Research Design in Developmental Psychology
PSYC 524
Course Syllabus
Spring 2019

Section 52776D

Updated: 3 January 2019

Lecture Meeting Time:	Tu & Th 4:00 - 5:50
Room:	Kaprielian Hall (KAP), Room 137
Instructor:	Christopher R. Beam, Ph.D.
Office:	Seeley G. Mudd (SGM), Room 934
Office Hours:	Tues 9:00 - 10:30 (or by appointment)
Email:	beamc@usc.edu

1 Course Description & Overview

The focus of this course is on methodological issues associated with the study of development, broadly defined, from a life-span perspective. General areas of concern include the conceptualization of research problems, research design, measurement, and data analysis and modeling. Course goals are to promote: 1) acquisition of knowledge and skills for the formulation of research questions and study design; 2) selection of appropriate measurement devices for longitudinal studies; and 3) application of data analysis for the examination of research issues from a life-span developmental perspective.

Lecture (Tuesday) focuses on design and data analytic tools for addressing lifespan developmental questions, ranging from different longitudinal designs (e.g., panel studies, cohort sequential designs, measurement designs) and statistical approaches (e.g., growth modeling, autoregressive simplex structures, trait-state-error models, dual change score models, dynamical systems analysis, and survival modeling) using structural equation modeling and multilevel modeling approaches.

Lab practicals (Thursday) will focus on developing data analytic skills using M*plus* and R (lme4, OpenMx, and survival packages). At course end, students should be able to identify different developmental patterns in their own data, fit a variety of developmental models to settle on the most appropriate model that generated the data, and interpret model fit results and model parameters.

Singer & Willett's (2003) book *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence* will guide scheduled lectures. The book may be acquired easily through the publisher (Oxford University Press) or another online vendor. Other readings will be assigned to supplement material presented in Singer & Willett.

Although most classes will begin with a lecture, as much as possible a seminar atmosphere will be maintained in the sessions. Students are encouraged to bring research issues and data pertinent to their own interests to class for discussion and critique.

1.1 Prerequisites

Familiarity with basic statistical methods, data analytic procedures(e.g., exploratory data analysis, multiple linear regression, and logistic regression), and R is presumed.

1.2 Attendance

Student attendance is expected, but no record of attendance will be taken. Students miss a lecture or a lab practicals should consult their peers or attend office hours to clarify missed material.

1.3 Blackboard

Announcements and emails will be made via Blackboard. Routinely check the course site for updates, as all students are responsible for keeping track of all updates in this course. All grades will be posted on Blackboard. Grade discrepancies and corrections need to be made prior to registrar office's scheduled final exam date.

2 Student Evaluation

There are no formal examinations. Evaluation and course grades will be based primarily on the preparation and presentation of a research proposal emphasizing the nature of the research question, the design, and the proposed analyses using students' own data. Presentation of the research proposal will count 40%; the written report will count 60% of the course grade. Research proposals should be presented in the format of a conference presentation. Written reports should must follow APA style as though it were

being prepared for journal submission. **Final written report is due Thursday, 2 May 2019 in my box in SGM 501**

Letter grades will be assigned based on the percentage of points earned (traditional rounding rules to 2 decimal places apply):

A: $\geq 93\%$	A-: 90-92.99	
B+: 87-89.99	B: 83-86.99	B-: 80-82.99
C+: 77-79.99	C: 73-76.99	C-: 70-72.99
D+: 67-69.99	D: 63-66.99	D-: 60-62.99
F: $\leq 59.99\%$		

Late assignments will not be accepted apart from illness, emergency, or university-sponsored athletic events with acceptable documentation and approval from Dr. Beam. Late assignments that meet one of the above criteria must be turned in by a date and time approved by Dr. Beam.

3 Academic Accommodations

Any student requesting academic accommodations based on a disability is required to register with Disability Services Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in GFS 120 and is open 8:30am-5:00pm, Monday through Friday. The phone number for DSP is (213) 740-0776.

4 Academic Integrity

All students are expected to complete their own work. Violations of academic integrity (e.g., plagiarism, resource sharing) are serious and not taken lightly. For more information on Academic Integrity consult the Trojan Integrity Guide at http://www.usc.edu/student-affairs/SJACS/forms/tio.pdf. Students caught cheating (regardless of level of involvement) will automatically fail the course and a report will be filed with USC's Office of Student Judicial Affairs and Community Standards.

5 Course Schedule

A schedule of dates, topics and readings are shown below.

Date	**Topic**	**Reading**

Tu (1/8) Th (1/10)	Overview of course & Lifespan Development Lab 1: Review of R	
Tu (1/15) Th (1/17)	Exploring change over time Lab 2: Data preparation and plotting in R	S&W chs.1-2
Tu (1/22) Th (1/24)	Multilevel model for change Lab 3: Introduction to MLM in M*plus*	S&W chs.3-4
Tu (1/29) Th (1/31)	Multilevel model for change Lab 4: Linear Growth Modeling in R	S&W chs.4-5
Tu (2/5) Th (2/7)	Latent growth modeling Lab 5: Latent variable models (R & M*plus*)	S&W chs.6-7
Tu (2/12) Th (2/14)	Growth modeling with latent variables Lab 6: Latent growth models	S&W ch.8
Tu (2/19) Th (2/21)	Model fit & model selection Lab 7: Latent growth models	West, Taylor, & Wu (2012)
Tu (2/26) Th (2/28)	Stability & change models Lab 8: Trait-state-error models	Kenny & Zautra (2001)
Tu (3/5) Th (3/7)	Dual change score models Lab 9: Dual change score models (R & M*plus*)	Grimm et al. (2012)
Tu (3/12) Th (3/14)	Spring Recess Spring Recess	
Tu (3/19) Th (3/21)	Power considerations Lab 10: Power analysis (M*plus*)	TBD
Tu (3/26) Th (3/28)	Survival analysis Lab 11: Plotting survival data	S&W chs.9-10
Tu (4/2) Th (4/4)	Survival analysis Lab 12: Fitting discrete time survival models	S&W chs.11-12
Tu (4/9) Th (4/11)	Survival analysis Lab 13: Fitting continuous time survival models	S&W chs.13-14
Tu (4/16) Th (4/18)	Presentations Lab 14: Final project analyses	
Tu (4/23) Th (4/25)	Presentations Lab 15: Final project analyses	
Th (5/2)	**FINAL PAPER DUE**	