

Research Design and Statistics II

PSYC 221 Spring 2026

Instructor	Dr. Marie Childers	Email	marichi@siue.edu
Office	AH 0133	Class Info	MW 10-10:50 FH 0116
Office Hours	Mondays and Wednesdays 11-12	005 Lab Time 006 Lab Time	Fri 10-10:50 Fri 11-11:50
Phone	618-650-2253	Lab Room	AH 1201
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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

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

<u>Assessment</u>	<u>Point Total</u>	<u>Percent of Grade</u>	<u>Grade Breakdown</u>
Final Exam	100 pts	20%	90% – 100% = A
Quizzes	100 pts	17.5%	80% – 89% = B
Lab project	255 pts	36%	70% – 79% = C
Attendance	100 pts	14.5%	60% – 69% = D
Lab Attendance	70 pts	12%	below 60% = F
Total points	625 pts	100%	

- **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 in person according to the schedule below and open book/open notes, but *not* open-Google. 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.
- **Quizzes [100 points].** You will have 6 in-person quizzes worth 20 points each. The lowest score for the 6 quizzes will be dropped at the end of the semester.
 - **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.
 - **Quiz timing and format.** Quizzes are completed on in class on Wednesdays. In order to encourage you to study, **the quizzes are closed book/closed note.** You will have 30 minutes to complete the quizzes and they must be completed in one session.
- **Lab project [255 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 100 points. Students will also present their findings in lab 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 and group work.** You will have the option to work with a group on your lab project, but all submitted work should be completed by you.

Course Calendar

Date	Topic	Reading	Assignments*	Points
Week 1	220 review and 221 preview			
Lab 1	Overview of Lab Project	220 Chs	Project Agreement	10
Week 2	NO CLASS MONDAY 1/19 Experiments			
Lab 2	Lit Review	M-Ch7	Quiz 1	20
Week 3	Designing Experiments			
Lab 3	Study Design	M-Ch8	Article Worksheet	15
Week 4	Types of Experiments			
Lab 4	Study design	--	Quiz 2	20
Week 5	Sampling distributions			
Lab 5	Programming study	S-Ch7	Design Worksheet	15
Week 6	Hypothesis testing			
Lab 6	Programming study	S-Ch8	Sources Worksheet	25
Week 7	One-sample <i>t</i> -tests			
Lab 7	Writing lab	S-Ch9	Quiz 3	20
Week 8	Independent samples <i>t</i> -tests			
Lab 8	SPSS lab	--	Intro & Method	25
Mar 9-13	Spring Break – NO CLASS			
Mar 13	Spring Break – NO LAB	--	--	--
Week 9	Independent samples <i>t</i> -tests			
Lab 9	SPSS lab	S-Ch10	Quiz 4	20
Week 10	Within-groups experiments			
Lab 10	SPSS lab	--	Data Worksheet	25
Week 11	Repeated measures <i>t</i> -tests			
Lab 11	Writing lab	M-Ch9	Quiz 5	20
Week 12	ANOVA			
Lab 12	Writing lab	S-Ch11	Results & Discussion	25
Week 13	ANOVA			
Lab 13	Making Posters	S-Ch12	Quiz 6	20
Week 14	Factorial designs			
Lab 14	Group presentations	M-Ch11	Poster	15
Week 15	Catch-up and Review			
Lab 15	Final paper workshop	--	Final Paper	100
Week 16	Finals week	--	Final Exam (date/time TBD)	100

* Except for quizzes all assignments are assigned on Fri and due following Mon at noon. Quizzes are conducted in class on Wednesdays.

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.
- **Illness policy.** If you have any illness symptoms that cannot be explained by a chronic condition you have, **PLEASE** stay home.
- **Attendance policy.** Attendance to lecture and lab is required. You will receive 5 points for each session you attend. You must attend at least 20 lecture and 14 lab sessions to receive full credit. If you make up your work when you miss and engage while you're in class, occasional absences should not tank your grade.
 - **NOTE.** If you miss class regularly, I will begin to wonder if you have the time and motivation to complete PSYC221 right now and begin to pester you (this is no fun for either of us). This is a serious class that requires you to work hard and get help.
- **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.
3. If I still suspect GenAI use, I will anonymize the assignment and send to two other faculty members for review
 - a. If non-consensus, the student will not face any consequences, but I will again let them know why I suspected so they are aware for the future.
 - b. If there is unanimous agreement on use of AI student will face the following consequences for each subsequent violation

- i. First offense: student receives a 0 on the assignment with the option to resubmit with their own original work, if resubmitted with original work, will be graded as normal
- ii. Second offense: Student receives a 0 on assignment and is reported to the university
- iii. Third 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 let's 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.siu.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.siu.edu/its/software/index.shtml>
- SPSS on your home computer or you can use computers on campus

Student Services

<ul style="list-style-type: none">• Lovejoy Library Resources• Academic Success Sessions• Tutoring Resource Center• The Writing Center• Academic Advising	<ul style="list-style-type: none">• Financial Aid• Campus Events• Counseling Services• Cougar Cupboard (food pantry)• ITS (tech and Blackboard help)
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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.siu.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.siu.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.siu.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.siu.edu/is/writing>) or utilize one of the many online resources they have identified to help students (<http://www.siu.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.siu.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.

COVID-19 Pandemic Policies Related to Classroom Instruction (Fall 2022)

Health and Safety

The measures outlined below are required and any student who does not comply may be in violation of the *COVID-19 People-Focused Health and Safety Policy*, as well as the University's *Student Code of Conduct*.

The full text of the *COVID-19 People-Focused Health and Safety Policy* can be found here: <https://www.siu.edu/policies/Covid.shtml>

Classrooms, Labs, Studios, and Other Academic Spaces

Under current University policy, SIUE will only require masking in campus healthcare settings. See, <https://www.siu.edu/about/announcements/coronavirus/safety-guidelines-support/index.shtml>.

Individual faculty of record may determine that masking will be required in their classrooms and are asked to communicate accordingly with students. Face masks may be required in other campus sites following guidance from governing regulatory agencies.

- Students who forget to wear a face covering when masking is required will be reminded of their obligation to comply with SIUE's *COVID-19 People-Focused Health and Safety Policy* and temporarily asked to leave the class until they are able to conform to the policy. Students who forget or lose their face coverings when masking is required may be able to obtain replacements from a friend, a faculty member, or a nearby departmental office. Face coverings are also available for purchase in the Cougar Store (MUC).
- Students who refuse to wear a face covering when masking is required will be asked to leave the classroom and referred to the Dean of Students for non-compliance with community health and safety protocols. Repeated non-compliance may result in disciplinary actions, including the student being administratively dropped from an on-ground/face-to-face course or courses without refund if no alternative course format is available.
- If a student has a documented health condition which makes wearing a face covering medically intolerable, that student should contact ACCESS to explore options with the understanding that ACCESS will not grant accommodations which excuse the need for a face covering while on campus or in the classroom. ACCESS will work with qualifying individuals to find reasonable alternatives, whenever such solutions are available. Please call or contact the ACCESS Office via email to schedule an online appointment to discuss potential alternatives. ACCESS office (Student Success Center, Room 1203, 618-650-3726, and myaccess@siue.edu).

General Health Measures

Students and employees are expected to review the [siue.edu/coronavirus](https://www.siu.edu/coronavirus) website (<https://www.siu.edu/about/announcements/coronavirus/>) to better understand prevention strategies and safety expectations.

- Students and employees are expected to maintain healthy hygiene practices.

- Students and employees are expected to follow COVID-related guidelines and directions.
- Students and employees are expected to conduct a daily health self-assessment and isolate themselves if COVID-related symptoms are present. COVID-related symptoms include:
 - o Fever (100.4 degrees or above) or chills
 - o Cough
 - o Shortness of breath or difficulty breathing
 - o Fatigue
 - o Muscle or body aches
 - o Headache
 - o New loss of taste or smell
 - o Sore throat
 - o Congestion or runny nose
 - o Nausea or vomiting
 - o Diarrhea

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.siu.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.siu.edu/policies/3c1.shtml>.

Potential for Changes in Course Schedule or Modality

As the COVID-19 pandemic continues, there remains a possibility that planned classroom activities will need to be adjusted. Depending on circumstances and following state-issued recommendations, potential changes include alterations to distancing requirements, course modality (e.g., transition from face-to-face to online, hybrid, or hy-flex, mask wearing, in-course activities, etc). These changes would be implemented to ensure the successful completion of the course while preserving health and safety. In these cases, students may be provided with an addendum to the class syllabus that will supersede the original version. If the course schedule or modifications significantly alter expectations, a new syllabus will be issued.