Psychology 295-002: Data Analysis in Psychological Research

Course Time & Location

This is an asynchronous online course. Therefore we have no set class meeting time or location. All work for the course will be done remotely. There are, however, **due dates for exams and homework assignments**. These are listed in the schedule on Page 5 of this document. **Please add these due dates to your calendar now, so you do not forget them.** If you are not in Michigan, note that all times in this document are in **Eastern Standard Time (EST)**, so please remember to convert them to your local time before adding them to your calendar.

Prerecorded video lectures will be posted to the course's D2L site. The schedule on Page 5 of this document gives the date each lecture will be posted on D2L—it is **strongly recommended that you keep up with the lectures**, watching them as they are posted, just like you would regularly attend class for an in-person course.

The schedule on Page 5 of this document also gives the availability and due dates for all exams and homework assignments. **Once again, pay careful attention to these due dates**, as it can be easy to miss due dates in an asynchronous course.

Office hours & Contact Information

Myself and the TAs will all hold regular office hours over Zoom. Zoom is freely available to all MSU students (https://msu.zoom.us). If you would like to talk to one of us, but cannot make our office hours, email to setup an different time. **Be sure to use your MSU account when trying to join a Zoom meeting as for security reasons our office hours are only accessible to MSU users.**

Instructor	Office Hours	Zoom Link	Email
Prof: Dr. Karl Healey	Thurs 2:30PM–3:30PM	https://msu.zoom.us/j/95766444569	khealey@msu.edu
TA: Rachel Pyram	Mon 3:00PM-5:00PM	https://msu.zoom.us/j/98680162217	pyramrac@msu.edu
UA: Ave'r McKay	Tues 10:00AM-Noon	https://msu.zoom.us/j/94569924001	mckayave@msu.edu
UA: Lance Kehr II	Wed 10:00AM-4:00PM	https://msu.zoom.us/j/95867126244	kehrlanc@msu.edu

Course Description & Objectives

This course provides an introduction to the data analysis techniques used in the behavioral sciences. This is a course for researchers, not statisticians, therefore we will focus on statistics as a tool for understanding data. To that end, the major objective is to teach you how to select the best technique to analyze a particular dataset, carry out the analysis, and interpret the results. We will cover a number of different analyses including: *t*-tests (single-sample, independent-sample, and dependent-sample), analyses of variance, correlation, and regression.

Required Materials

Official Text

The official text is *Gravetter, F. J., Wallnau, L. B., & Forzano, L-A. B. (2014). MindTap: Essentials of Statistics for The Behavioral Sciences (9th Ed.). Wadsworth, Cengage Learning. 9th edition with MindTap Psychology.*

This is an electronic textbook.

The electronic text includes access to *MindTap*, a web-based app that includes a variety of practice problems, demos, virtual flash cards, and other study aids.

MindTap is required—you need it to complete and submit homework for the course.

You have two options for purchasing the book and MindTap. Both can be found here: https://www.cengage.com/dashboard/#/course-confirmation/MTPNR1BQ58LC/initial-course-confirmation

1. The "Digital Platform" tab is just our textbook and MindTap.
2. The "Cengage Unlimited" tab is a subscription that gives you access to all electronic textbooks published by Cengage as well as access to MindTap. This is the best option if you are taking other courses using Cengage ebooks this semester as you get them all for one price.

You must have MindTap access. The "textbook/eBook" tab does not include MindTap. Many used copies do do not have MindTap access either. Please be careful to ensure you are getting the right thing before paying anyone. Don't hesitate to reach out to me if you need help with this!

Calculator

You will need a calculator that has a square root function. You will need this for exams, therefore it must be a dedicated calculator and not an application on your phone or computer. One good option is the TI 30XA, which you can get for about $10 online.

D2L

I will maintain a D2L course webpage. The website will have the syllabus and study guides. Along with each lecture, I will post pdf's of the slides I used. Grades on exams will also be on D2L, but your HPR/Sona credits will not: those are listed in a dedicated system (see instructions below).

Getting Help—Office Hours and Email

The best way to get help is to come to office hours. The TA, UAs, and I hold regular office hours. If you can't make office hours, you can email us to make an appointment for a different time. If you are having problems, or just want more information about the course material come see us—Don't hesitate to take advantage of the office hours!

Questions about statistics can be very difficult to communicate and answer over email (it often requires visual aids or looking at an equation)—you can almost always get a much better answer in person. Therefore, we will not answer technical questions over email. Don't hesitate to take advantage of the office hours!

If you have a non-technical question that requires only a short response, you can email the TA. We will try to be diligent about responding, but occasionally your message may be hidden amongst the spam; If you don't hear back in a reasonable time, send the message again. If a TA is unable to answer your question email me. For questions that require a longer response please use office hours.

Grading

You can earn up to 600 points from the following required assignments:

Assignment Type	Description	Points Each	Total Points
Exams	3	100 per exam	300
Homework	Best 6 out of 10 graded	45 each	270
Subject Pool	5 hours	6 points per hour	30
Course Total			**600**

Your final grade is based on the percentage of the 600 points you earn:

Grade	Percentage
4.0	90% and above
3.5	85 – 89%
3.0	80 – 84%
2.5	75 – 79%
2.0	70 – 74%
1.5	65 – 69%
1.0	60 – 64%
0.0	59% and below

Exams

There will be three exams: two midterms and a final exam. They will test your knowledge of the material presented in lecture and the textbook. The material we will learn early in the semester provides the building blocks for the more complex techniques we learn later. That is, the material is fundamentally cumulative, and as such, so are the exams. Nonetheless, each exam will primarily focus on material covered since the previous exam.

The exams will include both multiple choice questions and long-answer problems. Both types of questions may require calculations. Therefore, make sure to bring an "exam-approved" calculator to the exams (see above).

For exams, you are allowed to bring an 8.5" x 11" (regular letter size) cheat sheet. You can write front and back on the cheat sheet, and include anything that you may find helpful (e.g., formulas, definitions, a micro-printed copy of the textbook, etc.). Only one sheet of letter-sized paper is allowed—any attempt to add more room by attaching additional sheets or post-its, or any other method will be considered cheating. Your cheat sheet must include your name and ID# in the top left hand corner. You should be prepared to show us your cheat sheet upon request (e.g., by scanning it, taking a picture with a phone, etc.).

All exams will be administered through D2L's online testing features. You can start the exam anytime between 12AM EST and 11:59PM EST on the day of the exam (see course schedule on Page 5). That is, you have a 24 hour window in which to start the exam. Once you start, you will have 2hrs to complete the exam. You will receive emails with instructions on how to access the exam before each exam, so be sure to check your email regularly. We will also be posting a practice exam to D2L before exam 1 to ensure everyone is familiar with how to access the exam system.

Homework

Statistics is a skill as much as a body of knowledge. Like any skill, acquiring it requires practice. Therefore, 10 homework assignments will be due at **11:59PM EST on Thursday** of the weeks listed in the course schedule on Page 5. Absolutely no late homework will be accepted—late homeworks with receive a grade of zero—no exceptions. Instead, your 4 lowest homework scores will be dropped, so only your best 6 homework grades will count. Homework assignments will be posted on MindTap.

Subject Pool Participation (HPR/Sona)

Part of this course is participation in research. You will receive 6 points for every hour of research participation up to a total of 30 points. For example, if you do 3.5 hours you will get $3.5 \times 6 = 21$ points. Details for how to create your Sona account are available under the "Sona Setup" link on D2L. Be careful: some experiments posted on Sona compensate with money, not course credit! For all questions about research participation, please contact the Research Participation Coordinator (Ms. Audra Jeffrey jeffre22@msu.edu).

If you are under 18 years old and therefore cannot participate in research, you can perform an alternative assignment. For details on this assignment, please contact Ms. Audra Jeffrey (jeffre22@msu.edu). If you do not wish to participate in research for any other reason but would still like to get the points, then you can contact the TA to learn about an alternative assignment.

Make Up Exams

You may take a makeup exam in case of (1) a documented medical emergency, or (2) a legitimate schedule conflict, such as a religious holiday or sports travel, that you inform the professor about at least 1 week in advance. In either case, please send me an email identifying the emergency or conflict as soon as possible. In those cases, you may take the exam either at another time on the normal exam day, or sometime prior to the next course meeting. If you cannot take the exam on one of those days, then that exam will be omitted from your final score and its points distributed over the other exams. If you miss an exam for any other reason, or don't notify us about your emergency or conflict, your score will be 0.

Extra-Credit

You may complete up to 2 hours of HPR/Sona experiments in addition to any points you completed as part of the course's HPR/Sona requirement. Each point completed in this way will earn you 6 points upto a total of 12 points. The same deadline applies as for the standard HPR/Sona experiments (see above). If you do not wish to participate in research or are under 18 and cannot participate, contact the TA to learn about an alternative extra-credit assignment.

Special Considerations related to COVID-19

Please read the Michigan State University Community Compact regarding COVID-19 (https://msu.edu/together-we-will/msu-community-compact/). If you need to self-isolate due to COVID-19, please let me know and I will work with you to ensure illness or self-isolation does not harm your performance or put you at a disadvantage in the class.

Academic Honesty

Article 2.III.B.2 of the Student Rights and Responsibilities states "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the Psychology Department adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: www.msu.edu.)

Therefore, except where specifically authorized by me, you are expected to complete all course assignments and exams without assistance from any source. You may not submit course work you completed for another course to satisfy the

requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in this course. Students who violate MSU academic integrity rules will receive a penalty grade of a zero on the assignment. Contact me if you are unsure about the appropriateness of your course work. (See also the Academic Integrity webpage.)

Limits To Confidentiality

Materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including the TA and I, must report the following information to other University offices (including the Department of Police and Public Safety) if you share it with us:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and
- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the MSU Counseling Center.

Accommodations for Students with Disabilities

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received without sufficient lead time will not be honored. If you require testing accommodations (additional time, less disruptive room, etc.) you must contact me and present your VISA at least two weeks before the exam date to schedule an alternative exam. Typically, I will schedule for you to take the exam during a special exam session offered by the Psychology Department. Those exams occur in small group settings and are offered every Tuesday at 5:00pm and Friday at 9:00am in Giltner 346. If you are unable to make either of those times, or that option does not meet your VISA accommodations, you may be able to schedule to take your exam at the RCPD office. In either case, the exam must be scheduled well in advance, so you need to adhere to the two-week prior notification requirement.

Disruptive Behavior

Article 2.III.B.4 of the Student Rights and Responsibilities (SRR) for students at Michigan State University states: "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.III.B.10 of the SRR states that "The student and the faculty share the responsibility for maintaining professional relationships based on mutual trust and civility." General Student Regulation 5.02 states: "No student shall... interfere with the functions and services of the University (for example, but not limited to, classes...) such that the function or service is obstructed or disrupted." Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Judicial Affairs office.

Course Schedule

- This schedule is tentative. I reserve the right to change it to best suit the course.
- Lectures are posted to the "lectures" section of D2L
- Homeworks are posted on MindTap
- Exams will be accessible on D2L on the day of the exam.
- **Please mark the homework and exam dates on your calendar now!**

Date	Lectures Assigned	Text Chapters Assigned	Homeworks (HW) Due	Exam Secheduled
Thu, Sep 3	Welcome to Psy295			
Thu, Sep 10	Introduction to Statistics Frequency Distributions	1 2		
Thu, Sep 17	Central Tendency Frequency Distributions	3 4	HW1	
Thu, Sep 24	z-scores	5	HW2	
Thu, Oct 1			HW3	**Exam 1**
Thu, Oct 8	Probability	6		
Thu, Oct 15	Distribution of sample means	7		
Thu, Oct 22	Hypothesis testing basics	8	HW4	
Thu, Oct 29	The t-statistic	9	HW5	
Thu, Nov 5	Independent sample t-tests	10	HW6	
Thu, Nov 12				**Exam 2**
Thu, Nov 19	Paired sample *t*-tests Analysis of variance I	11 12	HW7	
Thu, Nov 26	Analysis of variance II	13		
Thu, Dec 3	Correlation & Regression	14	HW8	
Thu, Dec 10	Non-parametric Statistics	15	HW9 HW10	
Thu, Dec 17				**Exam 3**

Critical Dates

Exam 1: Thursday, Oct 1
Exam 2: Thursday, Nov 12
Exam 3: Thursday, Dec 17

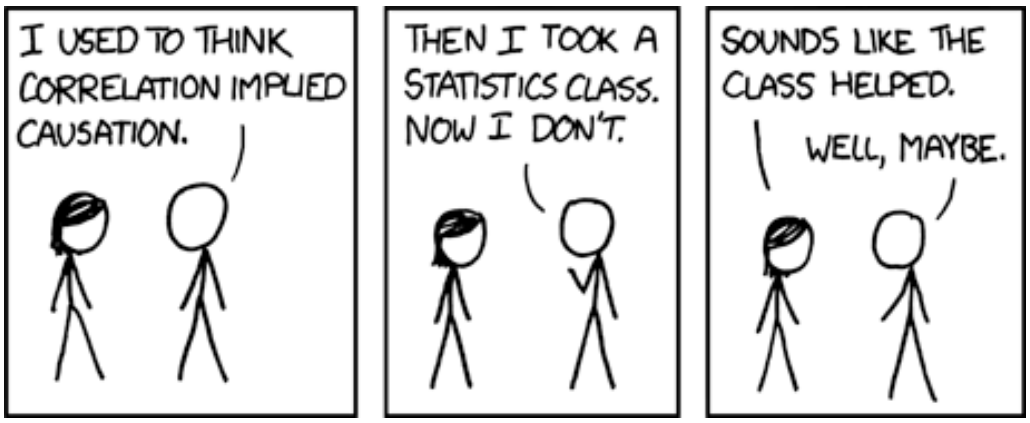

Figure 1: xkcd.com