

Regression and Multivariate Communication Research

ASC 554; Section 20832D

Monday 2:00-4:50 pm

ANN 211

Instructor:

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Office Hours: Tuesday 2-3 and by appointment

Required Readings:

Tabachnick, B. G., and Fidell, L. S. (2013). [Using Multivariate Statistics](#), 6th ed. Boston : Allyn and Bacon. <https://www.amazon.com/Using-Multivariate-Statistics-Barbara-Tabachnick/dp/0205849571> Please order ASAP; beginning chapters will be on Blackboard for your convenience. This is an expensive book (around \$200 but it's a great reference book and includes chapters that you might use for other courses or analyses we don't cover). Also, used copies that are less expensive (or rental opt).

Hayes, A. F. (2013) Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach <http://www.guilford.com/books/Introduction-to-Mediation-Moderation-and-Conditional-Process-Analysis/Andrew-Hayes/9781609182304/contents> (you should be able to buy this book at a 20% discount new (\$56.10). There may be a student copy of this for communication students in your graduate space.

Recommended References

American Psychological Association (2009). Publication manual of the American Psychological Association (6th ed.). Washington, DC: Author
<http://www.apastyle.org/manual/>

An SPSS manual if you have not used SPSS before (Please check these out in the bookstore—there are many fine points in advanced MANOVA designs that you will need a manual for – especially for complex comparisons/contrasts and follow-up tests. You may find such a manual helpful...although most specifics will be covered in class).

Student Teams

To provide “moral support” and improve the learning experience for students, usually graduate student teams at this stage work well if they are working in pairs. That is, because explaining something to another person often requires students to better understand it themselves, and students usually learn a lot through those peer channels outside of class – that was sure true of me with fellow graduate students outside of my graduate statistics classes. Another plus of student teams is that you each might have data suitable for different analyses we are working on in class...so you are more likely to have the data you’ll need for the analysis we’re working with. If you have a strong preference instead to “do it alone” with your own data set, and your data is suitable for all analyses we might conduct, let me know.

Focus and Goals of this Course:

This course is designed to follow a basic “introductory methods/statistics” course. Our chief goal is to refine your ability to analyze and interpret data in communication and social science. My personal philosophy based on interactions with students over 35 years of teaching is that students learn how to do research by carefully going through the process of “doing it”! The questions we will pose and the steps that we will take will be the steps one would take in dealing with real data sets once they are collected (e.g., now that I have these data, exactly what do I do?). ***To help you get the most out of this course, you will work with real data, real codebooks, real questionnaires and other relevant documents. You will get much more out of this course if you have your own data sets that you want to analyze.*** If you do not have such data sets, then you can develop – with my help—a set of research questions by looking at an existing data set (I have some you can work with for the purpose of this course). You can also find a variety of free data sets online (<http://www.icpsr.umich.edu/icpsrweb/ICPSR/index.jsp;jsessionid=AFE23D94A0F9FF6E76BF05B4663C6A1F>). Thus, our conceptual/methodological/statistical questions will be grounded, as much as possible, in the realities of our own data sets.

Many of my starting examples in this course will be based on examining designs and analyses especially relevant to health communication, including some of my large experimental longitudinal intervention data sets. These are rich data sets that afford numerous opportunities to appropriately use the entire suite of statistical analyses we will be discussing this semester. If you have additional data sets these will also become the topic of exploration. A library of articles from health communication and other fields will be available to provide examples of how to write up one’s work. We will add to this library this semester.

Although there will be “lecture modules,” much of our time will be spent having small group interactions, focused on individual projects and questions. In the process you will learn how to use more sophisticated research methods and advanced statistical tools like MANOVA, FACTOR ANALYSIS, and MULTIPLE REGRESSION. This includes when and why to use these tools, how to prepare data for these analyses (all the preliminary work needed to understand your data sets and transform your variables, if necessary), how to run the appropriate form of the analysis (given your question), how to

interpret output, how to “trouble shoot,” determine and conduct the appropriate follow-up tests, what you will need from the output in writing up results for publication outlets, and how to write about these findings and make up appropriate tables, graphs, figures. What does your output tell you about what alternative explanations there are and what you could do better the next time in designing your study and materials.

All of this takes us to the final output of this class, your oral and written report of your project using APA style (please get a manual for this). This course can help you to analyze a data set and write up a set of findings as a first draft for a possible publication. The final oral report may also be done as a pair (each of you presenting part of it) and the final paper may also be submitted by the team (e.g., pair of students).

All powerpoint slides, libraries, data sets, excel sheets, homeworks, and other materials/resources for the course will be available on blackboard. ***You may redo homeworks to optimize your learning and receive full credit within 1 week after they are returned with feedback to you (homeworks receive a 0 or 1 and really are designed to let you know whether you are on top of the material (1) or not (0) and to encourage you to “keep up”. Because statistics is often more fun (and often students appreciate the “moral support” when done in teams), homeworks may be done in teams of 2 (just indicate that when you turn in your homework).***

COURSE OUTLINE

Week	Topic
August 21	Introduction and overview <i>Discussion of project possibilities- available data sets to analyze</i> T& F, Chapters 1-2; meet with Dr. Miller this week if you do not have a viable data set to use. Set up meetings with Dr. Miller over the next two weeks to go over homework #1 (see sign up sheet: Your homework should be fairly complete before our meeting).
August 28	Review and extension: Univariate and Bivariate Statistics T&F, Chapter 3, Homework #1: Overview of hypotheses and preliminary outline of data analysis plan, include variables, items used to gather variables (measurement scales/surveys, etc.), nature of those variables, and descriptive statistics pertaining to those variables.
September 4	Labor Day HOLIDAY—no class

- September 11** Review continued; Cleaning up your act
Homework #2 due: t-tests, ANOVA, correlations; Have meeting with Dr. Miller before today's class regarding data analysis plan.
T& F, Chapter 4
- September 18** Cleaning up your act, **T& F, Chapter 4; Factor analysis and reliability T&F, Chapter 13 Homework #3 Hypotheses; key variables; draft of methods section.**
- September 25** Multiple Regression, **T& F Chapter 5; Homework #4 Due: Data Screening Revision of hypotheses, data analysis Plan; Factor Analysis.**
- October 2** Multiple Regression, **Hayes Part I (Fundamental concepts) ; Part II Mediation Analysis Homework #5 Multiple Regression I Due; Outline of Introduction**
- October 9** Multiple Regression continued; Hayes Part III (Moderation Analysis **Revision of hypotheses due; Homework #6 Multiple Regression II, Outline of Introduction**
- October 16** Multiple Regression continued, Hayes Part IV (Conditional Process Analysis
Homework #7 Due, Multiple Regression II
- October 23** Discussing nitty-gritty of Experimental Designs ANOVA, ANCOVA, T&F Chapters 1-3, 6
Homework #8 Due, Multiple Regression III
- October 30** MANOVA/MANCOVA, T&F 7
Between Designs/multiple dependent variables;
Homework #9 First Draft of Introduction (with hypotheses/questions); Revised methods; Outline of Results (what sections will be included?; what analyses performed? Fill in as much as you can based on your analyses to date (e.g., factor analysis, regression, ANOVA, ANCOVA).
- November 6** MANOVA/MANCOVA continued (move some of November 11 up)
Homework #10 Due, ANOVA/ANCOVA
- November 13** Profile Analysis (Multivariate Approach to Repeated Measures), Within and Between-Within Designs, Doubly Multivariate Designs
T& F 8; Updated data analysis plan and first draft due;

Homework #11 Due, MANOVA/MANCOVA

- November 20** **Doubly Multivariate Designs
T&F 9
Homework #12 Due, Profile and/or Doubly Multivariate
Designs & Follow-ups**
- November 27** **Prsentrations**
- December 11** **Final Papers Due**

Evaluation Criteria:

- Final Papers** **40% of final grade: final papers in APA format are research
Write-ups similar in scope and format to an article in HCR or
CM in communication or PSPB (Psychology)**
- Homework** **30% of final grade**
- Paper presentations** **15% of final grade**
- Class participation** **15% of final grade**