

Psychology 295
Data Analysis and Psychological Research (3 credits)
Fall 2023

When: Monday & Wednesday, 10:20pm – 11:40pm
Where: Biomedical and Physical Sciences (BPS) 1410

Professor: Dr. Devin McAuley
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Office Hours: Monday, 12 – 1pm

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Required Textbook

Frederick J Gravetter, Larry B. Wallnau, Lori-Ann B. Forzano, James E. Witnauer (2021). *Essentials of Statistics for the Behavioral Sciences (10th Ed.)*. Wadsworth, Cengage Learning (softcover or eTextbook).

Course Description: This course is an introduction to the principles of measurement and quantitative data analysis in psychology, including measures of typicality, individual differences, correlational methods, and tests of significance. Upon successfully completing this course, you will have (a) a good understanding of descriptive statistics, (b) a basic understanding of probability theory, and (c) a basic level understanding of the principles of research design and inferential statistics. You should be able to summarize data, do simple statistical tests, better understand statistical aspects of news and research reports, and be prepared for more advanced courses. In addition, you should better understand some of the errors that people usually make in reasoning about uncertainty and be in a position to avoid them.

General Expectations: You are expected to attend each lecture, actively participate in class discussions and exercises, and ask questions when you do not understand something. The material for the course consists of the lectures and the associated chapters in the course textbook intended to supplement the material presented in class. The lectures will sometimes deviate from the material included in the book and sometimes

include material, methods and techniques that are not included in the textbook. You are responsible for the material presented in the lectures whether or not you are present in class. **The best way to do well in this class is to attend and participate in class.**

Exams: There will be three exams covering the course material (2 midterm exams and the final). The midterm exams are worth 100 points each, with exams spaced roughly 1 month apart (the exam schedule is shown below). The final exam will be worth 125 points. You are required to bring a basic calculator to the exams. The material in this course is by nature cumulative, and so in that sense exams will be cumulative. You can anticipate, however, that each exam will tend to focus on the material most recently covered in class and in the assigned readings and homework. Exams cannot be rescheduled, except in very rare circumstances with a documented serious illness or family emergency.

Homework: Homework will be assigned, in general, on a weekly basis, and due the following week (the homework schedule with due dates is included below). You are responsible for knowing what the assignment is and when it is due. **No late homework will be accepted.** A late homework is defined as a homework assignment turned in after the start of the class in which the assignment is due. Each homework assignment is worth 15 points. Your homework grade will consist of two parts. First, you will receive 10 points for demonstrating in your written work that you completed each problem (make sure to show all work and write legibly). Second, one problem will be selected for grading; the graded problems will be worth 5 points. Your homework grade for the semester will consist of the point total for the best 10 out of 11 scores. **All homework assignments will primarily be drawn from the 10th edition of the GFWF textbook, so please make sure that you have the correct edition of the book.**

Research Participation: Because the content of this class is strongly tied to research in psychology, a component of the course is to complete 5 hours of research experience credit by participating in psychology experiments being conducted here at MSU. Each hour of research experience credit is worth 5 points toward your final grade (25 points total). I will be notified at the end of the semester via the experimental sign-up computer system how many credits you earned.

Instructions for research participation are included in a separate document on the course D2L site. **Participating in these experiments is completely voluntary.** Consequently, if you decide not to participate in experiments for research participation credit you can complete an alternate assignment to earn an equivalent set of extra credit points. Please contact the TA to learn more about this alternate extra credit option.

Cell Phone and Laptop Policy: No use of cell phones is permitted during the lecture and all cell phone ringers must be turned off (without exception). Laptop use for note taking is not recommended for a statistics class due to the nature of the material. Any use of laptops must be for note taking only. Violation of the cell phone or laptop policy is grounds for being asked to leave the class.

<i>Dates</i>	<i>Topic*</i>	<i>Reading</i>
<u>Week 1</u>		
M, Aug 28	Introduction to Statistics	GFWF, Ch1
W, Aug 30	Introduction to Statistics	GFWF, Ch1
<u>Week 2</u>		
M, Sept 4	Labor Day (No Class)	
W, Sept 6	Frequency Distributions	GFWF, Ch2
<u>Week 3</u>		
M, Sept 11	Measures of Central Tendency	GFWF, Ch3
W, Sept 13	Measures of Variability	GFWF, Ch4
<u>Week 4</u>		
M, Sept 18	Z-scores	GFWF, Ch5
W, Sept 20	Probability and the Normal Distribution	GFWF, Ch6
<u>Week 5</u>		
M, Sept 25	Probability and the Normal Distribution	GFWF, Ch6
W, Sept 27	Exam #1 Review	
<u>Week 6</u>		
M, Oct 2	Exam #1	
W, Oct 4	Sampling Distributions	GFWF, Ch7
<u>Week 7</u>		
M, Oct 9	Introduction to Hypothesis Testing	GFWF, Ch8
W, Oct 11	Introduction to Hypothesis Testing	GFWF, Ch8
<u>Week 8</u>		
M, Oct 16	Introduction to the t Statistic	GFWF, Ch9
W, Oct 18	Introduction to the t Statistic	GFWF, Ch9
<u>Week 9</u>		
M, Oct 23	Fall Break (No Class)	
W, Oct 25	The t-Test for Two Related Samples	GFWF, Ch11
<u>Week 10</u>		
M, Oct 30	The t-Test for Two Independent Samples	GFWF, Ch10
W, Nov 1	The t-Test for Two Independent Samples	GFWF, Ch10
<u>Week 11</u>		
M, Nov 6	Exam #2 Review	
W, Nov 8	Exam #2	
<u>Week 12</u>		
M, Nov 13	Analysis of Variance	GFWF, Ch12
W, Nov 15	Analysis of Variance	GFWF, Ch12

Week 13

M, Nov 20

W, Nov 22

Analysis of Variance

Thanksgiving Break (No Class)

GWFW, Ch13

Week 14

M, Nov 27

W, Nov 29

Correlation and Regression

Correlation and Regression

GWFW, Ch14

GWFW, Ch14

Week 15

M, Dec 4

W, Dec 6

The Chi-Square Statistic

Final Exam Review

GWFW, Ch15

* Subject to change depending on the pace of the course

<u>Numerical Grade</u>	<u>Percentage</u>	<u>Points</u>
4.0	≥90	≥450
3.5	85 – 90	425 – 450
3.0	80 – 85	400 – 425
2.5	75 – 80	375 – 400
2.0	70 – 75	350 – 375
1.5	65 – 70	325 – 350
1.0	60 – 65	300 – 325
0.0	0 – 60	0 – 300

Assessment

Homework	150 points (10 @ 15 points each; best 10 out of 11 scores)
Exam #1	100 points
Exam #2	100 points
Final Exam	125 points
Research Participation	25 points (5 hours @ 5 points each)

Exam schedule

Exam #1	Monday, October 2
Exam #2	Wednesday, November 8
Final Exam	Friday, December 15, 7:45am – 9:45am, BPS 1410

<u>Homework</u>	<u>Assigned</u>	<u>Due</u>
HW #1	Wed, Aug 30	Wed, Sept 6
HW #2	Wed, Sept 6	Wed, Sept 13
HW #3	Wed, Sept 13	Wed, Sept 20
HW #4	Wed, Sept 20	Wed, Sept 27
HW #5	Wed, Oct 4	Wed, Oct 11
HW #6	Wed, Oct 11	Wed, Oct 18
HW #7	Wed, Oct 18	Wed, Oct 25
HW #8	Wed, Oct 25	Wed, Nov 1
HW #9	Mon, Nov 13	Mon, Nov 20
HW #10	Mon, Nov 20	Wed, Nov 29
HW #11	Wed, Nov 29	Wed, Dec 6

Additional Course Rules and Information

Academic Honesty: The Spartan Code of Honor states, "As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do." In addition, Article 2.III.B.2 of the Student Rights and Responsibilities ([SRR](#)) states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." 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](#).

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](#).)

Inclusive Environment. MSU is committed to creating and maintaining an inclusive community in which students, faculty, and staff can work together in an atmosphere free from all forms of discrimination. The Office of Institutional Equity (OIE) reviews concerns related to discrimination and harassment based on sex, gender, gender identity, race, national origin, religion, disability status, and any other protected categories under the University Anti-Discrimination Policy (https://www.hr.msu.edu/policies-procedures/university-wide/ADP_policy.html) and Policy on Relationship Violence and Sexual Misconduct (<https://civilrights.msu.edu/policies/rvsm.html>). If you experience or witness acts of bias, discrimination, or harassment, please report these to OIE: <http://oie.msu.edu/>.

Limits to Confidentiality: Essays, journals, and other 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 MSU Police Department) 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: 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 may not be honored. If you require testing accommodations (e.g., additional time.) you must contact me and present your VISA *at least two weeks before the exam date* to schedule an alternative exam.

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."