



Quantitative Methods in Psychology – Summer 2022

830:200 H2, 4 Credits

Instructor: Dylan Crawford

Office: Busch Psychology Building, Room 315

E-mail: Dylan.Crawford@rutgers.edu

Office Hours: By appointment, or if you can catch me in my office. Email appointment is preferred (you should email me before coming to my office to ensure I'll be around).

Time: M/T/W/Th 11:00 AM – 1:35 PM; 7/11 - 8/17; **Location:** SEC 202

****Disclaimer****

Everything in this syllabus is subject to change at my discretion. You will be informed if any such changes are made.

Textbook: No purchases required. I will provide you with the materials you will need.

Assigned Reading

You are expected to complete the assigned reading for the day **BEFORE** you view each lecture. Given the accelerated nature of this course, it is especially important that you approach the lectures already familiar with the topic being discussed that week. ***I am lecturing with the assumption that everyone has completed the assigned readings for that day; if you don't read, you will very likely be lost!*** You are **not** responsible for sections of the chapters titled "Spotlight on SPSS" or "For Excel Users."

Description:

Despite what you may have heard about this course, you should not approach it like a math course (after all, you are taking a **PSYCHOLOGY** course). This is a course in which understanding data is the overall goal. To do this, we *will* use math, but you know all of the math

you need to know before we even begin (addition, subtraction, multiplication, division, exponents, and square roots). Those who attempt this class with this understanding will likely find great success. Let go of your worries and anxieties about calculations and above all else focus on just understanding the data -- that is the goal of using statistics, after all.

This course has been certified as satisfying both Quantitative and Formal Reasoning Learning Outcome Goals (QQ and QR) of the SAS Core Curriculum. Specifically, students will be able to:

1. Formulate, evaluate, and communicate conclusions and inferences from quantitative information (QQ).
2. Apply effective and efficient mathematical or other formal processes to reason and to solve problems.

Course Requirements:

Two Midterm Exams (40% of total course grade: 20% each)

Each of these will consist of two parts administered separately. One part will be conceptual (no calculations, multiple-choice objective questions); the other will be computational (calculating the appropriate statistics, determining whether or not to reject the null hypothesis, and describing results in layperson's terminology). For the computational portion of the exams you will need your book and will be permitted to prepare anything you might want to use to help you (e.g., one or two 8.5 x 11 sheet(s) of paper with any formulas or notes on it is recommended). You will certainly need your textbook, a basic four function calculator, and a few blank pieces of paper for each exam.

Comprehensive Final Exam (30% of total course grade)

This will be similar in structure to the unit exams (part will be conceptual multiple choice and part will be computational), but any and all material covered throughout the whole course will be fair game.

"Recitation" Assignments (30% of total course grade: 3 assignments worth 10% each)

Throughout the semester I will be giving "recitation" assignments (computational problems) that I will assign without prior warning that need to be done and handed in by the end of the week. If you are keeping up in class and paying attention, these will be easy points! I'm assigning these to ensure that you are practicing the computational problems (so you won't be blindsided on the exams) and to ensure you're paying attention during lectures. They will be fully open-book, open-note, and I will be available for questions.

Warning: you won't find these in the course schedule. I will assign them within the lectures and make clear when I expect them to be handed in

Grading:

Final grades will be assigned using the following scale:

- A: 90.0 -100.0%
- B+: 85.0-89.99%
- B: 80.0-84.99%
- C+: 75-79.99%
- C: 70-74.99%
- D: 60.0 - 69.99%
- F: 0.0 - 59.99%

Because of an increasing tendency of students to try to persuade me to change their grade after the semester is over, let me be very explicit: I will give anyone as much help as they need to prepare for tests during the semester. If you need to get extra help, or want to do “extra” work (i.e., prepare more, think more, study harder, talk to me more...), the time to do so is during the semester. **There will be absolutely no “extra credit” offered** outside of your exams and the in-class assignments. During your exams and in-class assignments are the times to earn all the credit you can. Please do not send me an email asking me to round your grade or give you points, either. Neither NASA nor your bank will “round up” just to achieve a more favorable outcome, and neither will I.

“Attending” Lectures:

Everyone taking this class is an adult. As such, choosing whether or not you’re going to take the time to attend lectures is your choice. That being said, it’s hard to imagine how anyone could succeed without watching the lectures. ***The vast majority of content on the exams will come from my lectures, not the textbook or my slides (per se).***

Everyone who attends the lectures, is paying attention, and actively engages with me and the material should do well in this class. If you don't attend, or if you attend and watch TikTok the whole time, you will probably do poorly. If you don't want to pay attention to the lectures, it is probably best not to take this (or any) course (why are you in college?). If you don't attend, you should feel very uncomfortable using anyone else's notes as a substitute for attending lecture. The material of this course needs to be explained and will be difficult to grasp from reading alone (especially from someone else's notes). The bottom line is, if you make that little effort to pay attention, you will very likely learn a lot and get a good grade. I also happen to think that the material is interesting and useful in many contexts (even outside of psychology). On a final note, I will be posting my PowerPoint slides for the semester. They are **NOT** a substitute for attendance. Believe me, you will **NOT** understand them if you don't attend lecture!

Academic Integrity:

Each student in this course is expected to abide by the Rutgers University Code of Student Conduct and Academic Integrity Policy. Any work submitted by a student in this course for academic credit will be the student's own work. Penalty for violation of the University Code of Student Conduct can also be extended to include failure of the course and University disciplinary action. The risk really isn't worth it.

During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. It will be very obvious to me if you are doing your own work or not. You are expected to show all of your work on all computational problems. Any collaborative behavior during the examinations *will* result in failure of the exam, and may lead to failure of the course and University disciplinary action. In short: do not cheat! Do not plagiarize! Visit <http://academicintegrity.rutgers.edu/resources-for-students> for info and useful links.

Accommodations:

Appropriate accommodations are available for students with disabilities. In compliance with the Rutgers University policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for students with disabilities. Requests for academic accommodations are to be made during the first week of the semester, unless for unusual circumstances, so arrangements can be made. Students are encouraged to register with the Office of Disability Services to verify eligibility for appropriate accommodations and to provide me with documentation. Please see web site of the Office of Disability Services for Students (<https://ods.rutgers.edu/>) for more information.

General Principle:

Please ask questions! It's the only reliable way I have of knowing whether you've understood what I'm trying to convey. Even if you can't articulate what it is you don't understand, just say "I have no idea what you're talking about," or "I'm lost," or "Help!" Chances are that if you don't get it, there are a number of your classmates who are also floundering, but I can't read your minds (I promise). Help everyone out (including me) by asking, please!

Materials:

A simple electronic calculator is necessary and sufficient for the course. They cost as little as \$3 - \$5. Bring your book, a calculator, as well as something to write with and on to every lecture -- you will need them!

Class Schedule (tentative; subject to change)

Week	Date	Text Readings	Topics/Events
1	Mon. 7/11	<ul style="list-style-type: none"> - Chapter 1 - Chapter 9 (pp. 198- 208) - Chapter 2 (pp. 25-46) 	<ul style="list-style-type: none"> - Orientation - syllabus review - Types of measurement - nominal, ordinal, interval/ratio - Independent v. dependent variables - Issue in scientific measurement: reliability and validity - Measures of central tendency - mean, median, mode, range - Graphing frequency distributions
	Tues. 7/12	<ul style="list-style-type: none"> - Chapter 3 (pp. 54-59; 61-66) - Chapter 4 - Ch. 7 (pp. 156-160) 	<ul style="list-style-type: none"> - Measures of variability - range, variance, and standard deviation. - Kurtosis and skew - Characteristics of the normal distribution and the use of z-scores - Sampling distribution of the mean - Central Limit Theorem
	Wed. 7/13	<ul style="list-style-type: none"> - Chapters 6 and 7(pp. 144-151; 156-167) 	<ul style="list-style-type: none"> - Null and alternative hypotheses - The Z-test and confidence intervals - Alpha level and statistical significance
	Thurs. 7/14	<ul style="list-style-type: none"> - Chapter 8 (pp. 170-173; (ignore p. 174); 175-193) - Chapter 10 (ignore p. 253) 	<ul style="list-style-type: none"> - Single-sample t-test - Inferences about populations from samples - Sampling distribution of the difference - Independent samples t-test
2	Mon. 7/18	<ul style="list-style-type: none"> - Chapter 10 (ignore p. 253) 	Independent samples t-test (continued)
	Tues. 7/19	N/A	Review for Exam I
	Wed. 7/20	N/A	Review for Exam I
	Thurs. 7/21	EXAM I	EXAM I

3	Mon. 7/25	- Chapter 13 (pp. 374-385, 395)	Nominal data and the chi-squared test
	Tue. 7/26	- Chapter 11 (pp. 287-296; skip bottom of 296 to 300; 300-306; 310-311) - Chapter 15 (pp.447-453)	Correlations - Pearson's R Repeated-measures (within-subjects) t-test
	Wed. 7/27	- Chapter 15 (pp.447-453)	Repeated-measures (within-subjects) t-test
	Thurs. 7/28	- Chapter 12 (pp. 330-350) (ignore steps 1-4 on p. 342 for calculation of 1-Way F)	One-way ANOVA - Testing for differences among more than two groups. Tukey's post-hoc test
4	Mon. 8/1	- Same as last week	One-way ANOVA (continued)
	Tues. 8/2	N/A	Review for Exam II
	Wed. 8/3	N/A	Review for Exam II
	Thurs. 8/4	EXAM II	EXAM II
5	Mon. 8/8	- Chapter 12 (Factorial ANOVA) pp. 350-360; 363-365	Factorial ANOVA - Testing for the effects of more than 1 independent variable on a dependent variable. Main effects and interactions.
	Tues. 8/9	- Same as last week	Factorial ANOVA (continued)
	Wed. 8/10	- Chapter 14	Linear Regression Analysis: Predicting values on a criterion using a predictor and the regression equation.
	Thurs. 8/11	N/A	Review for final exam - Exam I material
6	Mon. 8/15	N/A	Review for final exam - Exam II material
	Tues. 8/16	N/A	Review for final exam - New material
	Wed. 8/17	FINAL EXAM	FINAL EXAM