Longitudinal Data Analysis

OE 112

Thursday 9am – 11:45am

Instructor Stefany Coxe, Ph.D.

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NOTE: Anything on this syllabus is subject to change at the Instructors discretion.

Course Description

This course covers topics related to statistical analysis of longitudinal data, focusing on methods used in the social sciences and health research. Topics include repeated measures ANOVA, ANCOVA, mediation, multilevel modeling of longitudinal data, and latent growth modeling. You will be analyze, interpret, and write up results using these methods.

Prerequisite(s)

Graduate coursework in analysis of variance and linear regression. We will cover a variety of topics in this course, but all of them build on a basic ANOVA and regression (general linear model) framework. A course covering multivariate statistics (such as PSY 5246C) is highly recommended but it is not required.

Teaching Assistant

Our teaching assistant, Ryan Hill, will be available as an additional resource. You can contact him via email: rhill004@fiu.edu

Software

We will use SPSS / SAS the first part of the course. I expect you to be able to use one of these software packages (e.g., open datasets, transform variables, conduct simple analyses, etc.). I will teach specific procedures for this course.
We will use Mplus for latent growth models. I do not expect you to know anything about Mplus; I will cover everything you need to know about Mplus for this course.

Blackboard

Lecture notes, computer code, assignments, and other materials will be posted on Blackboard. You should bring them to class.

Textbook

Longitudinal Data Analysis: A practical guide for researchers in aging, health, & social sciences (2011), edited by Jason T. Newsom, Richard N. Jones, and Scott M. Hofer
Other readings: I will post relevant articles to Blackboard on an as-needed basis.

Assignments

Homework
Four homework assignments covering the four major topic areas of the course: *1*) ANCOVA and difference scores, *2*) Mediation, *3*) Multilevel models of change, and *4*) Latent growth models. The assignments involve running several analyses, making some decisions based on the analyses, interpreting output, and presenting the results in tables/figures and text.

Final Project
I will post several longitudinal datasets to Blackboard, along with brief descriptions of each. You will propose a project using one of these datasets. This will culminate in a short paper. I want you to focus on developing longitudinal research questions and mapping them on to appropriate longitudinal analyses. More details to follow during the semester.

You will need to turn in a 1 to 2 page proposal for your project on March 20. You will present your findings to the class on April 17. The final paper is due April 24.

Presentation
A short presentation about your final project. Though your paper should be nearly complete at this point, this should help you organize your thoughts. The purpose of this presentation is to give you practice presenting your analysis findings in a group setting. Approximately 10 to 15 minutes.

Grade Distribution

Homework 1	15%
Homework 2	15%
Homework 3	15%
Homework 4	15%
Final Project proposal	5%
Final Project presentation	10%
Final Project write-up	25%

Letter Grades

$>= 93.00$	A
90.00 - 92.99	A-
87.00 - 89.99	B+
83.00 - 86.99	B
80.00 - 82.99	B-
77.00 - 79.99	C+
73.00 - 76.99	C
70.00 - 72.99	C-
67.00 - 69.99	D+

Course and University Policies

Attendance
I shouldnt have to tell you to attend every class. This is graduate school.

Special Needs
Any student with a disability or other special need that may require special accommodations for this course should make this known to the instructor during the first week of class.
Disability Resource Center:
http://drc.fiu.edu
drcupgl@fiu.edu
Graham Center 190
(305) 348-3532

Academic Misconduct
Students at Florida International University are expected to adhere to the highest standards of integrity in every aspect of their lives. Honesty in academic matters is part of this obligation. Academic integrity is the adherence to those special values regarding life and work in an academic community. Any act or omission by a student which violates this concept of academic integrity shall be defined as academic misconduct and shall be subject to the procedures and penalties set forth herein. All students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Academic Dishonesty
Please refer to your student handbook for a description of what constitutes academic dishonesty.

Tentative Course Outline

Date	Topics	Readings	Assignment
Jan 09	Longitudinal data and research questions	NJH 1-4	
Jan 16	ANCOVA, Difference scores	NJH 5	
Jan 23	ANCOVA, Difference scores	NJH 5	
Jan 30	Statistical mediation	NJH 6	HW 1
Feb 06	Statistical mediation	NJH 6	
Feb 13	Multilevel models of change	NJH 7	HW 2
Feb 20	Multilevel models of change	NJH 7	
Feb 27	Mplus and latent growth models	NJH 9	HW 3
Mar 06	Latent growth models	NJH 9	
Mar 13	**Spring Break**		
Mar 20	Latent growth models	NJH 9	Proposal
Mar 27	Latent growth models	NJH 9	
Apr 03	Growth mixture models?		HW 4
Apr 10	Survival analysis?		
Apr 17	Presentations		Presentations
Apr 24	**Finals week**		Final paper