Research Design and Statistics II

PSYC 221 Fall 2026

Instructor	Dr. Marie Childers	**Email**	marichi@siue.edu
Office	AH 0133 or zoom	**Class Info**	Asyncronous
Office Hours	By Appointment	**003 Lab Time**	Asyncronous
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Grad Assistant	Bobby Driver	**Grad Assistant**	Areen Bhatia
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Course Description

Psychology is a science. PSYC220 and PSYC221 introduce students to the common research designs and statistics used in psychology and other behavioral sciences. PSYC220 focuses on nonexperimental research designs and descriptive statistics. PSYC221 focuses on experimental research designs and inferential statistics. These classes will prepare you to critically engage with research in all areas of psychology and develop your scientific skepticism as a consumer of research. **Prerequisite: C or better in PSYC 111 and PSYC 220**

Course Objectives

In this course, students will learn to:

- Understand experimental research designs and their appropriate statistical analyses
- Compute inferential statistics by hand and use SPSS (statistics software) to analyze data
- Design and conduct experimental studies and write research reports in APA style

Required Materials

Research Methods textbook: Gravetter, F. J., Wallnau, L. B., Forzano, L. B., & Witnauer, J. E. (2018). *Essentials of statistics for the behavioral sciences* (9th ed.). Cengage.

Statistics textbook: Gravetter, F. J. & Forzano, L. B. (2018). *Research methods for the behavioral sciences* (6th ed.). Belmont, CA: Cengage.

SPSS software: Version 26 https://www.siue.edu/its/labsclassrooms/vlab/spss.shtml

Calculator: Simple calculator, such as TI-30Xa (not your phone or a graphing calculator)

Course Structure

PSYC221 is an entirely online, asynchronous course. This means there is no set class time for the lecture or the lab. Lectures will be presented in prerecorded videos along with walkthroughs of data analysis. Most of the communication for the course will be via BlackBoard and Email. Please make sure you are checking BlackBoard and your email daily.

For typical face-to-face classes, university policy expects that you will spend TWO HOURS outside class for every ONE HOUR inside class. PSYC221 is a 3-credit class, so that means I expect you to work NINE HOURS per week on this class. I will provide a weekly to do list with approximate time commitments for each task, but keep in mind these are estimated averages. If you do not have this time now, you should consider taking this course another semester.

How to Do Well and Stress Less in This Course

- **Understand course expectations** – read syllabus, ask questions, read weekly to do lists
- **Complete weekly material** –read textbook, listen to lectures, take notes, study
- **Attend and get help** – attend class and lab, communicate with lab team, professor, TAs
- **Submit assignments** – assignments are due on Blackboard Saturdays at midnight

Course Requirements and Grading (subject to change)

Assignment	Points
Pre/Post Survey	10 (x2)
Citi Research Ethics Compliance	10
Lecture Activities	15 (x7)
Lab Assignments	25 (x7)
Weekly Comprehension Checks	25 (x7)
Research Project	200
Draft 1 (Intro)	20
Draft 2 (Intro and method)	30
Draft 3 (Intro, Method, Results)	30
Final Presentation	30
Draft 4 (Final Paper)	50
Final Exam	100
Total	745

- **Exams [100 points]**.
    - **Justification for assessment**. In order for you to earn a psychology degree, you need to understand basic research design and statistics. Exams encourage you to study the course material and store it in long-term memory so you can retrieve it later to learn in your advanced psychology classes. The final exam is cumulative.
    - **Exam format.** Exams are completed online according to the schedule below and open book/open notes, but *not* open-Google or open-AI. Exams will cover material from the textbook, lectures, and class discussions. Exams will include factual and conceptual questions, problems, and questions that require you to think about the concepts and apply them to a new topic.
    - **Exam timing**. Exams will be available for a given time window. You will have 2 hours for the final exam (completed during finals week; you must complete them in one sitting.) Given the time limit and applied questions, you should study for exams. You will be required to use Lockdown Browser for the exams.
- **Comprehension Checks [175 points]**. You will have 7 online comprehension checks worth 25 points each.
    - **Justification for assessment.** A basic learning principle in cognitive psychology is the *testing effect* – that material is learned better if it is retrieved from memory through frequent testing. Quizzes require you to retrieve information from memory, which helps you understand your knowledge. Quizzes also prepare you for exams.

    - **Timing and format.** Quizzes are completed online using Lockdown Browser. You will have 30 minutes to complete the quizzes and they must be completed in one session.
- **Research project and lab assignments [335 points]**. You will complete an experiment that requires you to create a hypothesis, read research papers, design an experiment, collect and analyze data, and understand results. This project will culminate in an APA-style report worth 50 points. Students will also present their findings in a recording and draft a poster in preparation for Capstone.
    - **Justification for assessment.** The lab project assesses your ability to apply the knowledge gained in class to your own project. Running your own experiment is "hands-on" – it allows you to learn by *doing* rather than just listening and reading.
    - **Assignment timing and format.** Worksheets and paper drafts help you develop your project. They are 15 or 25 points each and due on Blackboard.
    - **Individual work.** You will be working on this project individually. Submitted work should be completed by you.

Course Calendar

Date	Topic	Reading
Week 1	220 review and experiments overview	M-Ch7
Lab 1	Lit reviews	
Week 2	**Designing and types of experiments**	M-Ch8
Lab 2	Study Design	
Week 3	Sampling distributions and hypothesis testing	M-Ch9, S-Ch8
Lab 3	Programming study	
Week 4	One-sample T-tests and between subjects design	S-Ch9
Lab 4	data collection and t-tests in SPSS	
Week 5	Independent samples t-tests	S-Ch10
Lab 5	T-tests in SPSS	
Week 6	Repeated measure t-test and within sample designs	S-Ch11
Lab 6	T-tests in SPSS	
Week 7	ANOVA	S-Ch12
Lab 7		
Week 8	Factorial Designs	M-Ch11
Lab 8	Final Paper and Exam	

*** All assignments due Sunday at midnight**

Course Policies and Expectations (students are responsible for knowing these)

- **Late policy**. Any assignment submitted late will receive a 10% late penalty per day. Quizzes may not be made up unless prior written notice is given, NO EXCEPTIONS.

    - **NOTE**. If you are having personal struggles that prevent you from completing your work regularly, please come to office hours or schedule a time for us to talk.
- **Open door**. My office is AH0133. If my door is open, you're welcome to drop in for help. If my door is closed, please do not disturb me unless we have a set appointment.
- **MY SIUE email**. I do my best to respond to email within a day or two. I am much better reached in person than by email. Stop by my office or see me before or after class.
- **Check your SIUE email BEFORE class**. In case of illness, exposure, and childcare issues, I may need to move class online. Please check your email before leaving home for class.
- **Blackboard**. We will use Blackboard for course materials and submitting assignments. You are responsible for checking for announcements and updates posted on Blackboard.
- **Blackboard maintenance**. Please note that there are scheduled maintenance times for Blackboard. It is essential that you be aware of those times and make sure that you have submitted any work in progress (e.g. tests, assignments, posts to journal, wikis or discussion boards) prior to the systems being shut down for maintenance. Any work in progress will be lost when the servers go down for maintenance. Visit the Blackboard Maintenance Times (http://www.siue.edu/its/bb/maintenance.shtml) web site for specifics times.
- **Grades**. Student grades will be posted regularly on Blackboard. If you believe there is a discrepancy in the grade posted and the grade you received on an assignment, it is your responsibility to provide me with the graded assignment to justify any grade changes.
- **Extra credit**. Extra credit will be offered to the entire class, and not to individual students.
- **Academic honesty.** If you are involved in any case of academic dishonesty, you will earn an F on the assignment and will be reported to the Provost's office. A repeat offense will result in failing the class and additional reporting. Academic dishonesty cases may involve:
    - **Plagiarism.** Do not plagiarize. See department policy below.
    - **Cheating.** You are encouraged to study for exams with classmates and brainstorm research ideas or discuss course content. You will also work together on your survey projects in lab. It is acceptable to ask questions of your labmates and check answers in SPSS, but you should do all of your own work. You SHOULD NOT work together on your papers outside of class time.

Dr. Childers' Policy on Generative AI (GenAI)

Use of an AI Generator such as ChatGPT, MidJourney, DALL-E, etc. is explicitly prohibited unless otherwise noted by the instructor. The information derived from these tools is based on previously published materials. Therefore, using these tools without proper citation constitutes plagiarism. Additionally, be aware that the information derived from these tools is often inaccurate or incomplete. It's imperative that all work submitted should be your own.

Written communication and critically analyzing research are important skills that you will be developing in this class. The use of GenAI on assignments in this class will limit your learning and inhibit your ability to develop critical thinking skills. **You are doing yourself a disservice by relying on GenAI to complete assignments.**

To help make decision on when and where you should use different online resources, use the guide below. This is not an exhaustive list, if you are not sure if something is permissible, ask me! You will never be penalized for asking if something is permissible, *before doing it.*

What you CAN do for this class:

- Use software like Word or Grammarly to correct misspellings, punctuations, and minor grammar errors

- Use GenAI to provide explanations or walkthroughs of SPSS functions
- Use GenAI to help with worksheets not submitted for a grade (be cautious with this as if you cannot complete worksheets without AI you probably won't be able to complete similar problems on exams/quizzes)

What you CANNOT do:

- Use GenAI to write submitted material for you, including but not limited to article summaries, rough and final drafts, and posters
- Use GenAI to answer any exam or quiz questions for you, whether they are multiple choice, short answer, matching, true/false, etc.

The gray area

These are situations where you *could be* misusing GenAI. In these cases, check with me!

- Grammar software changing words or sentences (e.g., Grammarly)
- Brainstorming, reviewing, editing, or giving suggestions on things that might end up in a submitted assignment

If GenAI use is suspected

If I or the TAs suspect a student used AI in submitted assignments, we will follow these steps for assessing the situation and coming to a resolution.

1. The assignment will be reviewed fully by myself and both TAs
    a. If non consensus is reached, no action will be taken (I may reach out to the student to let them know what flagged as AI so they can be aware for the future)
2. If there is consensus between me and the TAs that student likely used GenAI, I will meet with student to show why I suspect GenAI and allow them to provide evidence that their work is original.
    a. First offense: Student receives a 0 on assignment and is reported to the university
    b. Second offense: Student will receive a 0 for the course.

FAQ

Why does Dr. Childers prohibit GenAI in class?

There are (at least) 6 reasons why I don't allow GenAI use in class.

1. GenAI plagiarizes. Whether you count using a computers words as your own as plagiarism (in my view it is), GenAI itself plagiarizes from others. These systems are built by using huge databases of works written by other humans and thus it is plagiarizing their work when giving you information.
2. It is not in your voice/authentic to you. When you use GenAI as your own words, you are erasing your own voice.
3. This course is intended to build your brain muscles. By using GenAI to do your work for you, you are not developing the vital skills necessary to be successful in your future careers and life. These skills include written communication, critical thinking, problem solving, and information interpretation, to name just a few.
4. You are not (yet) an expert – you don't know if GenAI is correct. GenAI can and does report inaccurate information and does it very confidently. You are still learning and are not familiar enough with these topics to always know if what it is telling you is true.

5. You are not showing you have skills beyond AI. If you use GenAI to get through your courses, what skills do you have to offer for your future jobs? Why should a company hire you, if everything you can do, AI can do?
6. You will face consequences if caught. You can receive a 0 on assignments and the course if you are caught using GenAI.

What do I do if I know another student used GenAI on an assignment?

If you notice another student using GenAI for this course, remind them of this policy and that they should not be using it. If they continue to do so, I encourage you to bring it to my attention.

What if I'm accused of using GenAI, but I didn't?

I will try my hardest to not accuse students of AI use without a preponderance of evidence. To do this, I am using a multi-step process and bringing in outside perspectives in all cases. In first instances of suspected AI use, you will have the opportunity to resubmit the assignment without penalty.

Another professor lets me use Gen AI, why can't I use it in this class?

I cannot and will not speculate on other professors' decisions on how to run their courses. For all the reasons discussed earlier, I do not allow GenAI use in my course and violating this will result in the above consequences.

Required Technology

We will use Blackboard and SPSS in this course. It is your responsibility to address any computer or internet problems that might occur. Such problems are not an excuse for delays in meeting expectations or for missing course deadlines. Support for using Blackboard and SPSS is available by calling 618-650-5500, or by visiting http://www.siue.edu/its/bb/ At a minimum, you will need the following software/hardware to participate in this course:

- computer with an updated operating system (e.g. Windows, Mac, Linux)
- updated Internet browser (Apple Safari, Internet Explorer, Google Chrome, Mozilla Firefox)
- DSL or Cable Internet connection or a connection speed no less than 6 Mbps. A secure, encrypted Wifi (requiring a login and password) is acceptable. Note that some Blackboard components will not work properly on free wifi from places like Starbucks or McDonalds.
- Microsoft Office, including Word (SIUE students get Free Office 365)
- Other useful software is available at http://www.siue.edu/its/software/index.shtml
- SPSS on your home computer or you can use computers on campus

Student Services

• Lovejoy Library Resources • Academic Success Sessions • Tutoring Resource Center • The Writing Center • Academic Advising	• Financial Aid • Campus Events • Counseling Services • Cougar Cupboard (food pantry) • ITS (tech and Blackboard help)

University and Psychology Department Policies

- **Psychology Department policy on plagiarism.** Plagiarism includes presenting someone else's words without quotation marks (even if you cite the source), presenting someone else's ideas without citing that source, or presenting one's own previous work as though it were new. When paraphrasing from another source or your own work, at the very least, the student

should change the wording, sentence syntax, and order of ideas presented in the paper. Additionally, you should not submit a paper, or parts of a paper, written to fulfill the requirements of one class for the requirements in another class without prior approval of the current instructor and appropriate citation. Ideally, the student will integrate ideas from multiple sources while providing critical commentary on the topic in a way that clearly identifies whether words and ideas are those of the student or are from another source. Plagiarism is one type of academic misconduct described in SIUE's Student Academic Code (http://www.siue.edu/policies/3c2.shtml). University policy states that "Normally a student who plagiarizes shall receive a grade of F in the course in which the act occurs. The offense shall also be reported to the Provost." (http://www.siue.edu/policies/1i6.shtml). The University policy discusses additional academic sanctions including suspension and expulsion from the University. To insure that you understand how to avoid plagiarism, we encourage you to review the information on plagiarism provided on the Department of Psychology web page at http://www.siue.edu/education/psychology/plagiarism.shtml..

    - We will cover how to properly read and cite sources in class. You are responsible for understanding what plagiarism is; if you have any questions at all, you should discuss them with Dr. Childers BEFORE you turn in a plagiarized paper. A lack of knowledge of appropriate citation and referencing format will not excuse you from point deductions from written assignments or disciplinary action in the case of plagiarism.

- **Psychology Department policy on Incomplete Grades, Pass-No Credit Option, and Withdrawal.** It is the student's responsibility to officially withdraw from a course through the Enrollment Office by the dates set by the university if the student is not intending to complete the course. Students who do not withdraw and have not completed the course will receive an Unauthorized Withdrawal (UW). Only under special circumstances may a faculty member agree to give the student an Incomplete (INC) grade in order to allow the student to complete the remaining work for the course no later than the end of the following semester. An INC is never automatic but must be approved by the instructor. If an instructor agrees to give a student an INC grade, the instructor and student will fill out a form (Memorandum of Incomplete Grade) indicating why an INC is being given. One copy of the completed form will be given to the student, one copy will be given to the instructor, and one copy will be kept by the Department of Psychology secretary. If the work is not completed by the specified time, the grade will be changed from INC to F.
- **Psychology Department writing policy.** As a student in this course, you will be expected to display university-level writing, which includes completing course assignments that meet the following basic writing criteria. Specifically, all written assignments completed for this course should include:
    - clear transitions from sentence to sentence and idea to idea (e.g., paper is organized/flows well);
    - verb tense consistency;
    - clear and unambiguous sentences and ideas;
    - writing that is free of typos, spelling errors, and major grammatical errors;
    - properly formatted citations and references (if relevant).

  This is by no means an exhaustive list of basic writing skills, but will give you an idea of what we are looking for in our papers. If you feel you need help with your writing, you are encouraged to seek assistance from the writing center on campus (http://www.siue.edu/is/writing) or utilize one of the many online resources they have identified to help students (http://www.siue.edu/is/writing/resources.shtml).

If your graded written assignments fail to meet the basic writing requirements listed above (and any others found to be appropriate by your instructor), the instructor will stop the grading process and return the paper to you with the grade of 0. You will have 48 hours to return the assignment in an acceptable form; if it still fails to meet the basic writing criteria, the grade of 0 will remain.

- **SIUE Statement on disabilities.** Students needing accommodations because of medical diagnosis or major life impairment will need to register with Accessible Campus Community & Equitable Student Support (ACCESS) and complete an intake process before accommodations will be given. The ACCESS office is located in the Student Success Center, Room 1270. You can also reach the office by e-mail at myaccess@siue.edu or by calling 618.650.3726. For more information on policies, procedures, or necessary forms, please visit the ACCESS website at www.siue.edu/access.
- **SIUE statement on diversity.** All societies and peoples have contributed to the rich mix of contemporary humanity. In order to achieve domestic and international peace, social justice, and the development of full human potential, we must build on this diversity. SIUE nurtures an open, harmonious, and hospitable climate that facilitates learning and work. Each member of the University is responsible for contributing to such a campus environment.
- **SIUE nondiscrimination policy.** Southern Illinois University Edwardsville (SIUE) is a public comprehensive University committed to creating and maintaining a diverse community in which students, faculty, and staff can learn and work together in an environment free of discrimination and free from any form of illegal harassment. Such actions violate the dignity of the individual and the integrity of the University as an institution of learning. SIUE prohibits discrimination against employees, applicants for employment and students on the basis of age, color, disability, marital status, national origin, race, religion, sex, sexual orientation, or veteran's status. Discrimination in any form will not be tolerated; management and supervisory personnel, at all levels, are responsible for taking reasonable and necessary action to prevent discrimination.

Academic Integrity

Students are reminded that the expectations and academic standards outlined in the Student Academic Code (3C2) apply to all courses, field experiences and educational experiences at the University, regardless of modality or location. The full text of the policy can be found here: https://www.siue.edu/policies/3c2.shtml.

Recordings of Class Content

Faculty recordings of lectures and/or other course materials are meant to facilitate student learning and to help facilitate a student catching up who has missed class due to illness or quarantine. As such, students are reminded that the recording, as well as replicating or sharing of any course content and/or course materials without the express permission of the instructor of record, is not permitted, and may be considered a violation of the University's Student Conduct Code (3C1), linked here: https://www.siue.edu/policies/3c1.shtml.