SPRING 2022

Seminar in Special Topics in Mass Communication
MEJO 890.003

Advanced Statistics for Social Sciences

This course follows MEJO 704 Statistics for Social Sciences as an advanced level of application of statistical tests, with special emphasis on how to analyze research designs that involve mediating and moderating variables. Lessons include the analysis and interpretation of interactions (moderation) in ANOVAs and linear regressions, regression-based serial and parallel mediation, and more complex models that include both moderators and mediators. Discussions focus on the operational definition of variables and judgment for selecting the most appropriate analysis for the research question and design. Analyses will be primarily conducted with SPSS as the statistical platform, although some hand calculations will be required. By the end, students will be equipped to review quantitative results of research articles, understand how to select the best type of test depending on the hypothesis, and be prepared to expand their current knowledge base in applied statistics.

Spring 2022 Semester Information

Professor: Francesca Dillman Carpentier
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Class Hours: Mon/Wed 12:30pm-1:45pm
Class Location: Carroll Hall Rm 338 or above Zoom link

Site URL: https://sakai.unc.edu/portal/site/mejo890003sp22

Course Text:

Hayes, A. F. (2013 1st edition or 2017 2nd edition). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: The Guilford Press.

Suggested Additional Texts:

Hayes, A. F. (2005). Statistical methods for communication science. Mahwah, NJ: Erlbaum. (precursor to the book we're using, goes more into depth with mathematics)

Weber, R., & Fuller, R. (2013). Statistical Methods for Communication Researchers and Professionals. First Edition. Dubuque, IA: Kendall Hunt. (good for applications to communication field)

Kranzler, J.H. (2007). Statistics for the terrified, 4th edition. Upper Saddle River, NJ: Pearson Education, Inc. (great introductory primer in paperback, with SPSS examples)

Stockburger, D. Introductory Statistics: Concepts, Models, and Applications. (comprehensive, contains SPSS examples, available free at http://www.psychstat.missouristate.edu/introbook/sbk00.htm)

StatSoft Electronic Textbook (a bit advanced, available free at http://www.statsoft.com/textbook/)

HyperStat Online (simpler, goes through ANOVA and Chi-Square, available free at http://davidmlane.com/hyperstat/)

Sign up for free at Code School to learn free statistics program R at http://www.codeschool.com/courses

Your work will require use of the SPSS statistical package on a computer for data entry and/or data analysis—unless you prefer to use R. Use of R is welcome as an alternate statistical analysis program for homework and tests.

If using SPSS, you may either use your own SPSS software that you have purchased through UNC or on your own, or you may use your own laptop to gain SPSS access through UNC's Virtual Lab—use your UNC wireless Internet connection and ONYEN to sign on and access SPSS at https://virtuallab.unc.edu/.

Attendance Policy:

Attendance is not recorded nor is it factored into the final grade. Please use good judgment in your own attendance. There are also no make-ups or acceptance of late assignments, in-class exercises, or tests.

Late Tests/Assignments:

There will be no make-ups or acceptance of late assignments, in-class exercises, or tests.

Grading:

Grades in this graduate-level seminar are intended to offer feedback on your performance. Grades are based on the qualitative descriptions below and are informed by the percentage correct on individual assignments and tests. Percentages are used as a general guide to help define an H (high pass), P (pass), L (low pass) and F (fail):

F (fail) = Fail, similar to a 59% or below (an "F")
L (low pass) = Inadequate graduate work, similar to a 60-69% (a "D" grade)
P (pass) = Entirely satisfactory graduate work, similar to a 70-96% (an "A," "B" or "C")
H (high pass) = Inspiring as well as clear excellence, similar to a 97-100% (an "A+" grade)

Course Goals

The Hussman School of Journalism and Media's accrediting body outlines a number of values you should be aware of and competencies you should be able to demonstrate by the time you graduate from our program. Click here to learn more.

No single course could possibly give you all of these values and competencies, but collectively, our classes are designed to build your abilities in each area. In this class, the following values and competencies are specifically addressed:

- Conduct research and evaluate information by methods appropriate to the communications professions in which they work.
- Apply basic numerical and statistical concepts.

Honor Code:

It is expected that each student in this class will conduct him/herself within the guidelines of the Honor System (http://honor.unc.edu). All academic work should be done with the high level of honesty and integrity that this University demands. If you have any questions about your responsibility or your instructor's responsibility as a faculty member under the Honor Code, please feel able to see the course instructor, speak with the senior associate dean of undergraduate studies in this school, and/or speak with a representative of the Student Attorney Office or the Office of the Dean of Students.

Seeking Help

If you need individual assistance, it is your responsibility to meet with the instructor. If you are serious about wanting to improve your performance in the course, the time to seek help is as soon as you are aware of the problem, whether the problem is difficulty with course material, a disability, or an illness. Please feel able to contact the course instructor as soon as you perceive any warning signs of things that might adversely affect your class performance or final grade.

Diversity

The University's policy on Prohibiting Harassment and Discrimination is outlined in the 2011-2012 Undergraduate Bulletin at http://www.unc.edu/ugradbulletin/. UNC is committed to providing an inclusive and welcoming environment for all members of our community and does not discriminate in offering access to its educational programs and activities on the basis of age, gender, race, color, national origin, religion, creed, disability, veteran's status, sexual orientation, gender identity, or gender expression.

In this course, you are encouraged to represent diverse populations, diverse viewpoints, and diversity of perspective in your own work. You are also asked to be sensitive to the various backgrounds, perspectives, origins, and situations represented by the students in the course, the students, faculty, and staff at this university, and the residents of this state.

Special Needs

The University of North Carolina – Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in difficulties with accessing learning opportunities.

All accommodations are coordinated through the Accessibility Resources and Service (ARS) Office. In the first instance please visit their website at http://accessibility.unc.edu, call the

office at 919-962-8300, or email accessibility@unc.edu. A student is welcome to initiate the registration process at any time. However, the process can take time. ARS is particularly busy in the run-up to Finals and during Finals. Students submitting Self-ID forms at that time are unlikely to have accommodations set until the following semester.

Please contact ARS as early in the semester as possible..

Grading Criteria

Assignments (75%):

Assignments are graded for accuracy and thoroughness. Percentage correct is the basis for these grades, with additional adjustments reflecting completion and thoroughness.

As many of these assignments require use of statistical analysis software on a computer, you are encouraged to either (1) gain SPSS access through purchasing your own SPSS program copy or using an Internet connection to access SPSS from Virtual Lab, https://virtuallab.unc.edu/), or (2) gain access and use R (specific instruction in R will not be provided in this course, however).

Final Exam (Take-Home) (25%):

There is one comprehensive take-home exam with no make-up opportunity. This exam is worth 25% of the total course grade.

This exam and its supporting data set will be made available through the course Sakai site before the semester is over and will be due during the final exam period scheduled by the University. This is an open-book, open-notes exam involving the creation of a results section of an article based on a given data set and hypotheses. Lecture material, homework, and print and online sources may be used as reference. However, this exam is closed-person—you may not seek the assistance of other members of the course, tutors, teachers, or other live assistance from anyone but the instructor of record for this course. This said, you are strongly encouraged to ask the instructor for help or clarification for any questions you might have on the final take-home exam.

Tentative Course Schedule (subject to change)

DAY	LESSON	TOPIC	READINGS
10 Jan	Simple Linear Regression	Introduction	In this class, we will not cover measurement assessments such as Cronbach's alpha or other reliability measures. However, I invite you to refresh your memory this evening, starting by reading this short online chapter on Reliability and Validity. This article specific to the hospitality industry is also useful for a basic overview of psychometric considerations.
12 Jan	Simple Linear Regression	Conducting in SPSS	(none)
17 Jan	NO CLASS	MLK DAY	
19 Jan	Multiple Linear Regression	Introduction	(none)
24 Jan	Multiple Linear Regression	Conducting in SPSS	(none)
26 Jan	Multiple Linear Regression	Multicollinearity	Before next class, read this introduction to what a factor analysis is. More in-depth introduction to what a factor analysis is (read this second).
31 Jan	Factor Analysis	Introduction	As we continue practicing, this is a good reminder of what steps to take in SPSS. Here's an explanation of rotations, which we cover in the next class.

2 Feb	Factor Analysis	Rotations and Loadings	I like this electronic journal article for its simplicity in laying out the differences between factor analysis choices. Also, read this quick note about how you can use and abuse factor analyses.
7 Feb	Factor Analysis	PCA vs PA	(none)
9 Feb	Hierarchical Linear Regression	Introduction in SPSS	For next class, start reading Hayes' chapter on The Simple Mediation Model – the first three sections up through the example with Dichotomous X.
14 Feb	Simple Mediation Analysis	Introduction	Finish Hayes' chapter on The Simple Mediation Model – up through the Chapter Summary.
16 Feb	Simple Mediation Analysis	In PROCESS	(none)
21 Feb	Simple Mediation Analysis	Practice	Read Hayes' chapter on More than One Mediator (Multiple Mediator Models) – the first three sections from The Parallel Multiple Mediator Model through Statistical Inference.
23 Feb	Multiple Mediators	Parallel Mediation	Finish Hayes' chapter on More than One Mediator (Multiple Mediator Models) – up through the Chapter Summary.
28 Feb	Multiple Mediators	Serial Mediation	Read Hayes' chapter in the 2nd edition book called Causal Steps, Confounding, and Causal Order (in the 1st edition, it's called Miscellaneous Topics in Mediation Analysis) – read the whole thing. Next class, we will be talking about

			reporting mediation. Here are some examples of reporting mediation analyses: Ophir, Y., Brennan, E., Maloney, E. K., & Cappella, J. N. (2017). The effects of graphic warning labels' vividness on message engagement and intentions to quit smoking. *Communication Research*, 0093650217700226. Cooper, D. K., Keyzers, A., Jenson, E. J., Braughton, J., Li, Y., Ausherbauer, K., & Harris, S. M. (2018). Stress, Couple Satisfaction, and the Mediating Role of Couple Sexuality in Relationship Wellness. *Journal of Family & Consumer Sciences*, *110*(3), 32-38. Barnidge, M. (2015). The role of news in promoting political disagreement on social media. *Computers in Human Behavior*, *52*, 211-218.
2 Mar	Multiple Mediators	Considerations and Reporting	Read Hayes' chapter on the Fundamentals of Moderation Analysis – the first three sections up through Visualizing Moderation.
7 Mar	Moderation in Regression	Introduction	Finish Hayes' chapter on the Fundamentals of Moderation Analysis – up through Chapter Summary.
9 Mar	Moderation in Regression	Simple Slope Analysis	Read Hayes' chapter on Extending (the Fundamental) Moderation Analysis Principles – the first three sections from Moderation with a Dichotomous Moderator up through Hierarchical versus Simultaneous Entry.
14 Mar 16 Mar	NO CLASS	SPRING BREAK	
21 Mar	Moderation in Regression	Practice	(none)
23 Mar	Dichotomous	Introduction	Finish Hayes' chapter on Extending (the

	Moderators		Fundamental) Moderation Analysis Principles – up through Chapter Summary.
28 Mar	Dichotomous Moderators	Practice	Read Hayes' chapter in the 2nd edition called Some Myths and Additional Extensions of Moderation Analysis (in the 1st edition, it's called Miscellaneous Topics in Moderation Analysis) – read the whole thing.
30 Mar	Dichotomous Moderators	Considerations	Read Hayes' chapter on the Fundamentals of Conditional Process Analysis – the first three sections up through Example: Hiding Your Feelings from Your Work Team.
4 Apr	Conditional Process Analysis	Introduction	Finish Hayes' chapter on the Fundamentals of Conditional Process Analysis – up through Chapter Summary.
6 Apr	Conditional Process Analysis	Indirect Effects	Read Hayes' chapter on Further Examples of Conditional Process Analysis – the whole thing.
11 Apr	Conditional Process Analysis	Practice with Mediation and Moderation	In preparation for using categorical variables in regression analyses, read about different ways of coding variables for regressions. Next two classes, we will be doing a fast walk through Hayes' Ch. 6, Mediation Analysis with a Multicategorical Antecedent and Ch. 10 Multicategorical Focal Antecedents and Moderators from the 2nd edition of his book.
13 Apr	Multicategorical Variables in Regression	(Re)coding for Regression	(none)

18 Apr	Multicategorical Variables in Regression	As Antecedents	This is the article by Hayes & Preacher (2014) that outlines use of a categorical independent variable in a mediation analysis.
20 Apr	Multicategorical Variables in Regression	As Moderators	Consider perusing this or any other handy information on ANOVAs to refresh your memory.
25 Apr	ANCOVAs	Overview ASSIGNMENT 8 due at start of class today.	It might be a good idea to read Hayes' section called "Effect Size" found in the 2nd edition book's chapter on Causal Steps, Confounding, and Causal Order (in the 1st edition, it's called Miscellaneous Topics in Mediation Analysis) to refresh your memory of effect sizes. I would also suggest this article on effect sizes.
27 Apr	Review	General Review	FINAL EXAM (take-home) officially assigned today, covering a measures section and application of moderation and mediation.
Final	Final Exam	DUE THURSDAY MAY 5 BY 8:00AM	TURN IN FINAL EXAM ELECTRONICALLY AND/OR BY PAPER to Sakai classroom dropbox or instructor school email or mailbox