

PSYCHOLOGY 295 Data Analysis in Psychological Research - Sections 740 and 741

Spring 2023 Syllabus
Department of Psychology

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Part 1: Course Information

This is a hybrid in-person and online course. The class is divided into two sections. One section will meet in person on Tuesdays. The other will meet on Thursdays. **Be sure to know which section you are in and attend on your assigned day.**

Lectures will be posted to D2L and must be watched outside of our in-person meeting time. For most weeks, our in-person meetings will be devoted to working through example problems together and reviewing key concepts from the D2L lectures. The week before each exam, the in-person meetings will be devoted to a review session held by the TA and UAs.

There are **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.**

All times in this document are in **Eastern Standard Time (EST)**.

Credit Hours: 3

In-Person Meeting Day/Time for **Section 740: Tuesday 10:20AM - 11:10AM**

In-Person Meeting Day/Time for **Section 741: Thursday 10:20AM - 11:10AM**

Meeting Location for both sections: Psychology Building Room 118

Online Lectures: Posted to D2L

Website: d2l.msu.edu

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 a fully 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 a hybrid course.

Instructor Information

Instructor: Dr. Karl Healey

Preferred Pronouns: he, him, his

Office Hours: Thursdays 1:00PM – 2:00PM (Zoom or in-person)

Zoom link for office hours: <https://msu.zoom.us/my/khealey>

In person: Psychology Building Room 289C

Office Telephone: 517-432-3107

E-mail: khealey@msu.edu

Graduate Teaching Assistant

Assistant: Rachael Pyram

Preferred pronouns: she/her

Office Hours: Wednesday 2:00 – 4:00 PM ET (Zoom or in person)

Zoom: <https://msu.zoom.us/j/95244544520?pwd=NFNRbGRoTEw2akFqQk5XRVPiZFNQUT09>

In person: Psychology Building Room 302

E-mail: pyramrac@msu.edu

Undergraduate Assistants

Assistant: Siying Rao

Preferred pronouns: she, her, her

Office Hours: Mondays 12:00PM – 1:00PM (Zoom)

Zoom for office hours:

<https://msu.zoom.us/my/siying?pwd=TzI5Yk91bXhzeEdxOVA2UEd4cVQ3dz09>

Telephone: 517-833-0688

E-mail: raosiyin@msu.edu

Assistant: Emma Watson

Preferred pronouns: she/her/hers

Office Hours: Tuesdays 12:00PM – 2:00PM

Zoom for office hours: <https://msu.zoom.us/j/3716179693> Passcode: 545857

E-mail: watso293@msu.edu

Course Description and Instructional 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 instructional objectives are to teach you how to select the best technique to analyze a particular dataset, carry out the analysis, and interpret the results. By the end of the course, you should know a number of different analyses including: t-tests (single-sample, independent-sample, and dependent-sample), analysis of variance, correlation, and regression.

Textbook & Course Materials

- The official text is: FREDERICK J GRAVETTER, LARRY B. WALLNAU, LORI-ANN B. FORZANO, AND JAMES E. WITNAUER (2021). ESSENTIALS OF STATISTICS FOR THE BEHAVIORAL SCIENCES (10TH ED.) CENGAGE LEARNING.
 - Editions 7 and newer contain all the material we will cover in the class and can be used instead.
- 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.
- During the in-person sessions, we will be working through problems together (i.e., doing some math), so you will need to bring paper and something to write with. I suggest a pencil and an eraser rather than a pen.
- Access to Desire2Learn (D2L)
 - The course's D2L website will have the syllabus, lectures, and study guides. Along with each lecture, I will post PDFs 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! ***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.***

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 or a UA. 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.

Part 2: Course Schedule

- The schedule is tentative. I reserve the right to change it to best suit the course.
- Lectures will be posted to the “Lectures” section of D2L.
- Homework will be posted to the “Homework” section of D2L.
- Exams will be accessible on D2L on the day of the exam.
- Please mark the homework and exam dates on your calendar now!

<i>Date</i>	<i>Topic</i>	<i>Chapter</i>	<i>Homework (HW) Due</i>
January 10	Welcome to PSY295		
January 12	Introduction to statistics	1	
January 17	Frequency distributions	2	
January 19	Central tendency	3	
January 24	Variability	4	
January 26	Variability	4	
January 31	z-scores	5	
February 2	z-scores	5	
February 7	Exam 1		
February 9	Exam 1		HW1, HW2, HW3
February 14	Probability	6	
February 16	Distribution of sample means	7	
February 21	Distribution of sample means	7	
February 23	Hypothesis testing basics	8	
February 28	Hypothesis testing basics	8	
March 2	The t-statistic	9	
March 7	Spring Break		
March 9	Spring Break		
March 14	The t-statistic	9	
March 16	Independent sample t-tests	10	
March 21	Exam 2		
March 23	Exam 2		HW4, HW5, HW6
March 28	Paired sample t-tests	11	
March 30	Analysis of variance I	12	
April 4	Analysis of variance I	12	
April 6	Analysis of variance II	13	
April 11	Correlation & regression	14	
April 13	Correlation & regression	14	
April 18	Non-parametric statistics	15	
April 20	Non-parametric statistics	15	
April 25	Exam 3		
April 27	Exam 3		HW7, HW8, HW9, HW10
May 2	Office hours		
May 4	Office hours		

Part 3: Grading Policy

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

Graded Course Activities

The table below describes the graded course activities, including points and activity description. The first column includes the assignment type, the second column describes how many assignments of that type there are, the third column indicates how many points each of that assignment is worth, and the fourth column indicates how many total points are possible for all of those assignments.

<i>Assignment Type</i>	<i>Description</i>	<i>Points Each</i>	<i>Total Points</i>
Exams	3	100 per exam	300
Homework	Best 8 out of 10 graded	33 $\frac{3}{4}$ each	270
Subject Pool	5 hours	6 per hour	30
<i>Course Total</i>			<i>600</i>

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 you can 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 giving us the original, 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 days the exam is offered (Tuesday and Thursday – see course schedule on Page 5). That is, you have two 24 hour windows in which to start the exam, one on Tuesday and one on Thursday. Once you start the exam, you will have 2 hours 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.

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 required throughout the course. Because this is a hybrid course, different students will progress through the lectures at different paces. To allow each student to work at their own pace, a batch of homework assignments related to each exam will all be due at **11:59PM EST on Friday** of exam weeks. These dates are listed in the course schedule on Page 5. You can complete the homework associated with a given exam at any time before then. Absolutely no late homework will be accepted — late homework will receive a score of zero — no exceptions. Instead, your 2 lowest homework scores will be dropped, so only your best 8 homework grades will count. Homework assignments will be posted on D2L.

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 the TA. 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 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 a zero.

Extra Credit

You may complete up to 2 bonus hours of HPR/Sona experiments in addition to any points you completed as part of the course's HPR/Sona requirement. Each bonus hour completed in this way will earn you 6 points, up to 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.

Grade Assignment (Grading Scale)

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

The table below describes the relationships between grades and percentage of total points. The first column describes the grade. The second column describes the percentage associated with that grade.

<i>Grade</i>	<i>Percentage</i>
4.0	90% and above
3.5	85 – 90%
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

Part 4: Course Policies

Special Considerations related to COVID-19

Please read the Michigan State University Community Compact regarding COVID-19 (<https://msu.edu/together-wewill/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 [Academic Rights and Responsibilities](#) states that "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 Online](#) (splife.studentlife.msu.edu) and/or the [MSU Web site](#) (msu.edu) for more.

Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, 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 may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor 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 instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices (including the Department of Police and Public Safety) if you share it with me:

- 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

[From the Resource Center for Persons with Disabilities](#) (RCPD): 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 after this date will be honored whenever possible.

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 [Student Rights and Responsibilities](#) 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 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 . . . obstruct, disrupt, or interfere with the functions, services, or directives of the University, its offices, or its employees (e.g., classes, social, cultural, and athletic events, computing services, registration, housing and food services, governance meetings, and hearings)." Students whose conduct adversely affects the learning environment may be subject to disciplinary action through the Student Judicial Affairs office.

Attendance

Students whose names do not appear on the official class list for this course may not attend this class. Students who fail to attend the first four class sessions or class by the fifth day of the semester, whichever occurs first, may be dropped from the course.