

Psychology 410: Multivariate Statistics for Psychology

Fall Semester, 2019
Tuesdays (& Thursdays) 2:30 – 3:50, Maxey 109

Instructor: Wally Herbranson

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Office hours: Thursday 1:00-2:00; Friday 2:00-3:00; and by appointment

Course Materials:

Required text:

Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). Thousand Oaks, CA: Sage.

Supplemental Readings (available on Canvas and the class web page):

Navarro, D. (2016). *Learning Statistics with R: A Tutorial for Psychology Students and other Beginners* (v. 0.6).

Mayr, S., Erdfelder, E., Buchner, A. & Faul, F. (2007). A short tutorial of *GPower*. *Tutorials in Quantitative Methods for Psychology*, 3(2), 51-59.

Recommended:

American Psychological Association. (2010). *Publication Manual of the American Psychological Association* (6th ed.). Washington DC: American Psychological Association.

Class Format:

Regular class meetings will be on Tuesdays. Read the assigned chapters in advance of each class session. Thursdays will be optional “workshop days”: I will be around in the stats lab during the scheduled time for consultation but will not present any new material. These will be good opportunities to work on assignments (usually due on Tuesdays), or to get clarification on previous material. If you understood everything from the previous class and successfully worked through the assignment in the interim, there’s no real need to attend.

Learning Goals:

1. Learn to analyze complex data sets involving multiple independent and/or dependent variables.
2. Learn to properly interpret analyses of complex experiments and effectively communicate them in a variety of formats commonly used in psychology.
3. Learn to identify when traditional parametric approaches to statistics are not appropriate, and how to proceed with valid analyses if they are not.
4. Understand how statistical methods affect and are affected by experimental design factors.

Assignments and Grading:

Grades will be based on short written assignments distributed at the end of Tuesday classes. These assignments will require you to analyze a data set and write an APA-style results section reporting the appropriate statistics and including tables and/or graphs where appropriate. Written reports should be concise (1-2 pages), but properly structured (make sure you have your APA manual handy). Assignments will be due the following Tuesday after they are assigned. I will try to finish up with my presentation early enough that you can begin assignments during the class period on Tuesday, while the approach and relevant procedures are fresh in your mind. But note that I will also be available for consultation and questions during the class period on Thursdays in case you run into any problems or need a review (see above).

Grading Scale: Grades will be assigned based on the percentage of all possible points earned (see above for the relative contributions of each assignment). Below are the overall performance ranges that result in various letter grades.

A 93 - 100%	B 83 - 86%	C 73 - 76%	D 63 - 66%
A- 90 - 92%	B- 80 - 82%	C- 70 - 72%	D- 60 - 62%
B+ 87 - 89%	C+ 77 - 79%	D+ 67 - 69%	F 0 - 59%

Some important class policies you'll want to know about:

Late Assignments:

I like to think I'm a reasonable fellow, so I'm not against granting deadline extensions from time to time. Here are my guidelines:

1. Extension requests made 1 week (or more) before the due date are almost certain to be granted, without penalty, provided that
 - a) the conflict is a reasonable and legitimate one, and
 - b) you haven't requested an extension for every assignment all semester long. After all, Wally didn't just fall off the turnip wagon yesterday (No, the turnip incident was *years* ago)In short, make your requests as early as possible, but don't abuse my generosity.
2. Within one week (7 calendar days) of the deadline, extensions may still be granted, subject to the following (no exceptions).
 - a) If supported by the Dean of Students, there will be no late penalty.
 - b) If not, there will be a penalty of 5% per calendar day (e.g., a score of 96% would become a 91%, then an 86% and so on for each day late).

In other words, plan your semester early. Identify your busy weeks early on and get the "free" version of the extension, rather than losing 5% or more. If you're unexpectedly abducted by howler monkeys, the Dean and I will understand. If you simply forgot you had 3 other assignments due tomorrow, we're less forgiving.

Attendance:

If you must miss class because of some commitment that can't be rescheduled, that's fine. I reckon you're a grown-up and can manage your own affairs. Check with me to make sure you didn't miss any important announcements and collect any handouts. Re-read the assigned chapters and ask about any questions you might have. I also recommend borrowing class notes from that attractive classmate you've been dying to meet. Here's your opener: "Herbranson doesn't give out his lecture notes (I know, right?). Can I borrow yours?". From there you're on your own. Good luck. Make eye contact (but not too much), modulate your voice, and remember to smile.

Schedule of Class Meetings

Date	Topic	Reading
T, 9-3 Th, 9-6	<i>Overview of Essential Concepts</i> Optional Workshop	Skim Field, Ch. 1-3
T, 9-10 Th, 9-12	<i>We Meet Again... but This Time I Am the Master: Using SPSS, R, and Excel</i> Optional Workshop	Field, Ch. 4, 5
T, 9-17 Th, 9-19	<i>What to Do with Weird Data: Non-Parametric Statistics and Data Transformation</i> Optional Workshop	Field, Ch. 6, 7
T, 9-24 Th, 9-26	<i>The Island of Misfit Variables: What to Do with Ordinal Data; Plus, Correlation and Partial Correlation</i> Optional Workshop	Field, Ch. 8, 9
T, 10-1 Th, 10-3	<i>New Wrinkles on Old Statistics: Effect Size and Power</i> Optional Workshop	Field, Ch. 10, Mayr et al.
T, 10-8 Th, 10-10	<i>Expanding on Simple ANOVA: Moderation and Mediation; Planned Contrasts, Effect Size and Power for ANOVA</i> October Break	Field, Ch. 11, 12
T, 10-15 Th, 10-17	<i>Not-so-Simple ANOVA: Factorial ANOVA and ANCOVA</i> Optional Workshop	Field, Ch. 13, 14
T, 10-22 Th, 10-24	<i>Impress Your Friends by Saying “Sphericity”: Repeated Measures ANOVA</i> Optional Workshop	Field, Ch. 15
T, 10-29 Th, 10-31	<i>Because with Computers We Can: Mixed ANOVA</i> Optional Workshop	Field, Ch. 16
T, 11-5 Th, 11-7	<i>One Dependent Variable is Never Enough: MANOVA and Discriminant Function Analysis</i> Optional Workshop	Field, Ch. 17
T, 11-12 Th, 11-14	<i>sdrawkcaB tuB AVONA ekiL: Factor Analysis</i> Optional Workshop	Field, Ch. 18
T, 11-19 Th, 11-21	<i>Too Much Nominal Data: Log Linear Analysis</i> Optional Workshop	Field, Ch. 19
	<i>Turkey-Centered Gluttony Break: Gobble Gobble</i>	
T, 12-3 Th, 12-5	<i>Logistic Regression and Hierarchical Regression</i> Optional Workshop	Field, Ch. 20
T, 12-10 Th, 12-12	<i>I’m Sorry I Lied to You about ANOVA: Multilevel Linear Models</i> Optional Workshop	Field, Ch. 21
Finals	No final exam, but make sure you turn in the last assignment	

Some not so commonly asked questions...

Q: I hate this! How do I withdraw?

A: Students may drop without record until October 16th. If you plan to drop this class, please do so as quickly as possible so that others may register. After that date you may withdraw until November 8th, and doing so will leave a nifty “W” on your transcript. I think it’s for “Wally”, to help you remember me.

Q: Is attendance required?

A: No, but it is highly recommended. My official policy is that you are the one paying for the class, so you may attend whenever you deem necessary. Keep in mind though, that you are responsible for any material presented in class. If you do miss a class it’s a good idea to borrow notes from somebody, in case I happened to reveal the meaning of life or something else important. See the attendance policy elsewhere in the syllabus.

Q: I think I’m going to have smallpox on several critical dates this semester. Can I schedule makeups?

A: Notify me as soon as you realize there will be a serious conflict. Makeups can be arranged for *legitimate* and *properly documented* excuses (i.e., serious illnesses, natural disasters and the like, with a corresponding doctor’s note, CNN footage, subpoena, etc.) Note: The big wedding on Days of our Lives is not a serious conflict. If it’s that important I’ll help you track down a recording. Also see the late assignment policy elsewhere in the syllabus.

Q: Dude, I bombed that first assignment... What can I do?

A: I don’t offer extra credit, but keep in mind that the remaining assignments (over 80% of your grade) should provide a good opportunity to correct a rough start.

Q: I have no idea what you were talking about last week...

A: Please feel free to ask questions during class sessions and let me know if I’m moving too quickly or am not explaining something clearly - It’s difficult for me to know what you’re experiencing in class. I’m also glad to take some time at the beginning of class to clarify points from previous lectures or from the text.