

Causal Modeling
16:300:685:01
3 Credits

Instructor: Chia-Yi Chiu	Day & Time: Wednesdays, 4:30pm -- 7:30pm
Phone Number: 848-9320832	Location: Room 208, GSE
Email: chia-yi.chiu@gse.rutgers.edu	Office Hrs: By appointment
Mode of Instruction:	
<input checked="" type="checkbox"/> Lecture	<input type="checkbox"/> Hybrid
<input type="checkbox"/> Seminar	<input type="checkbox"/> Online

Learning goals

1. The course covers path analysis, latent variables, measurement models, and structural models, specifically including confirmatory factor analysis, structural models, multi-group models, latent growth curve models, and model assessment.
2. The course offers fundamental knowledge and techniques of SEM so that students can bring home with skills required to analyze the data and evaluate the outcomes using SEM.

Course catalogue description

Introduction to structural equation modeling, including latent variables; confirmatory factor analysis; diagnosing model fit and testing alternative models; and multi-sample designs. Multilevel (or hierarchical) linear models as related to multi-sample designs (such as identifying hierarchical structures, random compared with fixed effects); variance components; and designs with repeated measurements.

Class materials/ Textbooks

1. Principles and Practice of Structural Equation Modeling by Kline (3rd Ed.)
2. LISREL Handouts

Regulations

1. The course will be taught in the computer lab, which provides the environment we need to learn LISREL. Surfing online during the classes for materials not related to the course is prohibited.
2. All students are expected to make arrangements to acquire all materials and information covered during absence from any class.

Evaluation

1. Students' attendance to the class and participation in discussions are expected.
2. There will be 2-3 LISREL assignments. They in total are worth 30% of the final grade.
3. There will be a midterm which provides me information about your understanding on the first half of the instruction. This exam is worth 30% of the final course grade.
4. Students will also be evaluated by the annotated analyses for an individual project of data analysis. The final project is worth 40% of the final course grade. Students are required to obtain data by **November 9** and have the data set IN WORKING ORDER by **November 23**. The data should be relevant to students' interest, and they are responsible for understanding the substantive issues

involved. This means all problems, missing data issues, permissions, must be resolved -- the data set must be ready for processing. The data must contain at least 200 observations and 6 variables.

5. No grades of "Incomplete" will be assigned for this course.
6. The final course grade will be determined by the homework assignments, midterm, and the quality of your final project.

Academic Integrity Policy

The Office of Student Conduct supervises issues related to violations of academic integrity (see <http://academicintegrity.rutgers.edu>). Please familiarize yourself with the university policy on academic integrity at http://academicintegrity.rutgers.edu/files/documents/AI_Policy_2013.pdf

Office of Disability Services

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Course Schedule

Tentative list of topics for discussions (by week)

Week	Topic	Assignments/ Readings	Due
1	Introduction and reviews	K1, K2, K3	
2	Path Analysis	K4, K5	
3	Introduction to SIMPLIS	LISREL Handouts	
4	Model Fit	K6	
5	Confirmatory Factor Analysis	K7	
6	Measurement and Structural Models	K8, LISREL Handouts	
7	Measurement and Structural Models	K9, LISREL Handouts	
8	<i>Midterm</i>		(10/26)
9	Mean and Latent Growth Models	K10, LISREL Handouts	
10	Mean and Latent Growth Models	K10, LISREL Handouts	Data set (11/09)
11	SIMPLIS Lab	LISREL Handouts	
12	<i>Thanksgiving Recess</i>		
13	Multi-Sample models	K11, LISREL Handouts	First analysis (11/30)
14	Multi-Sample models	K11, LISREL Handouts	
15	Final exam		Final analysis (12/14)