STATISTICAL PRINCIPLES OF PSYCHOLOGICAL RESEARCH

with
Dr. Harrison

PSYC210.001 Fall 2020
T/Th 11:30-12:45pm Location: Zoom

COURSE OVERVIEW

The purpose of this course is to give us a basic conceptual understanding of the role of statistics in the behavioral sciences. My hope is that by the end of this course, we will understand why we use statistics to help us make scientific claims, when specific techniques are appropriate to test those claims, and how to evaluate the persuasiveness of those claims. This course requires three lecture hours (virtual, synchronous or asynchronous) and one laboratory hour (virtual, synchronous) per week.

PREREQUISITE(S): PSYC101 QI (QUANTITATIVE INTENSIVE) 4 Credit Hours

MEET THE INSTRUCTIONAL TEAM!

Instructor
Dr.Patrick Harrison
(he/him/his)
pharrison@unc.edu
Office Hours: Zoom, TBD

Teaching Assistant
Sandra Williams
(she/her/hers)
wsandra@live.unc.edu
Office Hours: Zoom, TBD

Teaching Assistant
Chris Strauss
(they/them/theirs)
cstrauss@unc.edu
Office Hours: Zoom, TBD

Teaching Assistant
Hannah Morgan
(she/her/hers)
hlmorgan@live.unc.edu
Office Hours: TBD

Teaching Assistant
Chaewon Lee
(she/her/hers)
chaewon@live.unc.edu
Office Hours: Zoom, TBD

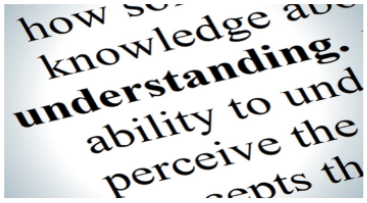
Teaching Assistant
Jeno Millechek
(he/him/his)
jeno@lunc.edu
Office Hours: Zoom, TBD

Teaching Assistant
Alejandro Martinez
(pronouns)
a123451@unc.edu
Office Hours: Zoom, TBD

COURSE OBJECTIVES

1 GAIN A BASIC UNDERSTANDING OF THE STATISTICS USED IN PSYCHOLOGICAL RESEARCH

In this course, we will learn about the use of distributions, descriptive statistics, relative standing, hypothesis testing, prediction, analysis of variance, measures of effect size, and non-parametric statistics. Weekly, low-stakes quizzes will assess how well we understand, describe, and identify these statistics in real world examples.

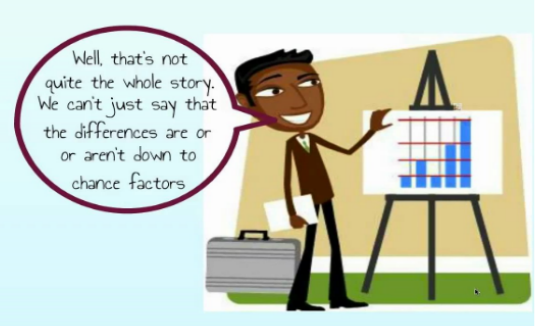


2 APPLY UNDERSTANDING OF STATISTICS BY ANALYZING DATA

In this course, we will apply our skills by analyzing data using SPSS software. You may have some background with the math involved in statistics, but application is key. Computer programs like SPSS allow researchers to analyze data quickly and accurately. Weekly, low-stakes recitation assignments will assess how well we apply our basic understanding of statistics with real data.

3 DRAW STATISTICAL AND SUBSTANTIVE CONCLUSIONS

In this course, we will develop the skills necessary to analyze and interpret the basic meaning of statistics and what they tell us for a given research questions. Weekly recitation assignments and activities will assess how well we analyze and interpret results to make informed judgments with real data.

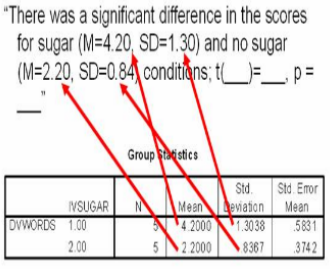


4 EVALUATE THE USES, STRENGTHS, AND WEAKNESSES OF VARIOUS TESTS

In this course, we will develop the skills to assess the strengths and weaknesses of each statistic discussed. We will also learn to identify which statistics are most appropriate for a given research question. Weekly, low-stakes quizzes, exams, and recitation assignments will assess how well we identify the uses, strengths, and weaknesses of specific statistics.

5 CREATE APA-STYLE WRITE-UPS THAT COHERENTLY SYNTHESIZES ANALYSES

In this course, we will develop the skills to create written APA-style (the language and format of psychologists) summaries of our analyses. Weekly, low-stakes recitation assignments will assess how well we communicate and synthesize results in written form.



COURSE MATERIALS

ONLINE COURSE PACK

The only REQUIRED material for the course is an access code for our online discussion community, Packback. Because we will not be meeting in person, Packback will allow us to have meaningful out-of-class discussions.

UNC Student Stores have Packback licenses for $25.00. More information regarding pricing and scholarships for free access are provided here: https://www.packback.co/product/pricing/

To create an account, navigating to https://questions.packback.co and clicking “Sign up for an Account”. Our Community Lookup Key is: 375550f8-e658-41e2-82f6-3808b54cb3ab

SOFTWARE

SPSS®

You will also need access to SPSS. SPSS is the software we will be using in this course to analyze data.

We can easily access Virtual Lab or Virtual Computing Lab (https://sils.unc.edu/it-services/remote-access/its-virtual-lab) or purchase a license to have it on your machine. A license is about $45.

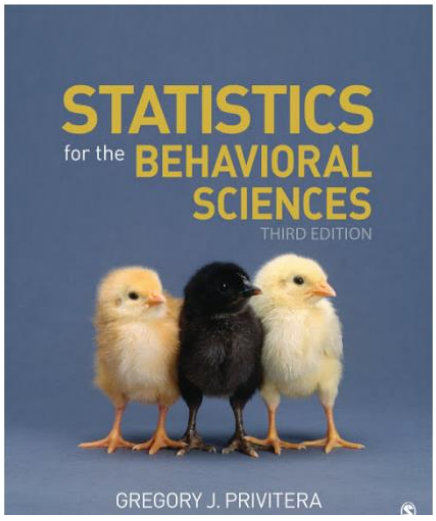
We use SPSS extensively in the course, especially in the lab portion of the class. If you choose to purchase it you can get it here (specific instructions for purchase are posted on Sakai): http://www.onthehub.com/spss/

TEXTBOOK

Although a textbook is not required, you may find additional reading helpful (especially if this is your first exposure to statistics).

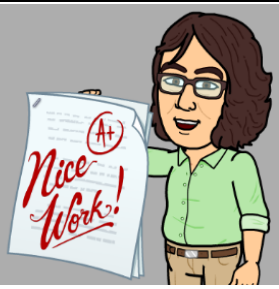
Any statistics text for the behavioral sciences will have the material needed to succeed. Having a textbook at hand is especially helpful for those who are visual learners or prefer to have a deeper understanding of the math behind statistical models.

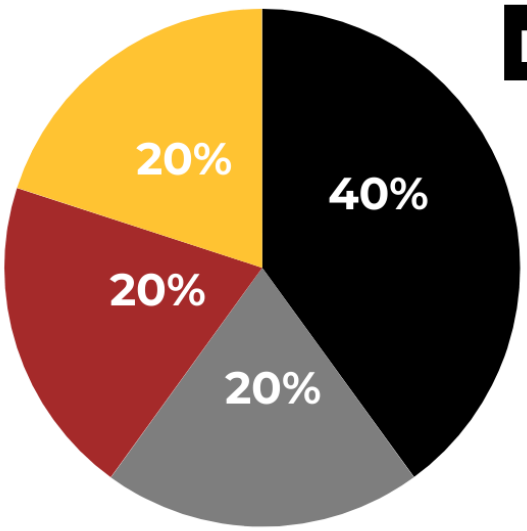
Check Sakai for other course material (announcements, syllabus, assignments, etc.).



COURSE EVALUATION

We will be earning points in four areas: Participation, weekly assignments, quizzes, and exams. To ensure that there are no surprises, I strongly recommend keeping a running tally of your grade throughout the semester (your grade = number of points received to date/number of possible points to date). I post grades on Sakai as soon as they are available. The TAs and I carefully review each graded item throughout the semester, so if you have any questions, comments, or concerns, please let us know earlier rather than later.





EXAMS (MIDTERM/FINAL (2) 200 points total

QUIZZES (5) 100 points total

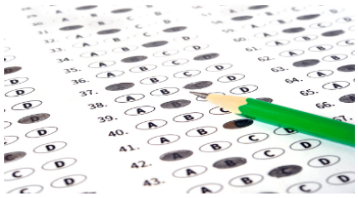
ASSIGNMENTS (10) 100 points total

PARTICIPATION 100 points total

Percentage	Grade	Percentage	Grade	Percentage	Grade
93%+	A	80-82.99%	B-	65-69.99%	D+
90-92.99%	A-	77-79.99%	C+	60-64.99%	D
87-89.99%	B+	73-76.99%	C	below 60%	F
83-86.99%	B	70-72.99%	C-		

EXAMS

We will take two cumulative multiple choice exams (100 points each). The exams will cover the material for the weeks preceding it. We will NOT need a calculator for the exams as they are conceptual rather than computational. Exams will be administered on Sakai.



QUIZZES

We will take five non-cumulative multiple choice quizzes (20 points each) throughout the semester. In addition to preparing us for the midterm and final exam, these quizzes will give us a low-stakes opportunity to check our comprehension throughout the semester. Quizzes will be administered on the Tests and Quizzes tab on Sakai.

ASSIGNMENTS

We will complete 10 semi-weekly homework assignments (10 points each). Each assignment will be worth 10 points and will involve putting into practice what we have been learning in class. We will use SPSS to conduct some basic data analysis and interpret the results in a one page summaries. These assignments will be posted on Sakai under the Assignment tab and should be turned in no later than three days after your recitation section meets. The TAs will guide us through the assignment process.

PARTICIPATION

Participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online community where you can ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications.

We will be using Packback because it uses AI to help you practice writing well-developed questions and responses. By the end of the course, I'd like us each to ask at least five questions and respond to at least ten. More instructions will be provided on Sakai. The participation grade will also take into account completion of daily Poll Everywhere questions (please make sure to log into your UNC PollEv account each and every class!). Completion of the minimum number of posts on Packback will count toward 15% of your overall course grade; Poll Everywhere will count toward 5%.

RATIONALE FOR WHAT WE DO

BIG PICTURE

Why do we study statistics? Well, there are a lot of reasons. Whether you plan on conducting research or doing something else, understanding statistics will make you an informed consumer of information. We are bombarded with claims every day. A strong background in statistics can make digesting this information much easier.

I recognize that statistics might not be your idea of fun, but at the very least, my goal is to see that statistics are useful "tools" that you can use.

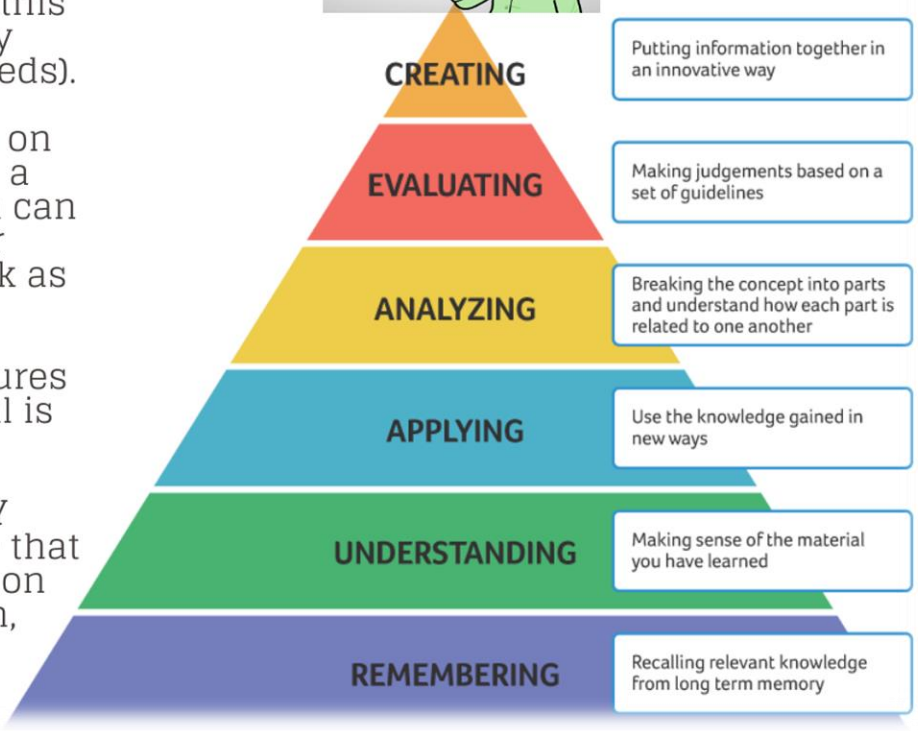
I like to think of statistics as similar to climbing a mountain. You have to pace yourself. One step at a time. We will start slowly, and by the end of the course, you will be surprised how much you've learned! The view from the summit will be unbelievable!

THE DETAILS

From time to time, you may wonder "why do we have to know this?" or "why are we doing this?". The short answer is that this course is based on Bloom's Taxonomy (kind of like Maslow's Hierarchy of Needs).

Every exam and assignment is based on the principle that you must first have a working body of knowledge. Only then can you apply, analyze, and evaluate your knowledge. We will use this framework as we progress from topic to topic.

You will notice this framework in lectures and recitation. During lecture, my goal is to provide a basic framework for understanding the various statistics. During recitation, you will be ACTIVELY doing what we talked about in lecture that week. Although you will not be tested on the analysis you conduct in recitation, having applied skills will help you in future courses or research projects.



COURSE POLICIES AND RESOURCES

LET'S TALK!

My job (and my joy) is to help you learn the course material! I want you to succeed and I will do everything in my power to help you throughout this course. It does make it easier if I can get to know you.

In addition to attending class regularly, there are three basic ways to get in touch with me. First, you can come to office hours or make an appointment with me. Second, you can send me an email. Third, you contact the TAs or me on the course Packback site. This is probably the best way to ask (and answer) course-related questions. Remember, participating on Packback also helps your participation grade!

UNC-Chapel Hill safe zone

STATEMENT OF INCLUSION

It is personally important to me that ALL students are able to succeed in this course regardless of race/ethnicity, sexuality, gender identity, age, ability, income, religion, background, etc. First and foremost, I require all students to respect every person in our class. If you ever feel that your right to learn and participate in this course has been violated by myself or any of your peers, please do not hesitate contact me.

As your instructor I affirm my commitment to:
- respect the dignity and essential worth of all individuals
- promote a culture of respect throughout the university community
- reject bigotry, discrimination, violence, or intimidation of any kind
- practice personal and academic integrity and expect it from others
- promote the diversity of opinions, ideas, and backgrounds that is the lifeblood of the university

THE TAs ARE THERE TO HELP, TOO!

The course TAs may have slightly different policies regarding questions. However, I have no doubt that they are as excited as I am to answer questions you have and to make this course as enjoyable as possible. I ask that you give them the same respect you would give to me. They will post their office hours sometime during the first week of classes.

ACCOMMODATIONS AND UNIVERSITY RESOURCES

The Accessibility Resource and Service (CB#7214 SASB – North, Suite 2126) provides accommodations for any student with documented disabilities or medical conditions. If you require accommodations, please contact Accessibility Resources & Services at https://accessibility.unc.edu.

If you will need an accommodation this semester please also email me within the first week of class. University-Approved Absences

COURSE POLICIES AND RESOURCES

UNC STUDENT AFFAIRS Office of the Dean of Students

UNC STUDENT AFFAIRS *Fostering Student Learning and Success*

counseling and psychological services

Equal Opportunity and Compliance

The following are considered University-Approved Absences

1. Authorized University activities

2. Disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service and/or the Equal Opportunity and Compliance Office (EOC)

3. Significant health condition and/or personal/family emergency as approved by the Office of the Dean of Students, CAPS, Gender Violence Service Coordinators, and/or the Equal Opportunity and Compliance Office (EOC).

Documentation regarding any of the above situations allows me to work with you to make this class accommodating to your needs. If you or someone in the class needs help contacting one of these services, please let me know!

THE FINE PRINT

Academic Integrity: By enrolling in this class, you have agreed to adhere to UNC's Honor Code. If you have any questions about the code, refer to: http://advising.unc.edu/for-faculty/academic-policies-and-procedures/unc-honor-code/.

COURSE SCHEDULE

DATE	TOPIC(S)	RECITATION THEME	IMPORTANT DATES
Week 1		No Recitations! FDOC	
T 8/11	Course Introduction		
Th 8/13	Introduction to Statistics		
Week 2		VISUALIZING DATA	Virtual Lab Tutorial
T 8/18	Visualizing Data		
Th 8/20	Visualizing Data		Quiz 1 Due
Week 3		DESCRIPTIVE STATISTICS	ASSIGNMENT 1 Due
T 8/25	Characteristics of Distributions		
Th 8/27	Characteristics of Distributions		

COURSE SCHEDULE

Week 4		SAMPLING DISTRIBUTIONS	ASSIGNMENT 2 Due
T 9/1	Indicators of Relative Standing/Sampling		
Th 9/3	Indicators of Relative Standing/Sampling		
Week 5		No recitations! Labor Day	ASSIGNMENT 3 Due
T 9/8	Sampling Distributions		
Th 9/10	Sampling Distributions		Quiz 2 Due
Week 6		HYPOTHESIS TESTING W/ Z-TESTS	ASSIGNMENT 4 Due
T 9/15	Hypothesis Testing w/ Z-tests		
Th 9/17	Hypothesis Testing w/ Z-tests		
Week 7		HYPOTHESIS TESTING W/ t-TESTS	ASSIGNMENT 4 Due
T 9/22	Hypothesis Testing w/ t-tests		
Th 9/24	Hypothesis Testing w/ t-tests		
Week 8		REGRESSION AND CORRELATION	ASSIGNMENT 5 Due
T 9/29	Regression/Correlation		
Th 10/1	Regression/Correlation		Quiz 3 Due
Week 9		MIDTERM REVIEW	
T 10/6	Midterm Review		
Th 10/8	Midterm Exam		Midterm Exam Due
Week 10		MULTIPLE REGRESSION	ASSIGNMENT 6 Due
T 10/13	Multiple Regression and Correlation		
Th 10/15	Multiple Regression and Correlation		
Week 11		INTERVAL/EFFECT SIZE	ASSIGNMENT 7 Due
T 10/20	Effect Size and Interval Estimation		
Th 10/22	Effect Size and Interval Estimation		Quiz 4 Due
Week 12		ANOVA	ASSIGNMENT 8 Due
T 10/27	Analysis of Variance		
Th 10/29	Analysis of Variance		
Week 13		FACTORIAL ANOVA	ASSIGNMENT 9 Due
T 11/3	Factorial ANOVA		
Th 11/5	Factorial ANOVA		

COURSE SCHEDULE

Week 14		ASSIGNMENT 10 Due
T 11/10	Factorial ANOVA	
Th 11/12	Bonus: Chi-Square and Non-Parametric Statistics	Quiz 5 Due
Week 15	No Recitations! LDOC	
T 11/17	Final Exam Review	
Exam Week		
TBD	Final Exam	Final Exam Due