

Introduction to Psychological Measurement and Data Analysis

PSY3801 | Fall 2022

Professor Contact Information:

Dr. Amanda Woodward | Pronouns: She/Her/Hers | Email: woodw284@umn.edu

Drop-in Hours: Monday from 1-2 pm, Wednesday from 9:30-10:30am or By Appointment*

Office Location: Elliott Hall S246

Zoom Drop-in Hours: By Appointment* | [my office hour zoom room](#)



Note: I am so excited to work with you this semester! Drop-in hours (office hours) are times that I have set aside during the week specifically to meet with students in PSY3801 (you do not need an appointment, and you are not bothering me). These are times that work for my schedule, but I recognize they may not work for you because of other obligations (other classes, caregiving, work). If this is true for you, we can find another time to meet that works for both of us. If you'd like to meet, but can't come to drop-in hours, please email me so we can set up another appointment time.

Lecture TA Contact Information:

<p>Graduate TA: King Yiu Suen He/Him/His Email: suenx008@umn.edu Drop-in Hours: Monday 10am - 11am Office Location: Elliott Hall N663</p>	<p>Undergraduate TA: Zeyneb Sarioglan She/Her/Hers Email: sario003@umn.edu Drop-in Hour: Mondays 2-3pm Office Location: https://umn.zoom.us/j/98061376208?pwd=eFV5YTBlid3BzNHViMUdCNWVMaEM4Zz09</p>
--	--

Section Leader Contact Information:

Section:	Teaching Assistant:	Information:
002	Shaozhi Nie Any Pronouns Email: nie00043@umn.edu	Drop-in Hour(s): Thursday 2:30pm-3:30pm or by appointment Office Location: Elliott Hall N20
003	Hoang Nguyen He/Him Email: nguy2338@umn.edu	Drop-in Hour(s): Thursday 10-11am or by appointment Office Location: Elliott Hall N663
004	Nathan Torunsky He/Him Email: torun005@umn.edu	Drop-in Hour(s): Mondays 2:30 -3:30 PM or by appointment Office Location: S220
005	Nga Do She/Her/Hers Email: do000100@umn.edu	Drop-in Hour(s): Fri 12-1 PM or By appointment Office Location: Zoom https://umn.zoom.us/my/ngaqqdo

006	Rina Horii She/Her/Hers Email: horii004@umn.edu	Drop-in Hour(s): Thursdays 9:45 am - 10:45 am or by appointment Office Location: Elliott Hall N355
007	Robert Chapman He/Him/His Email: chapm564@umn.edu	Drop-in Hour(s): Thursdays 11-12p Office Location: Elliott Hall N667
008	Robert Chapman He/Him/His Email: chapm564@umn.edu	Drop-in Hour(s): Thursdays 11-12p Office Location: Elliott Hall N667
009	Chulin Chen She/Her/Hers Email: chen6496@umn.edu	Drop-in Hour(s): Thursdays 3:50 - 4:50pm Office Location: Elliott Hall N496
010	Miles Christopher He/Him/His /His Email: chri5320@umn.edu	Drop-in Hour(s): Friday 12:00 - 1:00 PM Office Location: Elliot Hall N667
011	King Yiu Suen He/Him/His Email: suenx008@umn.edu	Drop-in Hour(s): Monday 10am - 11am Office Location: Elliott Hall N663

Course Description:

Statistics are everywhere. They appear in Tweets and across social media, in newspaper and popular media articles and are even present in the TV we watch. Technology allows us to consume information quickly and from a wide variety of sources. This, however, is not always a good thing. How do we know what sources to trust? How do we know if studies reported should be trusted? Becoming a critical consumer of statistical information makes us better citizens. In this course, we will discuss how statistics and the scientific method are relevant to our daily lives and to the field of psychology. We will cover topics from descriptive statistics through inferential statistics. Specifically, we will learn about descriptive/basic inferential statistics used in psychology, which include measures of central tendency, variability, t tests, one-way ANOVA, correlation, regression, confidence intervals, effect sizes, psychological measurement, and graphical data presentation.



Course Objectives:

By the end of this course, you will be able to:

- Understand the principles underlying basic statistics and apply them to solve problems.
- Explain how to compute statistics in R and interpret output.
- Critically evaluate statistical information from any source.
- Design your own research question and conduct preliminary data analyses on gathered data (i.e., select the appropriate analysis for your research question).



Course Information:



Lecture information:

Dr. Amanda Woodward M/W | 11:15am – 12:30pm | 10 Church Street SE 100



Section Information:

Section	Day/Time	Location	Section	Day/Time	Location
002	Tuesday 9:45am - 11:00am	Burton Hall 123	007	Thursday 9:45am - 11:00am	Appleby Hall 319
003	Tuesday 1:00pm- 2:15pm	Appleby Hall 3	008	Thursday 1:00pm - 2:15pm	Akerman Hall 211
004	Tuesday 2:30 PM - 3:45 PM	Elliott Hall N 119	009	Thursday 2:30 PM - 3:45 PM	Elliot Hall N391
005	Wednesday 4:00-5:15 PM	Elliott Hall N119	010	Friday 9:45 AM - 11:00 AM	Elliot Hall N391
006	Thursday 8:15-9:30 am	Appleby Hall 11	011	Friday 11:15am - 12:30pm	Elliott Hall N391

Course Materials:

Textbooks:

Generally, I do not assign textbooks for my courses as they can be cost prohibitive to students. However, reading textbooks can be a helpful way to reinforce ideas and prepare for lectures. Below are several books relevant to our class that inform the lectures I have created.

FREE OPTIONAL TEXT: Navarro, D. (2018). *Learning Statistics with R: A tutorial for psychology students and other beginners.*

<https://open.umn.edu/opentextbooks/textbooks/559> (FREE)

OPTIONAL TEXT: Spatz, C. *Exploring Statistics: Tales of Distributions* (2016). Conway, AR: Outcrop Publishers. (ebook is available for \$24)

RELATED READINGS:

Wheelan, C. J. (2014). *Naked statistics: Stripping the dread from the data.* New York: W.W. Norton.

Salsburg D. (2013). *The lady tasting tea: How statistics revolutionized science in the twentieth century.* Henry Holt and Company

R/R Studio/ R Cloud:

R and R Studio are free, open-source statistical programs. We will be using them in discussion and in class to compute our statistics more easily. You can download R and R Studio from <https://rstudio.com>. You will need to download both versions. If you would prefer, you can also access R Studio through the cloud website: <https://rstudio.cloud>. You will need to make an account, and the free version should be sufficient for this class. You can access R Studio Cloud on your mobile device, if necessary. Please note there is a limited number of files you can make with a free account on the website version. ***IT IS YOUR RESPONSIBILITY TO DOWNLOAD THESE MATERIALS, AND TO TELL THE INSTRUCTOR OR YOUR TA IF YOU HAVE ANY ISSUES ACCESSING R OR R STUDIO.***

Pre – Class Activities:

We're learning new material, and it can take some students more time to digest this material than others. For this reason, there will be materials posted prior to lecture to introduce topics. It is expected that you will watch these videos before class and complete associated pre-class activities.

TO PARTICIPATE FULLY IN THE COURSE, YOU'LL NEED:

Our course will be using a Canvas site, which should provide you access to all materials you will need for the class. These technical requirements will allow you to access the Canvas site, send/receive online communications, complete assignments, and view media content.

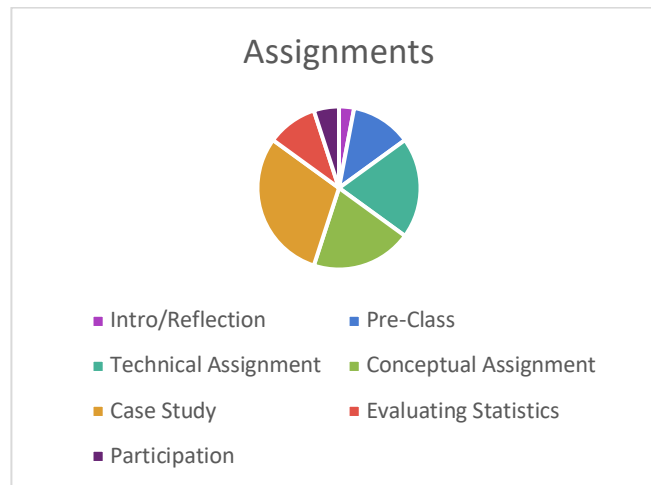
- A U of M internet ID (your official U of M email address)
- Reliable, high-speed Internet access
- A supported Web browser (Google Chrome or Mozilla Firefox are strongly recommended)
- Laptop, desktop or tablet with access to R/R Studio

Grading Scheme:

The table to the right displays the course components and the percentage of your grade that each makes up. The table to the left table displays the letter grade that corresponds to the grade you *earn*. I do **NOT** round grades because I find it to be an inequitable practice (e.g., it's not fair to provide rounding opportunities to students who email and not to those who do not). A 79.9% is a C+, not a B-.

Letter Grade	Percentage Earned
A	94 - 100%
A-	90 - 93.9%
B+	87 - 89.9%
B	84 - 86.9%
B-	80 - 83.9%
C+	77 - 79.9 %
C	74 - 76.9%
C-	70 - 73.9%
D+	67 - 69.9%
D	60 - 66.9%
F	Below 60%

Assignment	Percentage of Grade
Introduction and Reflection Activities	3%
Pre-Class Work	12%
12 weeks of content - 1% each	
Class Participation	5%
Lecture - 3% Section - 2%	
Technical Assignments	20%
12 Technical Assignments (2 dropped) - 2% each	
Conceptual Assignments	20%
12 Conceptual Assignments (2 dropped) - 2% each	
Case Studies	30%
3 Case Studies - 10% each	
Evaluating Statistics in Media	10%
2 Evaluation Assignments - 5% each	



Course Requirements:

Assignments in this course are meant to build on each other to help ensure that you learn the material. The most effective way for students to learn is repeated exposure and repeated attempts. For this reason, students will complete pre class activities, class participation assignments, technical and conceptual assignments, and case studies. Evaluating statistics assignments are meant to help students apply what they learn to real world materials.

Introduction and Reflection Activities:

Introduction activities are important for helping us get to know each other and to ensure that students know what is expected of them. In this course, you receive credit for completing these activities.

Reflection is an important aspect of learning. Throughout the semester, you will have brief assignments to think about where you're starting, how you're doing, and where you will go.

These activities often occur at the end of a unit and at the beginning and end of the semester.



Pre-Class Work:

These are assignments that need to be completed before lecture meetings. Often, these assignments will consist of watching recordings that introduce a concept and provide some background information. This information will be important for our in-class activities, so it is expected students will complete these assignments in a timely manner.

This prework will include an assignment to check for understanding and ensure that all students are ready to complete in class work.

Class Participation:

Participating in both lecture and section is essential for student learning. If you are healthy, you are expected to attend lecture and section in person. Attendance will be marked by answering Chime In questions, or other methods that will be announced. These assignments are graded based on completion.

If you are sick or must otherwise miss a class meeting (because life happens!), you have the ability to make up missed points by submitting one-page (front and back) handwritten or 1-2 pages of typed notes from the recording of the missed class. These should be submitted as a word document or pdf on [this google form](#).

You will not receive partial credit for made up attendance, and you will not receive points for handing in annotated power points or notes from another lecture. Makeup notes must be handed in within two weeks of the missed class meeting. Please note that this opportunity will not have a due date on Canvas. However, it will still be open. It is your responsibility to be aware of this and to ask questions if you have them.



Technical Assignments:

Technical assignments are designed to provide students with practice calculating statistics that we've talked about in class and to interpret them within the context of a problem. It is expected that these assignments will be turned in by Friday at 11:59pm of each week. There will be 12 technical assignments throughout the semester. I understand that you are all dynamic human beings with things going on outside of this classroom. For this reason, I drop the two lowest technical assignment scores for all students.

All technical assignments will be completed using R and R Studio. You will have the opportunity to ask questions in both section, drop-in hours, and via email.



Technical assignments include a completeness component of the grade as well as an accuracy component. A rubric will be provided to help you understand scoring of these assignments.

Conceptual Assignments:

These assignments are designed to help you think about what the statistics *mean*. Conceptual assignments may take different forms, but will include summary sheets made by the student, worksheets about the topics covered in the week, or quizzes about the material. These assignments will be due Fridays at 11:59pm of each week.

Because life happens, two of these assignments will be dropped from your final grade.



Case Studies:

Case studies are meant to be summative assignments, meaning they combine everything you've learned in a unit. These assignments will include real world problems where you will be expected to apply what you know. These will be graded based on accuracy and reasoning provided by you.

Case studies will combine information from both technical and conceptual assignments. To prepare for case studies, students should review these assignments and the review guide.

Evaluating Statistics in the Media:

Statistics can be presented in misleading ways in

the real world. For these assignments, students will be asked to critique the way statistics are presented in the real world. More

information will be provided on the Canvas page.



Course and University Policies:

Late Work/ Extensions:

Life happens. If you require an extension for the technical or conceptual assignment, you are responsible for completing the [Extension Request Form](#). If you need an extension for any other assignment, you are responsible for speaking with Dr. Woodward as soon as possible. Please note that asking for an extension does not guarantee you will receive full credit for work. If you do not have a legitimate absence (as defined by the university), you may still turn in late work for partial credit. You must contact me to let me know that you plan to turn in late work- or you will not receive credit. ***With the exception of attendance points, late assignments will lose 10% of the grade for each business day late.*** However, if you hand an assignment due on Friday in by Sunday at 11:59pm, then you will receive full credit (because Saturday and Sunday are not business days).

Please remember that legitimate absences (e.g., religious observance, intercollegiate athletics, ROTC, National Guard service, subpoenas, University band, University student government, a death in the family, jury duty, or a confirmed medical illness) can lead to an extension. If we have not heard from you within 48 hours of the due date, you forfeit any right to an extension for any reason.

While I am happy to talk to you in person, written documentation (via email) is necessary.

Make Up Exams:

Make up exams will be offered at the discretion of the instructor. When possible, let your instructor know of potential conflicts BEFORE the exam.

Make up exams must be completed within a week of the original date.

Incompletes:

Incompletes will only be granted in the case of medical or personal emergencies. Incompletes can only be given if you are receiving a grade of "C-" or higher on work already completed and you must have completed at least half of the work in the course, preferably at least 75% of the work in the course. Let me know as soon as possible if suspect you might need to take an incomplete in the course. Please note that to receive an incomplete you must sign a written agreement stating your timeline for completing missed work.

Student Conduct Code:

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected to adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:

https://regents.umn.edu/sites/regents.umn.edu/files/2019-09/policy_student_conduct_code.pdf

Disability Accommodations:

In compliance with the Americans with Disabilities Act (1990) and the University of Minnesota policy, students with any documented disabilities are

eligible for reasonable and appropriate accommodations in this class. A number of accommodations can be made in class if this applies to you. Please contact us and the Disability Resource Center as soon as possible if you need special accommodation for this course.

Electronic Devices:

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. In this class, we will be using computers to calculate statistics and for class participation. I expect that you will be on task and that you will not distract students around you.

Use of Course Materials:

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please

see: <https://policy.umn.edu/education/studentres>
[p](#)

Academic Integrity:

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of

academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code: https://regents.umn.edu/sites/regents.umn.edu/files/2019-09/policy_student_conduct_code.pdf)

If it is determined that a student has cheated, the student may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <https://policy.umn.edu/education/instructorresp>.

The Office for Community Standards has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty:

<https://communitystandards.umn.edu/avoid-violations/avoiding-scholastic-dishonesty>

Sexual Misconduct:

The University prohibits sexual misconduct, and encourages anyone experiencing sexual misconduct to access resources for personal support and reporting. If you want to speak confidentially with someone about an experience of sexual misconduct, please contact your campus resources including the Aurora Center, Boynton Mental Health or Student Counseling Services (<https://eoaa.umn.edu/report-misconduct>). If you want to report sexual misconduct or have questions about the University's policies and procedures related to sexual misconduct, please contact your campus Title IX office or relevant policy contacts.

Instructors are required to share information they learn about possible sexual misconduct with the campus Title IX office that addresses these concerns. This allows a Title IX staff member to

reach out to those who have experienced sexual misconduct to provide information about personal support resources and options for investigation. You may talk to instructors about concerns related to sexual misconduct, and they will provide support and keep the information you share private to the extent possible given their University role.

Duo Security:

If you use Duo Security to sign into University applications, YOU ARE STRONGLY ENCOURAGED to set up back-up devices in Duo Security so that you are prepared in the event that your primary Duo device is unavailable (e.g., you forgot it, it was stolen, it is broken, the battery is dead).

As a Duo user, it is your responsibility to be prepared to sign into applications necessary for class activities, including exams and quizzes. If you are unable to sign in, you might lose points for the class activity. Failure to have your Duo device or a back-up is not an excused absence or a valid reason for make-up work.

Definition of grades and academic workload policy:

According to the University Senate policy, the course syllabus must include a definition of grades. The University of Minnesota has adopted the following definition for letter grades:

- A** Achievement that is outstanding relative to the level necessary to meet course requirements.
- B** Achievement that is significantly above the level necessary to meet course requirements.
- C** Achievement that meets the course requirements in every respect.
- D** Achievement that is worthy of credit even though it fails to meet fully the course requirements.
- F** Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no

agreement between the instructor and the student that the student would be awarded an I. / Assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., hospitalization) a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.

Workload:

“For undergraduate courses, one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. For example, a student taking a three credit course that meets for three hours a week should expect to spend an additional six hours a week on coursework outside of the classroom.”

This is a 4-credit course, you should expect to spend an additional eight hours a week outside of lecture and lab on class material to earn a C (i.e., average grade) in this course. To earn a grade higher than a C, expect to spend more than eight hours a week on readings, studying for quizzes and exams, and completing assignments.

Modality transparency:

This course is scheduled as an in-person course. I intend to hold all class sessions in-person except if situational factors arise, such as personal illness of the instructor, when the class may be held synchronously via Zoom or recorded for later viewing.

COVID-19 Symptoms, Vaccination, Excused Absences, and Face Coverings

You should stay at home if you experience any signs of illness or have a positive [COVID-19 test](#) result. If this occurs, please consult with your healthcare provider about an appropriate course of action. I will follow these same protocols and will let you know if the delivery of this course has to be temporarily changed as the result of my own

circumstances. Absences related to illness, including COVID-19 symptoms, for yourself or your dependents, are [legitimate “excused” absences](#)

Vaccines: COVID-19 Vaccinations (or approved exemptions) are [required for all students and employees](#). Learn about vaccine and booster appointments on campus by visiting the FAQ on [Get the Vax](#) page.

Face coverings: Up-to-date policy information is available on the [Safe Campus](#) page. The University expects all community members to respect those who choose to wear a mask, as well as those who choose not to wear one.

I intend to wear a mask in class myself, and I fully support your individual choices around masking.

Indoor masking continues to be an important tool in high-risk situations. High-quality masks (N-95 or certified KN-95) will be available to students Fall 2022. Check the [Safe Campus](#) website for information on the location(s) for each campus.

Testing: Information on *When, Where, and What if* for testing is available on [MTest](#) webpage.

The above policies and guidelines are subject to change. The University regularly updates [pandemic guidelines](#) in response to guidance from health professionals and in relation to the prevalence of the virus and its variants in our community.

Expectations:

Attendance:

I expect that you will attend lectures and discussion sections when you are able. If you are unable to attend the class, I expect you to complete class activities and email your TA, your peers, or attend drop-in hours if you have questions. You are ultimately responsible for the material you miss and completing any assignments.

Grade Disputes:

I will do my best to ensure that the gradebook is up to date. If you receive a grade that you believe does not reflect your work, you will have one week after the grade is released to request a formal regrade. To request a regrade, you must email me with 1) the assignment in question, 2) what you think is incorrect about the grade, and 3) any supporting evidence for your request. Please note that a regrade does not guarantee a higher grade and can result in a lower grade. The

regrade is final, and I will not use the original grade, regardless of which is higher.

Self-Care:

Life happens. I expect you to prioritize your health and wellness and that of your loved ones. In these cases, I expect you to practice self-care and focus on taking care of yourself. If you require additional resources, please see the following:

<http://www.mentalhealth.umn.edu>

<http://www.mentalhealth.umn.edu/stressmgmt/index.html>

Should you require support in the class due to life circumstances, please complete the extension request form or email Dr. Woodward and your section TA.

Class Expectations:

During the first class, we will discuss expectations of our class and how to interact. Generally, I

expect that the classroom will be a place where you should feel comfortable. I expect you all to act civilly and professionally. If I ever do something that makes you feel excluded from the classroom, and you feel comfortable, please let me know.

Classroom Etiquette:

Lectures will be held in person. This is a time of transition for all of us. Please make sure to follow all university guidance regarding face masks and safety protocols.

Need Extra help?

The best resources for you in PSY3801 are your TAs and myself. We're available during our office hours, which are posted in the syllabus, and can accommodate other hours if those do not work for you. We can help you navigate the course and can help you build personalized support for the semester. If you'd like to meet with a tutor, I recommend checking in with [SMART commons](#), who may have free tutors available that can help you with content and study strategies.

Additionally, should you want help with creating effective study strategies, [Academic Skills Coaching](#) provides 1:1 sessions to help you generate strategies and think through your own study plans.

Another strategy that can be helpful is working with peers currently in the class. Explaining concepts to your peers and listening to them explain it can help students connect more to class material. If you're interested in this approach, please see the Study Buddy discussion board in our class. Finally, if you'd like to brainstorm other options, please feel free to meet with me during office hours or let me know another

time that works for you. We can discuss specific concerns you have about the class.

Have a Question?

- Check the course website and all course information
- Post your question on the class discussion board (chances are that others have the same question!)
- Email your TA or ask during discussion (they are a great resource!). Do not expect replies after 5pm or on weekends
- Email me and include "PSY 3801" in the subject line.

Come Prepared:

Learning statistics is important but can be challenging. Make sure to stay up to date on all assignments and on all readings. This will allow you to engage with the material better and ask questions.

Email:

Primary course communication will occur via email. Please check your UMN email frequently and let us know if you have questions. You should also check your Canvas email and announcements regularly for course updates. When emailing me, you should include "PSY3801" in the subject line.

I will do my best to respond to email with 24 – 48 hours (and will often respond faster). Please note that I typically sign off around 6 pm and emails sent late at night may not be answered until the following morning. For this reason, I recommend looking at assignments ahead of time.

Time Management:

This document contains every assignment that will be due in this course. Due dates are both in this syllabus and on the course website, and I expect

you to manage your time appropriately. Semesters go by fast, so please do not wait until the end to submit your work. If you have any questions about ways to manage time or keep track of assignments, please see the following for some applicable strategies or feel free to come to drop-in hours to discuss other strategies:

- [Student Academic Services Self-Help Resources](#)
- [Effective U Time Management Tutorial](#)
- [Managing Time More Effectively TED Talk](#)
- [Free Time and Time Management TED Talk](#)

Be curious:

Ask questions! Explore on your own and share. Make connections between your own life/ TV/ the real world in class. These techniques help solidify course concepts, and I hope that you share these thoughts with me, your TAs, on discussion boards, and with your peers.



Course Schedule:

This is a tentative course schedule. Any changes to this document will be emailed and posted on the course website. *It is your responsibility to check the materials posted online.*

Week	Day	Date	Question	Topic	Readings	Assignments(s)
1	Wed	9/7	What are we doing	Introduction to the course		Welcome Survey Syllabus Assignment Problem Solving Handout/Reflection
	Section		How are we doing it?	Setting up R and R Studio?	Navarro Ch 1-4	
2	Mon	9/12	How do we make sense of data?	Descriptive Statistics	Spatz Ch 1-4 Navarro 5-6	Pre-Class #1 Tech Assignment #1 Conceptual Assignment #1
	Wed	9/14				
	Section			Descriptive Statistics in R		
3	Mon	9/19	How can we visualize data?	Descriptive Statistics from Graphs	Spatz Ch 1-4 Navarro 5-6	Pre-Class #2 Tech Assignment #2 Conceptual Assignment #2
	Wed	9/21				
	Section			Creating Graphs in R		
4	Mon	9/26	How do we compare scores?	Standardizing data and introduction to distributions		Pre-Class #3 Tech Assignment #3 Conceptual Assignment #3
	Wed	9/28				
	Section			standard scores in R		
5	Mon	10/03	What does it mean?	Sampling distributions		Pre-Class #4 Tech Assignment #4 Conceptual Assignment #4
	Wed	10/5		Null		

				Hypothesis Significance Testing		Evaluating Statistics #1
	Section			Central Limit Theorem and Probability Practice		
6	Mon	10/10	How do we evaluate and share statistics?	Statistical vs Practical Significance		Case Study #1 Unit Wrapper #1
	Wed	10/12		Introduction to Open Science		
	Section			Preregistration Practice		
7	Mon	10/17	How can we compare samples to populations ?	Z statistic		Pre-Class #5 Tech Assignment #5 Conceptual Assignment #5
	Wed	10/19		one sample t statistic		
	Section			z and t tests		
8	Mon	10/24	How can we compare averages across groups?	Independent samples t-test		Pre-Class #6 Tech Assignment #6 Conceptual Assignment #6
	Wed	10/26		Dependent samples t-test		
	Section			t-tests in R		
9	Mon	10/31	What happens if we have more than two averages?	ANOVA		Pre-Class #7 Tech Assignment #7 Conceptual Assignment #7
	Wed	11/02				
	Section			ANOVA in R		
10	Mon	11/07	What happens if we have	Repeated Measures ANOVA		Pre-Class #8 Tech Assignment #8

	Wed	11/09	more than two averages?	Factorial ANOVA		Conceptual Assignment #8
	Section			ANOVA in R		
11	Mon	11/14	What if we violate assumptions ?	Nonparametric tests		Pre- Class #9
	Wed	11/16				
	Section			Nonparametric tests in R		Conceptual Assignment #9
12	Mon	11/21	Catch Up			Case Study #2
	Wed	11/23	Misinformation and Fake News			Unit Reflection #2
	Section	Thanksgiving- No Section				
13	Mon	11/28	How can we assess relationships?	Correlation		Pre-Class #10
	Wed	11/30				
	Section			Correlations in R		Conceptual Assignment #10
14	Mon	12/05	How can we assess relationships?	Simple Regression in R		Pre-Class #11
	Wed	12/07		Multiple Regression in R		Tech Assignment #11
	Section			Regression in R		Conceptual Assignment #11
15	Mon	12/12	Where do we go from here?	Advanced Statistics		Pre-Class #12
	Wed	12/14		Wrap Up		Tech Assignment #12
	Section	Last week of classes- no section				
						Conceptual Assignment #12

16	Final					Case Study #3 Unit Reflection #3
----	-------	--	--	--	--	-------------------------------------