Seminar in Special Topics
in Mass Communication
MEJO 890.002

This course follows MEJO 704 Statistics for Social Sciences as an advanced level of application of statistical tests, with special emphasis on how to address hypotheses and research questions typical of quantitative social science research designs. Lessons include the evaluation of multi-item measures with basic psychometric analyses, calculation and interpretation of interactions in ANOVAs and linear regressions, simple regression-based mediation analyses and interpretation, and practice with analyzing within-subject research designs. Discussions focus on the operational definition of concepts as variables, mediation and moderation, and judgment for selecting the most appropriate analysis for the research question and variables.

This course is rooted in practice with real data sets using SPSS as the statistical platform. 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 2019 Semester Information

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Class Hours: TR 8:00am-9:15am
Classroom: Carroll Hall Rm 340A

Course Text:

Hayes, A. F. (2013). 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 70-94% (an "A," "B" or "C")
> H (high pass) = Clear excellence, similar to a 95-100% (an "A+" grade)

Course Goals

The School of Media and Journalism'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:
- Understand concepts and apply theories in the use and presentation of images and information.

- Conduct research and evaluate information by methods appropriate to the communications professions in which they work.
- Critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness.
- 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 30% 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	TO DO AFTER CLASS
1/10	Lesson 1	Review *Types of data (e.g., nominal, ordinal, interval, ratio) Parametric versus nonparametric data, what variance means*	Refresh your memory this evening 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.
1/15	Lesson 2	Reliability *Correlation and covariance, random and systematic error, average inter-item correlation; average item-total correlation, split-half correlation; Cronbach's alpha*	Before next class, read this super simple introduction to what a factor analysis is. More in-depth introduction to what a factor analysis is (and so you should read this second). ASSIGNMENT 1: Start homework on calculating inter-item correlations, an average inter-item correlation between items of a measure, and a Cronbach's alpha of that measure. Due in two class periods.
1/17	Lesson 3	Exploratory Factor Analysis *Accounting for variance, unique and shared variance, eigenvalues, extraction, principal components*	As we continue practicing, this is a good reminder of what steps to take in SPSS. Here's also another super simple take on rotations, which we cover in the next class.
1/22	Lesson 3	Exploratory Factor Analysis *orthogonal and related factors, rotations, factor loadings* ASSIGNMENT 1 due at start of class today.	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.
1/24	Lesson 3	Exploratory Factor Analysis *Principal Component*	For next class, reach Hayes' first introductory chapter (the whole thing) on

		Analysis (PCA) versus Principal Axis factor analysis	research questions, correlation, causation, and statistical modeling, and variables.
		A bit on reporting *Internal consistency, (uni)dimensionality, central tendency and variation descriptives, zero-order correlations*	ASSIGNMENT 2: Start homework on fully reporting measures for an article. Due next class period.
1/29	Lesson 4	Review of linear regression *Types of hypotheses, appropriate variables, line estimation, goodness of fit statistics* ASSIGNMENT 2 due at start of class today.	This might be a good time to brush up on your linear regression knowledge with your favorite text, or use Hayes' introduction on linear regression.
1/31	Lesson 5	Review of linear regression *Interpreting results, multicollinearity*	Read Hayes' chapter on The Simple Mediation Model – the first three sections up through the example with Dichotomous X. ASSIGNMENT 3: Start homework on running and fully reporting a multiple linear regression analysis. Due next class period.
2/5	Lesson 5	Simple mediation *Types of hypotheses, appropriate variables, modeling direct, indirect, and total effects* ASSIGNMENT 3 due at start of class today.	Finish Hayes' chapter on The Simple Mediation Model – up through the Chapter Summary.
2/7	Lesson 6	Simple mediation *Inference, 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.

ASSIGNMENT 4: Start homework on running models with a single antecedent, single mediator, single outcome variable. Due next class period.

2/12	Lesson 6	**Multiple mediators** *Parallel mediation, hypotheses, statistical inference* ASSIGNMENT 4 due at start of class today.	Finish Hayes' chapter on More than One Mediator (Multiple Mediator Models) – up through the Chapter Summary.
2/14	Lesson 7	**Multiple mediators** *Serial mediation, hypotheses, mixing parallel and serial mediation, complimentary versus*	Read Hayes' chapter in the 2nd edition book called Causal Steps, Confounding, and Causal Order and in the 1st edition book called on 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.
2/19	Lesson 8	**Considerations** *Confounds, issues with causal inference, effect sizes*	Read Hayes' chapter on the Fundamentals of Moderation Analysis – the first three sections up through Visualizing Moderation.

		Reporting mediation *Showing assumptions are met, careful language, use of figures*	ASSIGNMENT 5: Start homework on running and reporting a model with a single antecedent, single mediator, single outcome variable, and a model with a single antecedent, two mediators, and a single outcome variable. Due in two class periods.
2/21	Lesson 9	Moderation in regression *Types of hypotheses, appropriate variables, modeling via figures*	Finish Hayes' chapter on the Fundamentals of Moderation Analysis – up through Chapter Summary.
2/26	Lesson 9	Moderation in regression *Interpreting interactions, simple slope analyses* ASSIGNMENT 5 due at start of class today.	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.
2/28	Lesson 10	Dichotomous moderators *Appropriate variables, interpreting interactions, how variables are entered in the model*	Finish Hayes' chapter on Extending (the Fundamental) Moderation Analysis Principles – up through Chapter Summary. ASSIGNMENT 6: Start homework on running and reporting a model with a single antecedent, single moderator, and single outcome variable. Due in two class periods.
3/5	Lesson 10	Dichotomous moderators *Comparing moderation in regression with moderation in an ANOVA*	Read Hayes' chapter in the 2nd edition called Some Myths and Additional Extensions of Moderation Analysis and in the 1st edition called Miscellaneous Topics in Moderation Analysis – read the whole thing.
3/7	Lesson 11	Considerations *Centering variables, standardizing variables, multiple moderators* ASSIGNMENT 6 due at start of class today.	In preparation for after Spring Break, read Hayes' chapter on the Fundamentals of Conditional Process Analysis – the first three sections up through Example: Hiding Your Feelings from Your Work Team.

3/12 3/14	NO CLASSES	SPRING BREAK	
3/19	Lesson 12	**Conditional Process Analysis** *Types of hypotheses, appropriate variables, conditional direct and indirect effects*	Finish Hayes' chapter on the Fundamentals of Conditional Process Analysis – up through Chapter Summary.
3/21	Lesson 12	**Conditional Process Analysis** *Estimating conditional indirect effects, modeling via figures*	Read Hayes' chapter on Further Examples of Conditional Process Analysis – the whole thing.
3/26	Lesson 12	**Conditional Process Analysis** *More practice with mediation and moderation in the same model*	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. ASSIGNMENT 7: Start homework on running and reporting a model with a single antecedent, single mediator, single moderator, and single outcome variable. Due in two class periods.
3/28	Lesson 13	**Using multicategorical variables in analysis** *Multicategorical variables as antecedents (X)*	This is the article by Hayes & Preacher (2014) that outlines use of a categorical independent variable in a mediation analysis.
4/2	Lesson 13	**Using multicategorical variables in analysis** *Multicategorical variables*	Consider perusing this or any other handy bits of information on ANOVAs to refresh your memory.

as moderators (X)

ASSIGNMENT 7 due at start of class today.

ASSIGNMENT 8: Start second homework on running and reporting a model with a single antecedent, single mediator, single moderator, and single outcome variable. Due in two class periods.

4/4	Lesson 14	Factorial ANOVAs *Types of hypotheses, appropriate variables, interactions*	This website nicely outlines how to do a simple effects post-hoc test to interpret interactions.
4/9	Lesson 14	Factorial ANOVAs *Interpreting interactions, simple effect post-hoc tests, main effect post-hoc tests* ASSIGNMENT 8 due at start of class today.	Go back and read Hayes' section called "Effect Size" found in the 2nd edition book's chapter on Causal Steps, Confounding, and Causal Order and in the 1st edition book's chapter on Miscellaneous Topics in Mediation Analysis. I would also suggest this article on effect sizes.
4/11	Lesson 15	Effect Sizes *Conventions, R^2 or the coefficient of determination, Cohen's D, partial η^2 and η^2 (and why I prefer η^2 to partial η^2)*	ASSIGNMENT 9: Start homework on running and reporting a 3x2 ANOVA, including an interpretation of the interaction and report of effect sizes. Due in two class periods.
4/16	Lesson 16	Reporting ANOVAs *Including a review of reporting measures*	I like the thoroughness of this article in its listing of the assumptions of an ANCOVA.
4/18	Lesson 17	ANCOVAs *Assumptions, and what they can and cannot test* ASSIGNMENT 9 due at start of class today.	I really like this overview of an ANCOVA in use with SPSS. ASSIGNMENT 10: Start homework on running and reporting a 2x2 ANOVA using the General Linear Model (with categorical variables) option, and then using the

			Regression option, including an interpretation of the interaction. Due in one class period.
4/23	Lesson 17	ANCOVAs *Interpreting findings* ASSIGNMENT 10 due at start of class today.	Use this time to review.
4/25	Lesson 18	Review	FINAL EXAM (take-home) assigned today, covering a measures section (reliability, factor analysis), and application of moderation and mediation (but not repeated measures).
Final	Final Exam	TUESDAY APR. 30 BY 11:00AM	TURN IN FINAL EXAM ELECTRONICALLY AND/OR BY PAPER to Sakai classroom dropbox or instructor school mailbox