
Term Information

Effective Term Spring 2015

General Information

Course Bulletin Listing/Subject Area Psychology
Fiscal Unit/Academic Org Psychology - D0766
College/Academic Group Arts and Sciences
Level/Career Graduate
Course Number/Catalog 6822
Course Title STATISTICAL MEDIATION, MODERATION, AND CONDITIONAL PROCESS ANALYSIS
Transcript Abbreviation Med & Mod Analysis
Course Description THE APPLICATION OF PRINCIPLES OF LINEAR MODELING TO EXPLORING QUESTIONS ABOUT MEDIATED (MECHANISMS) AND MODERATED (CONDITIONAL) EFFECTS. TOPICS INCLUDE CLASSIC AND CONTEMPORARY APPROACHES TO TESTING MEDIATION AND MODERATION HYPOTHESES, PATH ANALYSIS, INDIRECT AND DIRECT EFFECTS, PROBING AND PLOTTING INTERACTIONS, AND ANALYTICALLY INTEGRATING MODERATION AND MEDIATION ANALYSIS.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 7 Week, 4 Week (May Session)
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites PREREQUISITE: 6811 (828) OR EQUIVALENT OR PERMISSION OF INSTRUCTOR
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 42.0101
Subsidy Level Doctoral Course
Intended Rank Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- STUDENTS WILL BE ABLE TO STATISTICALLY PARTITION ONE VARIABLE'S EFFECT ON ANOTHER INTO ITS TWO PRIMARY PATHWAYS OF INFLUENCE: DIRECT AND INDIRECT
- STUDENTS WILL UNDERSTAND HISTORICAL AND MODERN APPROACHES TO INFERENCE ABOUT INDIRECT EFFECTS IN CAUSAL MODELS
- STUDENTS WILL KNOW HOW TO TEST COMPETING THEORIES OF MECHANISMS STATISTICALLY THROUGH A COMPARISON OF INDIRECT EFFECTS IN MODELS WITH MULTIPLE MEDIATORS
- STUDENTS WILL HAVE ACQUIRED AN UNDERSTANDING OF HOW TO BUILD FLEXIBILITY INTO A REGRESSION MODEL THAT ALLOWS A VARIABLE'S EFFECT TO BE A FUNCTION OF ANOTHER VARIABLE IN A MODEL
- STUDENTS WILL UNDERSTAND HOW SCALING OF VARIABLES INFLUENCE PARAMETER ESTIMATES AND THEIR INTERPRETATION
- STUDENTS WILL HAVE THE ABILITY TO VISUALIZE AND PROBE INTERACTIONS IN REGRESSION MODELS
- STUDENTS WILL BE ABLE TO TEST HYPOTHESES INVOLVING MULTIPLE MODERATORS OF A VARIABLE'S EFFECT
- STUDENTS WILL HAVE LEARNED HOW TO INTEGRATE MODELS INVOLVING MODERATION AND MEDIATION INTO A COMBINED ANALYTICAL MODEL
- STUDENTS WILL KNOW HOW TO ESTIMATE THE CONTINGENCIES OF MECHANISMS THROUGH THE COMPUTATION AND INFERENCE ABOUT CONDITIONAL INDIRECT EFFECTS
- STUDENTS WILL BE ABLE TO DETERMINE WHETHER A MECHAISM IS DEPENDENT ON ANOTHER VARIABLE IN A CAUSAL SYSTEM

Content Topic List

- REVIEW OF LINEAR REGRESSION PRINCIPLES
- PATH ANALYSIS: DIRECT, INDIRECT, AND TOTAL EFFECTS
- ESTIMATION AND INFERENCE IN SINGLE MEDIATOR MODELS
- ESTIMATION AND INFERENCE IN MULTIPLE MEDIATOR MODELS
- MEDIATION ANALYSIS WITH MULTICATEGORICAL CAUSAL AGENTS
- EFFECT SIZE MEASURES FOR DIRECT AND INDIRECT EFFECTS
- INTERACTION/MODERATION IN LINEAR MODELS
- PROBING AND VISUALIZING INTERACTIONS
- THE EFFECTS OF VARIABLE SCALING ON INFERENCE AND INTERPRETATION
- INTERACTION IN COMPLEX MODELS WITH MULTIPLE MODERATORS
- MODELING CONDITIONAL PROCESSES—“MODERATED MEDIATION”
- QUANTIFICATION AND INFERENCE ABOUT CONDITIONAL INDIRECT EFFECTS
- TESTING A MODERATED MEDIATION HYPOTHESIS
- COMPARING CONDITIONAL INDIRECT EFFECTS
- “MEDIATED MODERATION”—THE CONCEPT AND ITS PROBLEMS
- WRITING ABOUT MEDIATION AND MODERATION ANALYSIS

Attachments

- PSYCH 6822 syllabus.doc: syllabus

(Syllabus. Owner: Paulsen, Alisa Marie)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Paulsen, Alisa Marie	10/28/2013 05:41 PM	Submitted for Approval
Approved	Vasey, Michael William	10/30/2013 10:49 AM	Unit Approval
Approved	Haddad, Deborah Moore	10/30/2013 11:26 AM	College Approval
Pending Approval	Hanlin, Deborah Kay Hogle, Danielle Nicole Jenkins, Mary Ellen Bigler Nolen, Dawn Vankeerbergen, Bernadette Chantal	10/30/2013 11:26 AM	ASCCAO Approval

PSYCH 6822

Mediation, Moderation, and Conditional Process Analysis

Spring 2015

Psychology Building 35, TR 11:30 to 12:50

This is an interdisciplinary data analysis seminar focused on the application of principles of linear modeling in the context of linear regression analysis to exploring questions about mediated (i.e., indirect) and moderated (i.e., interaction) effects. We will spend part of the course talking about partitioning effects into direct and indirect components and how to quantify and test hypotheses about indirect effects, part talking about estimating, testing, and probing interactions in linear models, and part integrating moderation and mediation as “conditional process analysis” by discussing and how to conceptualize and test the contingencies of a mechanism (“moderated mediation”) and whether moderated effects are mediated (mediated moderation). Computer applications will focus on SPSS and SAS using off-the-shelf code and various macros that facilitate the analysis. It is assumed that you have taken a course in multiple regression and have done well or are otherwise comfortable with the principles of multiple regression analysis (a review of this principles will be offered in the first week of class). No knowledge of matrix algebra is required or assumed.

Instructor

Dr. Andrew F. Hayes
Office: Lazenby 230
Office hours: TR 3:00-5:00

Email: hayes.338@osu.edu
Phone: 614-688-3027
WWW: www.afhayes.com

Learning Objectives

By the end of this course, you will...

- be able to statistically partition one variable’s effect on another into its primary pathways of influence, direct and indirect.
- understand historical and modern approaches to inference about indirect effects in causal models.
- know how test competing theories of mechanisms statistically through the comparison of indirect effects in models with multiple mediators
- acquire an understanding of how to build flexibility into a regression model that allows a variable’s effect to be a function of another variable in a model.
- understand how scaling of variables influence parameter estimates and their interpretation.
- have the ability to visualize and probe interactions in regression models.
- be able to test hypotheses involving multiple moderators of a variable’s effect.
- have learned how to integrate models involving moderation and mediation into a combined analytical model.
- have learned how to estimate the contingencies of mechanisms through the computation and inference about conditional indirect effects.
- know how to determine whether a mechanism is depending on a moderator variable.
- be able to apply the methods discussed in this course using readily-available statistical software
- be in a position to talk and write in an informed way about the mechanisms and contingencies of causal effects.

Required Readings and Other Materials

- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Various readings in PDF form available through the university's online library reserve
- Access to a recent version of SPSS or SAS. Ideally, this would be installed on a laptop computer that you bring with you to class every day. See <http://ocio.osu.edu/software/directory/slwin/#spss> (Windows) or <http://ocio.osu.edu/software/directory/slmac/#spss1103> (Mac) for information about access to SPSS through the OSU license.

Evaluation

Your grade will be calculated based on a weighting of three components ranging between 0 and 100, using the weighting below. Grading scale: 92+ = A; 89-91: A-; 82-88 = B+; 75-81 = B; 70-74 = B-; 65-69 = C+; 60-64 = C; 50-59 = C-; 45-49 = D+; 40-45 = D; <40 = E. I do not “curve” my grading. The formula for derivation of your course grade is

$$\text{Grade} = 0.60(\text{Data Analysis Project}) + 0.30(\text{Exercises}) + 0.10(\text{Attendance})$$

Each component of this grade is described below.

Data Analysis Project (60%)

Sixty percent of your grade will be based on a data analysis project that you complete using either your own data or data available to you through an advisor or through a public archive. This assignment is detailed on a separate handout to be distributed. It will require you to demonstrate an understanding of the three main topics of this course (mediation, moderation, and conditional process analysis) in the form of a method and results section formatted as it would be if you were submitting the paper to a conference or journal. You should also include enough background material in an introductory section for me to understand the substantive purpose of the study. Although length will vary from student to student depending on the complexity of the analysis conducted and the findings, anticipate turning in a document that is in the neighborhood of 15 to 20 pages including tables and figures. More than this is acceptable, but if you turn in less than this, most likely you have not been as thorough as I intend you to be. In addition to the paper, you should turn in a set of PowerPoint slides summarizing the analysis and findings, as if you were presenting these findings at an academic conference. Your project (which includes both the paper and the PowerPoint slides) will be graded on a scale from 0 to 100.

The paper and your PowerPoint slides are due on the day the registrar has scheduled the final exam: Tuesday May 5th at 11:30AM. On the day of the final, four students will be asked to volunteer to give a short presentation of their findings to the class (using the PowerPoint presentation). If four do not volunteer, the remaining presenters will be randomly selected. The oral presentation is not graded but you are expected to do it if called upon. Volunteers are appreciated. Food will be provided to the class during this “mini-conference” to create a festive atmosphere during this last meeting that closes the semester.

The project must be completed independently, without consulting with other students or your faculty advisor when it is being prepared. All writing must be your own. You should not cut and paste any material (such as method sections or introductions) you have already published in a journal or presented at an academic conference into your final paper unless you are the sole author of that work. Furthermore, you cannot turn in material you have submitted for credit in another course or have already published. If I am suspicious that you have violated this rule, I will turn all relevant material to the Committee on Academic Misconduct for investigation.

Consider this data analysis project an opportunity to get a head start on your next conference deadline. Some papers that have come out of past variations on this course in response to this assignment have been presented at academic conferences and eventually published.

Exercises (30%)

At five times throughout the semester you will be given a small set of exercises to complete outside of class. These exercises will usually include a data set of some kind along with two or three questions you are asked to answer using these data and principles you have learned in the class to this point. The primary purpose of these exercises is to make sure you are comfortable with the mechanics of the methods of analysis discussed in this class and how to interpret. These exercises are worth a combined 30% of your grade. Expect to spend between 1 and 2 hours on each assignment, which will include a combination of data analysis, interpretation, and writing. The length of the document you turn in will depend in part on how much of your answer takes the form of tables, figures, and computer output but you can expect to produce between 2 and 3 pages per exercise. Each assignment will be graded on a scale from 0 to 100, and the exercise component of your course grade will be the arithmetic average across the five assignments.

Attendance (10%)

You are expected to attend class regularly. Your grade on the data analysis project will be based in part on a holistic impression as to how well you dedicated yourself to learning this material and how well that learning translated into a professional, academic product. Part of this effort and dedication is attending class and contributing to the intellectual environment of your fellow students. Attendance will be taken at the beginning of class, and it is worth 10% of your course grade. I understand that graduate students are juggling many responsibilities, and perfect attendance is not required in order to earn the complete 10% of the grade. Attendance record keeping will begin the second week of classes. There are **26** meetings scheduled between weeks 2 and 14. Your attendance component of the grade will be the percentage of **24** of these meetings that you attend. Thus, you can miss up to two classes without affecting your attendance component of the course grade.

Policies

Late or Absent Assignments

Course exercises and the data analysis project will not be accepted late without penalty, unless you can document that an unforeseen circumstance prevented you from turning in the assignment on time. An unforeseen circumstance is something just prior to the due date that you did not anticipate and could not control. A failure to turn any course assignment on time will result in a penalty of 5 points off your grade for that assignment for each 12 hours it is late.

Academic Misconduct

By faculty Rule 3335-5-487, "...it is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic

misconduct. The term ‘academic misconduct’ includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee.” Some examples of misconduct in this course are:

- Giving or receiving unauthorized assistance to or from other students in the class on any course assignment.
- Working together on assignments unless permission to do so is granted by the instructor.
- Submitting another student’s work, either whole or in part, as if it were your own work.
- Copying information from a web page (such as Wikipedia), book, journal article, or other reference (such as an empirical journal article) and submitting it as your own words and/or without proper acknowledgment (via referencing, quotations as appropriate, and so forth)

Violations of the Code of Student Conduct in this class, especially pertaining to academic misconduct, will be aggressively prosecuted through the procedures the university has set up to deal with violations of the Code. If I believe you have violated the Student Code, your case will be referred to the Committee on Academic Misconduct (see <http://oaa.osu.edu/coam.html>). Make sure that you are understand the Code of Student Conduct, and familiarize yourself with “Ten Suggestions for Preserving Academic Integrity” available online at <http://oaa.osu.edu/coamtensuggestions.html>. A common sanction for violation of the academic section of the Code of Student Conduct by graduate students is failure in the course and suspension from the university. Repeat offenses and especially egregious violations of the Code can result in dismissal from the University.

The Code of Student Conduct can be found at <http://studentaffairs.osu.edu/csc/>.

Cell Phones and General Politeness

A ringing cell phone is annoying and a distraction to the instructor and others in the room. Please be respectful of those around you by turning off your cell phone prior to the start of class. If you anticipate that you will need to leave class early, please select a seat near the edge of a row or in the front of the room to avoid disrupting others when you leave. To maintain an atmosphere conducive to learning, please be courteous to other members of the class and treat them with the dignity and respect that you expect from others.

Use of Electronic Mail

There may be occasions where I will need to get in touch with you outside of regular class hours. Email will usually be the first means by which contact will be initiated. It is important that you check your OSU email account regularly, and make sure you purge your account of unneeded email so that new email can get through. If you do not use your OSU email address as your primary email account, please arrange to have your OSU email forwarded to your preferred account. For email forwarding, go to <https://my.osu.edu/>

Emergencies

In the event of an emergency, please carefully follow the directions of the teaching staff or, if deemed prudent by your own judgment, contact 911 or the University Police at 292-2121.

Tentative Nature of this Syllabus

Events that transpire over the term may, in rare circumstances, require me to modify the administration of this course and therefore the syllabus. In the event I need to modify the syllabus, I will announce the

modification in class and on CARMEN. Ultimately, it is your responsibility to keep up with any such modifications and be aware of current policies, deadlines, etc.

Students with Special Needs

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901, www.ods.ohio-state.edu

Schedule of Lectures and Readings

A schedule of lecture topics and corresponding reading is below, along with due dates for the course exercises. You are encouraged to read everything more than once and/or read ahead to enhance your learning and retention. Note that I will not and do not agree with every point presented by every author of every article below, and some of the perspectives articulated are somewhat dated or otherwise not guided by the most recent thought of experts in this area. This is to be expected, and there are many areas of disagreement in statistical methodology. This is what makes statistical methodology an exciting discipline to study.

UNIT 1: OVERVIEW AND REVIEW OF REGRESSION CONCEPTS

T Jan 13 **Course introduction**

Reading

Hayes, A. F. (2013), Chapter 1

Skim one or more of these of your choosing:

Breitborde, N. J. K., Srihari, V. H., Pollard, J. M., Addington, D. N., & Woods, S. W. (2010). Mediators and moderators in early intervention research. *Early intervention in Psychiatry, 4*, 143-142.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator distinction in social psychological research. Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Fairchild, A. J., McQuillin, S. D. (2010). Evaluating mediation and moderation effects in school psychology: A presentation of methods and review of current practice. *Journal of School Psychology, 48*, 53-84.

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology, 51*, 115-134.

Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599-610.

MacKinnon, D. P., & Luecken, L. J. (2008). How and for whom? Mediation and moderation in health psychology. *Health Psychology, 27*, S99-S100.

Magill, M. (2011). Moderators and mediators in social work research: Toward a more ecologically valid evidence base for practice. *Journal of Social Work, 11*, 387-401.

R 15 Jan **The simple regression model**

Hayes, A. F. (2013), Chapter 2

T 20 Jan **The multiple regression model**

Hayes, A. F. (2013), Chapter 3

UNIT 2: STATISTICAL MEDIATION ANALYSIS

R 22 Jan **Path analysis in the simple mediation model**

Hayes, A. F. (2013), Chapter 4, pp. 85-100.

T 27 Jan **An Introduction to PROCESS for SPSS and SAS**

Hayes, A. F. (2013), Appendix A.

R 29 Jan **Inference for indirect and direct effects: Analytical methods**

Hayes, A. F. (2013), Chapter 4, pp. 100-105.

MacKinnon, D. P., & Fritz, M. S., & Williams, J. & Lockwood, C. M. (2007). Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. *Behavior Research Methods, 39*, 384-389.

T 3 Feb **Inference for indirect effects: Simulation-based methods**

Hayes, A. F. (2013), Chapter 4, pp. 105-122, Chapter 6, pp. 165-172.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*, 717-731.

Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures, 6*, 77-98.

R 5 Feb **The parallel multiple mediator model**

Hayes, A. F. (2013), Chapter 5, pp. 123-140, 156-159.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling methods for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.

T 10 Feb **Contrasts between indirect effects in parallel models (EXERCISE #1 due)**

Hayes, A. F. (2013), Chapter 5, pp. 140-143.

MacKinnon, D. P. (2000). Contrasts in multiple mediator models. In J. Rose, L. Chassin, C. C. Presson, & S. J. Sherman. (Eds.). *Multivariate applications in substance use and research: New methods for new questions* (pp. 141-160). Mahwah, NJ: Lawrence Erlbaum Associates.

R 12 Feb **The serial multiple mediator model**

Hayes, A.F. (2013), Chapter 5, pp. 143-156.

Taylor, A. B., MacKinnon, D. P., & Tein, J. Y. (2008). Tests of the three-path mediated effect. *Organizational Research Methods*, 11, 241-269.

T 17 Feb **Multicategorical causal agents**

Hayes, A. F., & Preacher, K. J. (in press). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*.

R 19 Feb **Confounding and causal order**

Hayes, A. F. (2013), Chapter 6, pp. 172-183.

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, 1, 173-181.

T 24 Feb **Effect size**

Hayes, A. F. (2013), Chapter 6, pp. 184-193.

Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, 16, 93-115.

R 26 Feb **Structural equation modeling versus OLS-based methods**

Reading, A. F. (2013), Chapter 5, pp. 159-162.

Lau, R. S., & Cheung, G. W. (2012). Estimating and comparing specific mediation

effects in complex latent variable models. *Organizational Research Methods*, 15, 3-16.

Cheung, G. W., & Lau, R. S. (2008). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods*, 11, 296-325.

UNIT 3: MODERATION ANALYSIS

T 3 Mar **Conditional and unconditional effects in regression models (EXERCISE #2 due)**

Hayes, A. F. (2013). Chapter 7, pp. 207-219.

R 5 Mar **The simple moderation model**

Hayes, A. F. (2013). Chapter 7, pp. 219-230.

T 10 Mar **Visualizing and probing interactions**

Hayes, A. F. (2013). Chapter 7, pp. 231-244.

Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research*, 40, 373-400. (stop at page 387)

Hayes, A. F., & Matthes, J. (2009). Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. *Behavior Research Methods*, 41, 924-936. (R)

R 12 Mar **Continuous variables as moderators**

Hayes, A. F. (2013). Chapter 8, pp. 245-271.

SPRING BREAK

T 24 Mar **Simple and main effects parameterizations with categorical predictors**

Hayes, A. F. (2013). Chapter 8, pp. 271-280.

R 26 Mar **Truths and myths about variable scaling (EXERCISE #3 DUE)**

Hayes, A. F. (2013). Chapter 9, pp. 281-300.

Echambadi, R., & Hess, J. D. (2007). Mean-centering does not alleviate collinearity problems in moderated multiple regression models. *Marketing Science*, 26, 438-445.

Hayes, A. F., Glynn, C. J., & Huges, M. E. (2012). Cautions in the interpretation of coefficients and hypothesis tests in linear models with interactions. *Communication Methods, and Measures*, 6, 1-12.

Irwin, J. R., & McClelland, G. H. (2001). Misleading heuristics and moderated regression models. *Journal of Consumer Research*, 38, 100-109.

Kromrey, J. D., & Foster-Johnson, L. (1998). Mean centering in moderated multiple regression: Much ado about nothing. *Educational and Psychological Measurement*, 58, 42-67.

T 31 Mar **Multicategorical moderators**

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage. Chapter 7, pp. 116-131.

R 2 Apr **Multicategorical causes**

Aiken, L. S., and West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage. Chapter 7, pp. 132-138.

T 7 Apr **Moderated moderation (three-way interaction)**

Hayes, A. F. (2013), Chapter 8, pp. 300-315

Aiken, L. S., and West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage. Chapter 4, pp. 49-61.

Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology*, 91, 917-926.

UNIT 4: CONDITIONAL PROCESS ANALYSIS

R 9 Apr **Principles of conditional process analysis (EXERCISE #4 DUE)**

Hayes, A. F. (2013), Chapter 10, pp. 325-338.

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, 12, 1-22.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Assessing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185-227.

T 14 Apr **The first-stage moderated mediation model**

Hayes, A. F. (2013), Chapter 10, pp. 338-355.

R 16 Apr **Mediated moderation as a first-stage moderated mediation model**

Hayes, A. F. (2013), Chapter 11

Morgan-Lopez, A., & MacKinnon, D. P. (2006). Demonstration and evaluation of a method for assessing mediated moderation. *Behavior Research Methods*, 38, 77-89.

T 21 Apr **The second stage moderated mediation model and more complex models**

Hayes, A. F. (2013), Chapter 12 (through p. 412).

Hayes, A. F., & Preacher, K. J. (2013). Conditional process modeling: Using structural equation modeling to examine contingent causal processes. To appear in Hancock, G. R., & Mueller, R. O. (Eds.), *Structural equation modeling: A second course* (2nd Ed). Greenwich, CT: Information Age Publishing.

R 23 Apr **Writing about mediation, moderation, and conditional process analysis (EXERCISE #5 due)**

Hayes, A. F. (2013), Chapter 6, pp. 198-202; Chapter 9, pp. 315-320; Chapter 12, pp. 412-415.

T 5 May **Data analysis project due, 11:30AM. Student presentations/“mini-conference.”**