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DATA ANALYSIS IN PSYCHOLOGICAL RESEARCH
PSY 295 – Fall 2021
Prof. Paul Curran, PhD
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See D2L 'Discussions' section for TA office hours

Professor Curran:
Office Hours: 11-12 MW, also by appointment
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Office Location: 317 Psychology Building (not in use for Fall 2021)
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I. Course Overview

This class serves as an introduction to statistics and statistical thinking. As an introductory class, this class starts from very basic principles to help build an understanding not only of specific statistical methods (e.g., correlation, regression, ANOVA), but of general statistical understanding. Students will learn what statistics is, what it is used for, how it is used, and how to evaluate the credibility of statistical evidence.

II. About Your Instructor

A. **Contacting me.** The best way to contact me is via e-mail. I typically check e-mail throughout the day, but only reliably during normal business hours (9 am – 5 pm). If you send me an email in the evening, you should not expect to get a response until the next business day. I will try my best to get to emails as quickly as possible, but there so very many of you. If you have simple questions about the class or content it is very likely that you will get a faster reply from one of your TAs, especially around exams when many of you are emailing all at once - feel free to use the TAs for simple questions about the course and content.

Take note, I do NOT use any of the message systems built into D2L - if you send messages through D2L they'll never be seen.

Also, before you ask simple questions about the course (e.g., when is something due, when are the exams, when is the final, how many points is something worth), **make sure you've read the syllabus!** The answer to many questions that professors are asked is 'it is in the syllabus.' There are also many things I don't know off the top of my head without looking at

the syllabus myself, so asking those questions is much slower than just checking the syllabus.

B. **Office hours.** Office hours are listed above, but I am available to meet with you during other times, if you make an appointment with me by e-mail.

III. Required Reading

Required Text:

An Introduction to Psychological Statistics (2018) by Garett C. Foster, David Lane, David Scott, Mikki Hebl, Rudy Guerra, Dan Osherson, & Heidi Zimmer. Publisher: University of Missouri - St. Louis; Open Textbook Library.

https://open.umn.edu/opentextbooks/textbooks/709

Take note, the above textbook is not available for purchase in the bookstore, because it is an open-source, non-profit, and most importantly, free textbook. A free pdf of the textbook can be downloaded or browsed in from the above website, and I will also post a copy of it for download or reference on D2L.

This textbook should be an invaluable asset in helping you understand the concepts of the class. This class contains many complex ideas and concepts, and while I will lecture about these topics it is very helpful for you to be able to read about those same topics from a different source.

Make sure you are accessing the textbook through the link in this syllabus, or searching for that version through the title provided here, or using the copy on D2L. If you have questions, ask!

Other Required Readings: Additional required readings (if necessary) will be posted on the course website.

IV. Evaluation

A. **Exams.** There will be 2 exams throughout the semester, and a cumulative final exam during finals week. The exams during the semester will be non-cumulative, and cover only the material picking up where the prior exam ended. The final exam is cumulative over the entire semester.

B. **D2L Quizzes & Homework.** In order to incentivise reading assigned materials and coming to class for lecture, there will be online quizzes (on D2L) throughout the semester. Quizzes should be posted by Friday of each week, and be completed before 11:59pm the Sunday before the next week of class. These quizzes will be short, and should be fairly easy if you

have been keeping up with class material. You may take quizzes as many times as you want before the deadline, and your score will be the highest score you achieve.
In addition, homework will be posted regularly on D2L as well. This component of the course will be a combination of small assignments as assigned throughout the semester. This will include assignments handed out in class or assigned on D2L. These assignments will always be mentioned in class slides, so if you miss class it is up to you to make sure you are keeping up to date on D2L.

In general, on D2L, while both quizzes and homework assignments will show up in similar locations, each will be marked as either quizzes or homework. I'll try to keep this as clear as possible, but there's only so much possible in the framework of D2L. If you have questions on this, please ask for clarification.

IT IS VERY EASY TO LOSE A LARGE PART OF YOUR POINTS IN THIS CLASS BY NOT DOING ANY OF THE HOMEWORK AND/OR QUIZZES ON D2L. I warn you about this because students regularly fail the class because they simply don't pay attention to lectures and/or D2L, and miss a lot of these assignments.

c. **Research Participation:** Learning about Psychological Research.

NOTE: It is very easy for you to say 'I'll take care of this later', and then forget to do it all semester. If you simply forget to do this part of the class, you should note that your grade - by simple virtue of this component of the class being worth 10% of the grade - will automatically be two steps lower on the grading scale than if you had done it (e.g., a 87% or 3.5 would become a 77% or 2.5). Don't put this off - get it done early!

Students are required to participate in activities designed to acquaint them with the nature and variety of research in psychology. Students must participate in four (4) credits worth of enrichment activities. Students may choose to do up to one (1) extra credits worth of enrichment activities for extra credit.

Objective

The objective of this assignment is for you to gain direct experience with psychology research studies and what it is like to participate in them. In class, we shall discuss the social psychology of psychology research and how experimental designs take into account the expectations and beliefs of the participants. By participating in studies yourself, you can gain an understanding of the strengths and limits of psychological research. Psychology Department faculty and their research assistants perform the studies, all of which have been reviewed and approved by the university's Institutional Review Board.

Online Registration

To participate in studies, you must register on the Study Scheduling System, accessible from

the Psychology Department website (https://msu-psychology.sona-systems.com/). The vendor maintains a strict policy protecting privacy and confidentiality. (This policy is available for review in the Psychology Office.) Navigating the Study Scheduling System is straightforward, and if you need guidance, detailed instructions are available on the Psychology Department website.

Participating in Studies

You will register for studies on the Study Scheduling System. Before you sign up to participate in a study, review any listed restrictions (for example, "left-handed people only"). If you sign up for a study and you do not meet the posted eligibility requirements, you will not receive credit for the study.

Arrive before the scheduled time, as studies start punctually. You will be given a description of what participating in the study will involve, and you will be asked for your consent before the study begins. If you then choose not to participate, you may leave without penalty. You can check to see that you have received credit by selecting My Schedule/Credits, where credits are typically posted within a week after you participate in a study.

If you sign up for a study but cannot attend, please cancel your session on-line.

Under 18?

Special rules apply to students who are under 18. If you are under 18, please contact Audra Jeffrey (jeffre22@msu.edu), for information about permission requirements before participating in studies.

Need Help?

If you need assistance registering for studies, please contact Audra Jeffrey (jeffre22@msu.edu). Your instructor generally cannot be of help with the SONA system, as instructors only get information about SONA participation at the end of the semester, and do not have access to student records or participation information during the semester.

Deadline

The last day to participate in studies is when the SONA system closes for the semester, which can be as early as the Friday before the last week of classes. Do not wait until this time, as many studies finish before this and you may not have any opportunities to participate left. Get this done quickly so that you don't have to continue to worry about it.

SONA Profile

MAKE SURE THAT WHEN YOU SIGN UP FOR SONA, YOU SIGN UP FOR *THIS CLASS*!

If you sign up for the wrong class, I won't receive any of your credits at the end of the semester. This can be fixed after grades are in, but it takes more paperwork and can have impacts on your transcript in weird ways. If you sign up for the wrong section you can change this throughout the semester, but it is your responsibility to know what section you are in and make sure this is correct in SONA. Check this more than just when you initially sign up.

Alternative to Research Participation

If for any reason you do not want to participate in the above research, an alternative exists that involves writing a series of papers on existing psychological research. If you want to engage in this option instead of research please contact the instructor for more information. Take note that this alternative assignment is not an effective solution for finding yourself at the end of the semester without having participated in research, as the alternative is likely to be more time consuming than simple participation. More information can be found by contacting the instructor.

Any assignments completed this way are due at the end of week 12. This alternative to research is not meant to be a failsafe for those who completely forget about this component of the grade all semester, but rather for those who choose not to participate in research (for whatever reason).

D. **Late policy.** Unless otherwise noted above, the late policy for written work is as follows. Work may be submitted early, via D2L, for any assignment. The deadline for all assignments, unless otherwise specified, is 11:59pm, the day before the class it is due. **Work that is submitted past the deadline FOR ANY REASON receives a one full letter grade (10%) deduction per day late (e.g., a paper that earns a B is worth a C if 0-24 hours late; a paper that earns a B is worth a D if 24-48 hours late).** Furthermore, no work may be submitted after the official close of the semester without an approved course extension. (Such extensions are granted in only the most extreme, and documented, circumstances.)

E. **Point breakdown by category. (Note: Points in D2L will not always match these points)**

ASSIGNMENT	% OF TOTAL
D2L Quizzes	25%
HW Assignments	25%
Research Participation	10%
Exams (2x)	20%
Final Exam	20%

V. Grading Scale

GRADE	PERCENT
4.0 (A)	90%-100%
3.5 (B+)	85%-89%
3.0 (B)	80%-84%
2.5 (C+)	75%-79%
2.0 (C)	70%-74%
1.5 (D+)	65%-69%
1.0 (D)	60%-64%
0.0 (F)	<60%

THESE ARE FIRM CUT-OFFS. I round up to the nearest percent (e.g., 89.5% rounds up to 90% and equals a 4.0, but 89.4% rounds down to 89% and equals a 3.5). The point categories listed above reflect this rounding. DO NOT attempt to negotiate grades with me. It is your responsibility to make sure your grade ends up where you want it to be. I have provided ample extra credit opportunities for students who wish to improve their grades. Students who want to improve their *learning* (and therefore their grades) should see me *early* in the class for assistance. I will *not* negotiate grades with you, but I will do everything in my power to help you put in the necessary work to be as successful as you desire.

VI. Disability Accommodation

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 the instructor 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. Please contact the professor to coordinate what accommodations will be made in your individual case for this class.

VII. Academic Honesty

Unless otherwise noted, all work for this course should be independently completed. Students should take special care to provide proper citation of sources when submitting written work. Adopting words, passages, or ideas without citation is plagiarism and will be treated as such per MSU guidelines. Furthermore, students should not self-plagiarize, that is, reuse their own work from another course. In addition, unless explicitly stated that it is allowed, students should not use their own work from within the course.

Letting any other student in this class see your work, even if you're only 'comparing' or 'checking

it', or doing whatever you want to say you're doing, is a clear violation of academic integrity. The easiest way to make sure that no other students turn in your work without your knowledge is to not let your work out of your hands. Your work is your intellectual property (IP), and you should protect it as such. Sharing your work with other students may very well lead to you failing the class if they turn it in as their own.

Doing work with another student and then turning in the same (or slightly altered) work, using the work of another student to complete your own work, submitting another student's work as your own, having another student do your work, or copying direct wording from another student or other source, are only some examples of cases that are essentially definitions of plagiarism. If no one has ever told you this, now I have. Copy-pasting anything while completing an assignment is quite possibly plagiarism, and it is not hyperbole to say that while you are in college you should think deeply about what you are doing any time you copy-paste anything for a class assignment.

Copy-pasting things from the internet 'as a start' for completing assignments is one of the worst strategies you could ever hope to apply in a classroom setting, and doing so will likely also lead to some degree of plagiarism. YOUR WORK IS YOUR WORK.

Penalties for plagiarism and cheating include a range of outcomes, up to and including automatic failure of the course. Please read that again. If you commit an academic integrity violation, you may simply fail the course, regardless of how much of it you have completed, or in what capacity. This happens frequently, despite all my warnings.

Penalties for academic integrity violations generally start in the range of a 'double zero' - a zero for the assignment that counts worth double. This is meant to make academic integrity violations more impactful than simply not doing the work at all. Please read that again. If you cheat on an assignment, the grade you will receive will be worse than if you turned in nothing at all, but, depending on the infraction, you're also likely to simply just fail the course.

In addition to all of the above, plagiarism and cheating are reported to the university and a record of these events is held by the university. There is an office of the university specifically dedicated to this, and one of your goals in college should be never interacting with it. This goal is relatively simple to achieve: maintain appropriate standards of academic integrity and honesty.

I do not claim to be able to catch everyone that cheats in any class, so when I do catch individuals I make sure that the penalties are sufficient to attempt to deter this behavior in the future. I do not enjoy in the slightest entering failing grades for students who have committed academic honesty infractions - it is in fact one of my least favorite parts of teaching. I do it because it is my responsibility to all of you to do so.

You should also consider, at this point, if you haven't before, that cheating in any class here in college means that you have not actually earned a college degree. While you may get a diploma in this way, it thus renders it pointless, as the diploma then comes with an asterisk: 'this student

cheated to get this degree.' While no one but you might ever know this, you should contemplate if that's the only way you can actually complete a college career.

I recognize that cheating is often situational. You have multiple jobs, you have family issues come up, you have relationship issues come up, you have other class commitments, or you simply didn't budget your time well. College is stressful, and demanding. If you find yourself in these situations in any class: TALK TO YOUR PROFESSOR. I guarantee that they are happier to work with you ahead of time and find ways for you to complete work rather than having to fill out academic integrity paperwork.

In addition, here is some University language:

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 (insert name of unit offering course) 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, 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.)

VIII. Our Social Contract

In order for this course to function optimally, we both have parts to play, and when we each do our part, everyone benefits.

As professor, I promise to always do my very best to select interesting and thought-provoking course material. I will prepare course materials to the best of my abilities, and I will make decisions about the course according to the learning goals I have outlined here. I will act fairly – holding every student to the same high standard and providing equal opportunities for success.

As student, you promise to prepare diligently for class, to always contribute to the best of your

abilities, to never cheat or act dishonestly, and to treat your classmates and me with the highest respect. You will do your best to attend class and be on time. You will not ask me to grant you special privileges that aren't available to the rest of your classmates, in order that I may adhere to my promise to be fair and just to all of you.

IX. 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. All instructors are mandatory reporters in these cases, and are obliged by contract not to maintain confidentiality as such. 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.

X. Course Topics and Calendar (Tentative, subject to change)

Week	Date	Topics	Reading/Homework/Due
1	9/1	Syllabus Variables, Measurement Sampling and Samples	**Read:** Syllabus; Chapter 1 **Access:** D2L, SONA, Textbook, Syllabus
2	9/6	Data Visualization Data Summary Statistics	**Read:** Chapters 2-4 **Note: Labor Day**
3	9/13	Probability	**Read:** Chapter 5
4	9/20	Sampling Distributions The Central Limit Theorem	**Read:** Chapter 6
5	9/27	Effect Sizes Introduction to Hypothesis Testing	**Read:** Chapter 7
6	10/4	Univariate z- and t-tests	**Read:** Chapters 8-10

			Bivariate t-tests	**Exam 1**
7	10/11		One-Way ANOVA	**Read:** Chapter 11
8	10/18		Psychological Examples Applications of Statistics	**Read:** TBD
9	10/25		Correlation	**Read:** Chapter 12 **Note: Break Day**
10	11/1		Simple Linear Regression	**Read:** Chapter 13
11	11/8		Non-Parametric Tests Univariate & Bivariate Chi-Square	**Read:** Chapter 14
12	11/15		Factorial ANOVA Multiple Regression	**Read:** TBD **Exam 2**
13	11/22		TBD	**Read:** TBD **Note: Thanksgiving**
14	11/29		Statistical Power Classification Errors	**Read:** TBD **Note: SONA deadline**
15	12/6		TBD	**Read:** TBD
	12/13		CUMULATIVE FINAL EXAM	**FINAL EXAM**

Note: Quizzes are due at the end of each week (Sunday 11:59pm) over prior week's material

Note: Homework for the week is generally due at the end of each week (Sunday 11:59pm) setting up the next week's content, but may also be due at other times.

Note: Exams and papers are generally due on Friday night (11:59pm), and will clearly be marked as such on D2L.

*All final exam times are normally set by the university, but since we are asynchronous, all work for your final exam will instead be due by 5pm on the Tuesday of finals week, unless otherwise noted.

Make sure you are checking D2L, and understand how to check and track deadlines on D2L.