14 Thursday	SEM with latent variables (Chapter 3)	
Week 4		
T May 19 Tuesday	Latent Growth Curve Models (Chaper 4)	
Th May 21 Thursday	Latent Growth Curve Models (Chaper 4)	
Week 5		
M May 25 Monday	**Memorial Day Holiday**	
T May 26 Tuesday	Multigroup Modeling (Chapter 5)	

Th May 28 Thursday	Multigroup Modeling (Chapter 5)	
Week 6		
T Jun 02 Tuesday	Mixture Modeling (Chapter 6)	
Th Jun 04 Thursday	Mixture Modeling (Chapter 6)	
Week 7		
T Jun 09 Tuesday	Monte Carlo Simulations (Chap 7)	
Th Jun 11 Thursday	Consulting on Final Projects	
Week 8		
T Jun 16 Tuesday	**Exam Preparation Day** Final Project Presentations **Final Presentation**	
Th Jun 18 Thursday	Final Exam: 102 SWKT 9:00am - 10:50am **Final Project**	