

**MICHIGAN STATE UNIVERSITY**  
**PSY295 Data Analysis in Psychological Research, Section 001**  
**Fall 2022**

**In-person (Wells Hall, Room B117), Monday/Wednesday 8:30am – 9:50am**

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**Teaching Assistants**

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## Required Materials

- Aron, A., Aron, E. N., & Coups, E. J. (2006). *Statistics for psychology* (6<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall. (Please make sure that you have the correct edition, as homework problems are selected from this book. A copy of the book is available on library reserve).
- i-Clicker
- Calculator (Please bring a calculator to every class session. Simple calculators would be sufficient, assuming they have a square and square root function. Cell phones or PDAs with a calculator function are not sufficient.)

## Course Description

This course is designed as an introduction to basic concepts and procedures used in descriptive and inferential statistics, especially as applied to the behavioral sciences. Descriptive statistics such as central tendency, measures of dispersion, and standardized scores will be covered. Inferential statistics such as z- and t-tests, ANOVA, correlation, regression, and chi-square will be discussed. Finally, links between various statistical analyses and particular research questions pertaining to various branches of psychology will be made.

## Course Objectives

By the end of this course, students should be able to:

- Explain basic concepts of statistic;
- Summarize numeric data by computing descriptive statistics and by creating tables and graphs;
- Differentiate between different inferential statistics and understand their applications to the psychological research;
- Compute various inferential statistics;
- Test hypothesis and interpret research findings; and
- Apply the correct statistical analysis when provided with a specific research question.

## Time Zones

All times and due dates listed in this syllabus and on D2L are for Eastern Time. We will start the semester with Eastern Daylight Time, and then switch to Eastern Standard Time after November 1<sup>st</sup>. If you are traveling during the semester outside of the Eastern time zone, you will want to be aware of this and change your time zone to EST so that you don't miss any due dates/times.

## Honors Option

An honors option is not offered for this course.

## Course Format and Course Website (D2L)

This offering of PSY295 will be an **in-person class**. We will conduct the lectures, tests, and final exam in person. Please note that **lectures will not be available online synchronously, nor will an online recording of the lecture be available after the scheduled date. All tests and the final exam will only be offered in person.** Some of the course activities, such as homework assignments, test reviews, and exam review, will be held through the Desire 2 Learn (D2L) course management system (<https://d2l.msu.edu/>).

In order to complete the activities through D2L website, you will need to have a high-quality computer with consistent access to a high-speed internet connection. **You need to have access to high-speed internet when all of the assignments are due.** If your internet connection is down when you need to turn in a homework assignment, it is your responsibility to get access to the internet ASAP! **In the case of missing deadlines because of internet connectivity problems, I will not give extensions on homework assignments.**

Please follow these suggestions to prevent problems during your participation in this course:

1. Use a recommended browser, like Chrome or Firefox.
2. Clear your cache and cookies before starting a homework assignment.
3. Have D2L open only to the homework browser. If you have the course open in a second browser then you may have guest status in the homework browser and be logged in with your NETID in the other. Your homework could end up with blank sections even after you enter data or it can skip questions.

## Technical Assistance

If you need technical assistance at any time during the course or to report a problem, you can:

- Visit the Distance Learning Services Support Site at <https://lib.msu.edu/dls/>
- Visit the Desire2Learn Help Site at <http://help.d2l.msu.edu/>
- Or call Distance Learning Services (D2L Help Line) at (800) 500-1554 or (517) 355-2345
- If you experience other technological issues, including D2L outside of business hours EST, call the MSU Help Line at (844) 678-6200 or (517) 432-6200. Help is available 24 hours / 7 days a week! The help line can also help troubleshoot issues with your computer. **Time differences will not be an acceptable excuse for not reporting problems to the help line; they are available 24/7 throughout the course.**

Many professors and instructors have found the Help Line very useful. It is my recommendation to take advantage of the Help Line or MSU Help Line before emailing me with any questions or concerns about D2L or other technical issues.

## Homework Assignments

Statistics are not really understood until they have been applied. For this reason, I have assigned a series of short homework assignments, to be completed via D2L. There is no back-tracking for homework assignments, meaning after you answer a question, you will not be able to return and change your answers later. There are no make-ups for homework assignments; instead, your two lowest homework assignment grades will be dropped. You will be able to review incorrect homework responses after you have submitted your homework. *No late homework assignment will not be accepted unless a valid excuse is presented.*

Homework assignments are open-book, open-notes, and there is no time limit for each of the assignment. You just need to submit your assignment by the due date/time. The questions included in the assignment can be conceptually-based, and they can also involve calculation. Each homework assignment is worth 15 points, for a total of 165 points (33% of the final grade).

## Participation

i-Clickers will provide an opportunity for you to self-assess your understanding of material and provide feedback to me as an instructor. Calculation of credit for clicker points takes into account the likelihood that you may miss several classes due to illness or emergencies, or that you may forget your clicker or miss an opportunity during class due to momentary inattention. There are 5 participation opportunities per class during 22 separate classes this term for a total of 110 possible clicks. (In some classes such as exam reviews we will likely have more than 5 clicker questions, but only 5 per class count). Points are given for participating and are not contingent on correctly answering a question. Points will be assigned on the scale below

• 88+ clicks	full credit (80% or more participation)	35 points
• 77-87 clicks	less than 80% participation	28 points
• 66-76 clicks	less than 70% participation	21 points
• 55-65 clicks	less than 60% participation	14 points
• 54 or fewer clicks	less than 50% participation	0 points

To be clear, if you miss class or forget your clicker or did not click in for one question during the class, you do not need to inform me or the TA as this scale is very generous in allowing for such events. It also means that there is no value in attempting to talk your way into more clicker points. There is no value in arguing that you deserve some credit for fewer than 55 clicks – this means that you missed more than half of the classes and cannot be considered as being an active participant. Recording of clicker credit starts on 7<sup>th</sup> September. Be sure to register your clicker following the instruction on D2L. We may also do a roll call in class to ensure that everyone's clicker is registered. The participation will be worth 7% of your final grade.

## In-Class Tests

There will be three in-class tests. You will be provided with distribution tables only for the tests. They will consist of multiple choice questions and problem questions. Each test will be worth 75 points, together they will be 45% of the final grade.

For in-class tests, 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, etc.) for the tests. Please stick with one sheet of letter-sized paper – attempt to add more room by attaching additional sheets or post-its to the sheet is strongly discouraged and will be considered cheating.

In addition, please make sure that you bring a calculator for the in-class tests. Cell phones or PDAs with a calculator function are NOT allowed during tests.

## Final Exam

The final exam will be closed book and closed notes and consist of multiple choice questions and problem questions. The final exam is worth 75 points, which is 15% of your final grade.

Similar rules for in-class tests regarding cheat sheet (1 letter-sized, front and back page) and calculator requirement apply to the final exam. The final exam will take place on **Monday, December 12<sup>th</sup>, from 7:45-9:45am in Wells Hall B117. This is different from the typical class time, and is assigned centrally by the University.**

## Course Requirements and Grading

- |                        |            |
|------------------------|------------|
| • Homework assignments | 165 points |
| • Participation        | 35         |
| • Three in-class tests | 225        |
| • One final exam       | 75         |

Final Grades will be determined as follows:

Grade	Total points	Percentage
A (4.0)	450 and above	90% and above
B+ (3.5)	425 - 449	85 - 89%
B (3.0)	400 - 424	80 - 84%
C+ (2.5)	375 - 399	75 - 79%
C (2.0)	350 - 374	70 - 74%
D+ (1.5)	325 - 349	65 - 69%
D (1.0)	300 - 324	60 - 64%
F (0.0)	Below 300	59% and below

## Extra Credit

Students will have opportunities to earn up to 20 extra credit points. There are two sources for the extra credit points. First, you can earn extra credit through the HPR/SONA system by participating in research. For research participation, please see the instruction on D2L under course materials. Please note that participation in research is completely voluntary. Each HPR/SONA credit hour translate into 2 points for the class. So to gain the maximum extra credit, you can participate 10 hours of research. In addition, you may complete extra credit assignments throughout the semester. Note that extra credit assignment must be turned in at the class period when it was due.

## Make-up Policy

All assignments, tests, and exams must be completed when scheduled. Unless *prior permission* has been obtained, **NO** late or makeup assignments or tests will be accepted or given. Permission may be granted for those who contact the instructor *prior* to the scheduled date, and provided her with valid documentation related to the absence either before or after the absence.

## Attendance

Attendance is not mandatory but strongly encouraged. **It will influence your participation grade once you miss too many classes. Additionally, only the abbreviated version of the lecture notes will be posted on D2L. You will complete the notes through attending the lectures.** You are expected to be aware of any changes in dates of assignment or tests. Ignorance will not be accepted as an excuse. Therefore, I strongly recommend that you exchange contact information with at least two other classmates in case you have to miss a class.

## Recording/photographing others

As members of a learning community, you are expected to respect the intellectual property of others as well as the ability of others to discuss topics freely within the confines of the classroom. You are not allowed to record any activity yourself without the advance written permission of the instructor and any students whose voice or image is included in the recording. Posting a photo/video or other recording of anyone in the class to social media without their written consent is a violation of this policy, and may result in a penalty up to a 0.0 as a course grade, as well as other academic disciplinary sanctions as described by university policy. If there is a need for me to record an activity, I will inform you that we are recording.

## Religious Holiday

The official university policy is as follows:

*It has always been the policy of the University to permit students and faculty to observe those holidays set aside by their chosen religious faith.*

*The faculty and staff should be sensitive to the observance of these holidays so that students who absent themselves from classes on these days are not seriously disadvantaged. It is the responsibility of those students who wish to be absent to make arrangements in advance with their instructors. It is also the responsibility of those faculty who wish to be absent to make arrangements in advance with their chairpersons, who shall assume the responsibility for covering their classes.*

*As Michigan State University has become increasingly multicultural, the incidence of conflicts between mandatory academic requirements and religious observances has increased. In the absence of a simple and dignified way to determine the validity of individual claims, the claim of a religious conflict should be accepted at face value. Be aware that some degrees of observance may have a more extensive period of observance. Instructors may expect a reasonable limit to the number of requests by any one student. Some instructors attempt to cover all reasons for student absences from required academic events such as quizzes or exams with a blanket policy, e.g., allowing the student to drop one grade or two quizzes without penalty. If this is meant to extend to religious observances, the instructor should state this clearly at the beginning of the term. If instructors require make-up exams, they retain the right to determine the content of the exams and the conditions of administration, giving due consideration to equitable treatment.*

## Misconduct

Cheating, plagiarism, or other forms of academic dishonesty will result in failure of the course. The official university policy is as follows:

*The principles of truth and honesty are fundamental to the educational process and the academic integrity of the University; therefore, no student shall:*

1. *claim or submit the academic work of another as one's own.*
2. *procure, provide, accept or use any materials containing questions or answers to any examination or assignment without proper authorization.*
3. *complete or attempt to complete any assignment or examination for another individual without proper authorization.*
4. *allow any examination or assignment to be completed for oneself, in part or in total, by another without proper authorization.*
5. *alter, tamper with, appropriate, destroy or otherwise interfere with the research, resources, or other academic work of another person.*
6. *fabricate or falsify data or results.*

## **Incomplete Policy**

The official university policy is as follows:

*The I-Incomplete may be given only when: the student (a) has completed at least 6/7 of the term of instruction, but is unable to complete the class work and/or take the final examination because of illness or other compelling reason; and (b) has done satisfactory work in the course; and (c) in the instructor's judgment can complete the required work without repeating the course.*

*Provided these conditions are met, the instructor electing to give an I-Incomplete files an Agreement for Completion of (I) Incomplete at the time course grades are due. This agreement specifies what the student must do, and when, to remove the I-Incomplete. The department or school office gives a copy to the student, and retains a copy for at least one year.*

## **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](http://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 work with you to schedule your test/exam to fit with your accommodation. It is also possible that 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.

## **Emergency Procedures**

If an emergency occurs that would require cancellation of a class session, I will send a notification via D2L. Similarly, if a weather emergency or illness outbreak requires us to switch from in-person to online, I will notify you. In case of an emergency while in person in class, it is your responsibility to know the emergency procedures posted by the exit door and to understand evacuation, shelter-in-place, and other MSU directives.

## **Limits to confidentiality**

Students should be aware that I am unable to maintain confidentiality when it conflicts with my responsibilities as a mandatory reporter within the university. That is, I must report to other University offices any information you share with me regarding (1) suspected child abuse/neglect, even if this happened when you were a child, (2) allegations of sexual assault or harassment involving MSU students, faculty or staff, and (3) credible threats of harm to oneself or others. These reports may trigger contact from a campus official; in almost all cases, it will be your decision if you wish to speak to that individual. If you would like to talk about any of the above in a setting that is confidential and not bound by mandatory reporting, please make an appointment with the MSU counseling services at [www.caps.msu.edu](http://www.caps.msu.edu).

## **Mental Health**

Mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. Services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via the Counseling & Psychiatric Services (CAPS) website at [www.caps.msu.edu](http://www.caps.msu.edu).

## Course Schedule (Subject to Change)

Week/Date	Topic	Readings	Homework Assignment on D2L Due
1: 31 <sup>st</sup> August	Introduction; Displaying data	Chapter 1	
5 <sup>th</sup> September Labor Day - no class			
2: 7 <sup>th</sup> September	Displaying data Central tendency and variability	Chapter 1 Chapter 2	<ul style="list-style-type: none"> <li>• <b>HW 1: Chapters 1 and 2 due on 11:59pm, Friday September 9<sup>th</sup></b></li> </ul>
3: 12 <sup>th</sup> September	Key ingredients for inferential statistics	Chapter 3	
3: 14 <sup>th</sup> September	Key ingredients for inferential statistics Introduction to hypothesis testing	Chapter 3 Chapter 4	<ul style="list-style-type: none"> <li>• <b>HW 2: Chapter 3 due on 11:59pm, Friday September 16<sup>th</sup></b></li> </ul>
4: 19 <sup>th</sup> September	Introduction to hypothesis testing	Chapter 4	
4: 21 <sup>st</sup> September	<b>In-class test 1 review</b>		<ul style="list-style-type: none"> <li>• <b>HW 3: Chapter 4 due on 11:59pm, Friday September 23<sup>rd</sup></b></li> </ul>
5: 26 <sup>th</sup> September	<b>In-class test 1</b>	Chapters 1-4; class notes	
5: 28 <sup>th</sup> September	Hypothesis tests with means	Chapter 5	<ul style="list-style-type: none"> <li>• <b>HW 4: Chapter 5 due on 11:59pm, Friday September 30<sup>th</sup></b></li> </ul>
6: 3 <sup>rd</sup> October	Effect Size and power	Chapter 6	
6: 5 <sup>th</sup> October	t-tests: Single sample and dependent means	Chapter 7	<ul style="list-style-type: none"> <li>• <b>HW 5: Chapter 6 due on 11:59pm, Friday October 7<sup>th</sup></b></li> </ul>
7: 10 <sup>th</sup> October	t-tests: Single sample and dependent means	Chapter 7	
7: 12 <sup>th</sup> October	t-tests: Independent Means	Chapter 8	<ul style="list-style-type: none"> <li>• <b>HW 6: Chapter 7 due on 11:59pm, Friday October 14<sup>th</sup></b></li> </ul>
8: 17 <sup>th</sup> October	t-tests: Independent Means	Chapter 8	
8: 19 <sup>th</sup> October	<b>In-class test 2 review</b>		<ul style="list-style-type: none"> <li>• <b>HW 7: Chapter 8 due on 11:59pm, Friday October 21<sup>st</sup></b></li> </ul>
24 <sup>th</sup> October Fall Break - no class			
9: 26 <sup>th</sup> October	<b>In-class test 2</b>	Chapters 5-8; class notes	



10: 31 <sup>st</sup> October	Introduction to ANOVA	Chapter 9	
10: 2 <sup>nd</sup> November	Introduction to ANOVA	Chapter 9	<ul style="list-style-type: none"> <li>• <b>HW 8: Chapter 9 due on 11:59pm, Friday November 4<sup>th</sup></b></li> </ul>
11: 7 <sup>th</sup> November	Factorial ANOVA	Chapter 10	
11: 9 <sup>th</sup> November	Factorial ANOVA	Chapter 10	<ul style="list-style-type: none"> <li>• <b>HW 9: Chapter 10 due on 11:59pm, Friday November 11<sup>th</sup></b></li> </ul>
12: 14 <sup>th</sup> November	<b>In-class test 3 review</b>		
12: 16 <sup>th</sup> November	<b>In-class test 3</b>	Chapters 9-10; class notes	
13: 21 <sup>st</sup> November	Correlation	Chapter 11	
23 <sup>rd</sup> November 2022 Thanksgiving - No Class			
14: 28 <sup>th</sup> November	Correlation Prediction	Chapter 11 Chapter 12	
14: 30 <sup>th</sup> November	Prediction	Chapter 12	<ul style="list-style-type: none"> <li>• <b>HW 10: Chapter 11 due on 11:59pm, Friday December 2<sup>nd</sup></b></li> <li>• <b>HW 11: Chapter 12 due on 11:59pm, Friday, December 2<sup>nd</sup></b></li> </ul>
15: 5 <sup>th</sup> December	Chi-Square tests	Chapter 13	
15: 7 <sup>th</sup> December	Non-parametric tests	Chapter 14	<ul style="list-style-type: none"> <li>• <b>HW 12: Chapter 13 due on 11:59pm, Friday, December 9<sup>th</sup></b></li> <li>• <b>HW 13: Chapter 14 due on 11:59pm, Friday, December 9<sup>th</sup></b></li> </ul>
16: <b>12<sup>th</sup> December Monday</b>	<b>Final Exam (7:45-9:45am)</b>	Chapters 11 - 14; class notes	

\* The instructor reserves the right to change the content of this syllabus.