# PSYCHOLOGY 295-730 Data Analysis in Psychological Research

Fall 2024 Syllabus

Department of Psychology

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## Part 1: Course Information

Credit Hours: 3

Website: d2l.msu.edu

Time and 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** listed in the schedule below. **Please add these due dates to your calendar so you do not forget them.** All times are in Eastern Standard Time (EST).Lectures videos will be posted to D2L. The schedule below gives the date each lecture will be posted. 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.

### Instructor Information

Instructor: Dr. Karl Healey

Office Hours: Wednesdays 11:00AM – Noon (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: Erin Neaton

Office Hours: Fridays 9:45AM – 11:45AM (Zoom or in-person)

Zoom: <https://msu.zoom.us/j/98787981627>

In person: Room TBD

E-mail: neatoner@msu.edu

### Undergraduate Assistants

Assistant: Kayla Tracey

Office Hours: Wednesday, 6:00 PM-8:00 PM

Zoom: <https://msu.zoom.us/j/91929267940> (Password: PSY295)

E-mail: traceyk1@msu.edu

Assistant: Ha Tran

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

Zoom: [https://msu.zoom.us/j/99986874027](http://https:/?msu.zoom.us/j/99986874027) (Password: PSY295)

E-mail: tranha1@msu.edu

Assistant: Celeste Robinson

Office Hours: Monday 9:30AM – 11:30AM

Zoom: <https://msu.zoom.us/j/94833120947> (Passcode: psy295)

E-mail: robi1291@msu.edu

### Course Description and Instructional Objectives

This course introduces 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 several 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. **Although many students find the textbook helpful, it is *not required*.** All the information needed for the course is provided in the lectures.
* 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.
* 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 – Study Aids, Office Hours and Email

On D2L there is a Study Aid section that includes study guides and practice problem sets along with answer keys. These guides and problems are designed to provide you with the practice you need to do well on homework and exams.

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 joining a Zoom meeting as 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.

Please mark the exam and homework dates on your calendar now!

| ***Date*** | ***Topic*** | ***Chapter*** | ***Homework (HW) Due*** |
| --- | --- | --- | --- |
| August 28 | Welcome to PSY295 |  |  |
| August 30 | Introduction to statistics | 1 |  |
| September 04 | Frequency distributions | 2 |  |
| September 06 | Central tendency | 3 |  |
| September 11 | Variability | 4 |  |
| September 13 | Variability | 4 |  |
| September 18 | z-scores | 5 |  |
| September 20 | z-scores | 5 |  |
| September 25 | Review Session |  |  |
| September 27 | **Exam 1** |  | **HW1, HW2, HW3** |
| October 02 | Probability | 6 |  |
| October 04 | Distribution of sample means | 7 |  |
| October 09 | Distribution of sample means | 7 |  |
| October 11 | Hypothesis testing basics | 8 |  |
| October 16 | Hypothesis testing basics | 8 |  |
| October 18 | The t-statistic | 9 |  |
| October 23 | The t-statistic | 9 |  |
| October 25 | Independent sample t-tests | 10 |  |
| October 30 | Review Session |  |  |
| November 01 | **Exam 2** |  | **HW4, HW5, HW6** |
| November 06 | Paired sample t-tests | 11 |  |
| November 08 | Analysis of variance I | 12 |  |
| November 13 | Analysis of variance I | 12 |  |
| November 15 | Analysis of variance II | 13 |  |
| November 20 | Correlation & regression | 14 |  |
| November 22 | Correlation & regression | 14 |  |
| November 27 | Non-parametric statistics | 15 |  |
| November 29 | Non-parametric statistics | 15 |  |
| December 04 | Review Session |  |  |
| December 06 | **Exam 3** |  | **HW7, HW8, HW9, HW10** |
| Exam Week | 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.

| ***Assignment Type*** | ***Description*** | ***Points Each*** | ***Total Points*** |
| --- | --- | --- | --- |
| Exams | 3 | 100 per exam | 300 |
| Homework | Best 8 out of 10 graded | 33 ¾ each | 270 |
| Subject Pool | 5 hours | 6 per hour | 30 |
| Course Total |  |  | 600 |

### Exams

There will be three exams: two midterms and a final exam. They will test your knowledge of the material presented in the lectures. 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).

During exams you are allowed to use an 8.5” x 11” (regular letter size) note sheet. You can use both sides of your note sheet, and you can include anything that you want (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 note sheet must include your name and ID# in the top left-hand corner. You should be prepared to submit your note sheet upon request.

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. Once you start the exam, you will have 80 minutes 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.

**Policy on makeup exams:** In the interest of fairness, **the following makeup exam policy will be applied consistently with absolutely no exceptions**. You may take a makeup exam in case of (1) a documented medical or family emergency, or (2) a legitimate schedule conflict, such as a religious holiday or MSU-sponsored travel, that you inform me 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 in the 72hrs following the originally scheduled exam time. If you cannot take the exam on one of those days, then it will be omitted from your final score and its points distributed evenly 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. **Some students feel comfortable asking for special exceptions to the makeup policy (e.g., for a vacation), other students who have similar circumstances respect the policy and do not ask for an exception. Therefore, to ensure fairness *all requests for exceptions to the policy will be denied.***

### 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. To allow each student to work at their own pace, a batch of homework assignments related to each exam will all be due at 11:59AM EST on the day of the associated exam. 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 with 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 × 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). All HPR/Sona experiment participation must be completed by the last day of class for the semester.

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.

### 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 this way will earn you 6 points, up to 12 points. All HPR/Sona experiment participation must be completed by the last day of class for the semester. 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.

| ***Grade*** | ***Percentage*** |
| --- | --- |
| 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

### Academic Honesty

Article 2.III.B.2 of the [Academic Rights and Responsibilities](http://splife.studentlife.msu.edu/student-rights-and-responsibilities-at-michigan-state-university/article-2-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](http://splife.studentlife.msu.edu/regulations/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](https://ombud.msu.edu/academic-integrity/). See [Spartan Life Online](http://splife.studentlife.msu.edu/) (splife.studentlife.msu.edu) and/or the [MSU Web site](http://www.msu.edu/) (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](https://ombud.msu.edu/academic-integrity/).)

### Use of Generative A.I.

The use of generative AI tools (such as ChatGPT, DALL-E, etc.) is not permitted in this class; therefore, any use of AI tools for work in this class may be considered a violation of Michigan State University’s policy on academic integrity, the Spartan Code of Honor Academic Pledge and Student Rights and Responsibilities, since the work is not your own. The use of AI tools will result in a score of zero on the relevant assignment.

### 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](https://www.rcpd.msu.edu/get-started/faculty-departmental-resources/model-statements-disability-inclusion) (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](https://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](http://splife.studentlife.msu.edu/student-rights-and-responsibilities-at-michigan-state-university/article-2-academic-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](http://splife.studentlife.msu.edu/regulations/general-student-regulations) 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.