

# Psychology 220-002-003 Research Design and Statistics I Spring 2022

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**Office hours:** Wednesdays 1pm-3pm, or by appointment

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**Office:** Alumni Hall 0318 & 0310

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**Class meets:** 10:00am-11:50am Mondays and Wednesdays in Founders Hall 0101 and On Friday Section 002 8am-9:50am in AH 1201 and Section 003 10am-11:50am in AH 1201

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## Required Text:

- Gravetter, F. J., & Wallnau, L. B. (2014). *Essentials of statistics for the behavioral sciences* (8<sup>th</sup> ed). Pacific Grove, CA: Wadsworth-Thompson Learning.
- Gravetter, F. J., & Forzano, L. B. (2016). *Research methods for the behavioral sciences* (5<sup>th</sup> ed.). Belmont, CA: Wadsworth-Cengage Learning. (Methods)

**Required Equipment:** Students must acquire a statistics calculator for both PSYC 220 and 221. This calculator must be capable of computing squares, square roots, sums of scores ( $\sum x$ ), sum of X squared ( $\sum x^2$ ), and standard deviations ( $\sigma$ ). The professors teaching these courses are strongly recommending the Texas Instruments TI-30Xa calculator. We have chosen this calculator due to its affordability, functionality, and user-friendliness. Please note that a graphics calculator is not permitted in either course. It is the student's responsibility to understand the functionality of their calculator, thus we recommend having the instruction manual for your chosen calculator.

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**Additional Course Materials (such as handouts):** can be obtained from Dr. Nadler or from BlackBoard.

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**Additional costs:** Web sharing, printing of research materials for group research project (as needed)

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**Course objective:** To provide an overview of the process of conducting scientific research in psychology. This course will consider the entire process from initial generation of research ideas to writing research reports. Special emphasis will be placed on critical thinking, idea presentation, and choosing the research design and statistical procedure that are most appropriate to the research question of interest.

Over the course of two semesters (220 and 221), you will be introduced to basic statistical concepts and methodological research designs that are used in the behavioral sciences. Methodology relates to the manner in which an experiment is designed whereas statistics allow us to understand the results from these designs. Concerning methodology, the first semester (220) will focus on non-experimental designs, and the second (221) will focus on experimental designs. Regarding statistics, we will cover descriptive statistics in the first semester (220). During the second semester, you will learn about inferential statistics which allow us to test causal hypotheses about the subjects that interest us. These two courses are critical for further study in the social sciences. By the end of these two semesters, you should reach a greater understanding about how researchers develop and reach their conclusions and learn to apply these techniques to your chosen career path. You will also get hands-on experience with statistics. This includes calculating basic statistics by hand as well as using statistical software (SPSS) to compute statistics. The purpose of this is to help you overcome the intimidation that often comes with using statistics. Please, if you have questions, do not hesitate to contact me or your TA.

## Course learning objectives:

1. Understand the specific research designs we discuss in class, how they are different, and how they are implemented.
2. Learn the different types of statistical analyses we do in class including when to use them, their computations, and how to interpret them.
3. Know how to effectively use SPSS to execute the types of statistical analyses that we will cover.
4. Learn the skills needed to communicate your research results (i.e., effectively writing APA research reports).
5. Be prepared to transition from Psyc 220 to Psyc 221

**Special notes about 220/221:** You should be registered for at least 15 credit hours this semester if it is important that you remain a full-time student. Why? In the unfortunate event that you fail this course, you will have to drop PSYC 221, which will reduce your credit hours. Thus, you must be at 15 hours in order to drop PSYC 221 and still remain at full-time status (12 hours).

Psychology majors must earn a grade of at least C in this required psychology course to count toward the major. If this is your first time taking this course and you receive a course grade of D or F it is your responsibility to contact your advisor immediately to determine whether there is any possibility of getting enrolled in a section of this course next semester.

This, and your other required psychology courses, have a “2 attempt” rule—you may only attempt the course (including W, WF, WP, and an earned grade below a C) two times. After two unsuccessful attempts, you will be dropped from the major.

**Expectations and advice:** You will need to put time and effort into this class. Some of this time will have to be here on campus in the computer lab. If you do not have the time to put effort into this class, you should consider taking this course another semester. University policy suggests you spend at least 2 hours outside class for every hour inside class, which means you can anticipate spending at least 11 hours outside of class per week on this course. Follow these steps to reach your potential:

1. Read all assigned readings before class. This is critical to success in this class because it will help you understand the topics covered in lecture.
2. Attend all classes and take notes.
3. Look through your notes after class, before the next class. If anything is confusing, refer back to your text for clarification, or come in for help.
4. Please look over your drafts and use that feedback to improve your final paper.
5. Come in for help at the first sign of trouble. Do not wait until you receive a poor grade to get help.
6. Invest in a 3-ring binder. Put syllabus, all handouts, notes, etc., in an organized fashion in this binder. Keep the binder for use in subsequent courses.

## Course grade:

Exams: There will be 2 exams worth 150 points. Total points possibly earned by exams = 300 points.

Reading & Lectures: Lectures and readings will follow the same sequence as much as possible.

However, as they are meant to compliment each other rather than repeat each other, lectures will cover some material not mentioned in the book and omit material that is in the book. Students

will be responsible for information from both.

Attendance: I will not take attendance for the lectures; however, it is strongly advised that you continue to attend classes, as you will be responsible for material covered and assignments given here. If you cannot attend a class, remember that it is your responsibility to obtain notes from another student.

Group Work: There will be group assignments and group evaluations as a part of the research lab. Total points for all group work is 50.

Quizzes: There will be six quizzes that will take place in Friday's labs. Each quiz is worth 25 points and will cover topics from that week's lectures. You must be present in class to take these quizzes unless the absence is excused. The quizzes will be given during the first 5 minutes of class so make sure you are on time. These quizzes will help you in two keyways. First, it will help motivate you not to wait until the last minute to begin studying. Second, research in memory has demonstrated that taking frequent quizzes is a better strategy than study alone (McDaniel, Andersen, Derbish, & Morrisette, 2007).

Research Project and Report: There are two parts to this course: the lecture, and the lab.

The purpose of the lab's exercises and assignments is to apply what you have learned from the lectures. You will be expected to put a lot of time and effort into the lab. Throughout the semester, students will work in small groups to design and conduct a psychological experiment.

**Working individually**, students will write complete research reports describing the research they conducted. Total points possibly earned in lab = 200 points.

You will also write an **APA style paper**. I will provide a handout with more detail on this project. This project is designed to give you hands-on experience with the design of quantitative research studies and data analysis. Part of this project will involve group participation and part will be done on your own (**PLEASE SEE THE PROJECT HANDOUT FOR WHAT CAN AND CANNOT BE DONE TOGETHER**). The final project will be worth 26% of your grade (260 points). To help you along with this project, you will need to do two different drafts throughout the course of the semester (the due dates are on the class schedule). Your handout will provide more information on these drafts. Each draft will be worth 25 points for a total of 50 points. **Also note that you must do an online certification for research with human subjects. This must be done before you can start your project. If you do not complete this certification, you will not be able to turn in your final paper as well as your drafts.**

<u>Grading</u>	<b>Research Lab Assignments</b>	
	Research Drafts 1 & 2	(50 pts total)
	Quizzes (1-6)	(150 pts total)
	Group Work	(50 pts total)
	Final Paper	(150 pts total)
	<b>Exams 1-2</b>	<b>(300 pts)</b>
	A: 100% - 90%	(540 + pts)
	B: 89% - 80%	(480-539 pts)
	C: 79% - 70%	(420-479 pts)
	D: 69% - 60%	(360-419 pts)
	F: Below 60%	(359 pts or less)

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**Blackboard:**

-Displays up-to-date evaluation of course performance (i.e., grades)

-Lecture Slides, study guides, and writing guides

-Displays syllabi for lecture and lab, additional course-related material, and links to sources of information related to psychology

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**\*\*Late Policy\*\***: All assignments can be submitted late, up to one class period following the due date, and no later. Papers and assignments that are late will be considered for half credit. Students who provide evidence of an excusable absence will be able to submit the missed assignment up to one class period after the original due date without penalty.

**Schedule of lectures:**

*\*All reading assignments should be read BEFORE the assigned date.* Reading for the course is *essential*. I will lecture with the assumption that every student has read the material beforehand. Lectures, therefore, will be aimed toward clarifying the concepts and deepening your knowledge of the material.

<b>Date</b>	<b>Topic</b>	<b>Readings</b>	<b>Assignments</b>
1/10	Introduction to Class, Introduction to research and Scientific Inquiry	Syllabus, G&F Ch. 1	
1/12	Research Design, Getting Started with Research	G&F Ch. 2 & 6	
1/14 Lab	<b>Lab:</b> Introduction, Finding, Reading, and Summarizing Articles, ethics / Group formation, research ideas, discuss hypotheses		<b>Quiz #1 Group Hypotheses Due (5 points)</b>
<b>1/17</b>	<b>No Class: Martin Luther King</b>	<b>No Class</b>	<b>No Class</b>
1/19 Online	APA Project and Style/APA	Blackboard project materials, G&F Ch. 16	
1/21 Lab	Human Subjects, APA style, Introduction Section, Plagiarism, Group Work		<b>Quiz #2 Group articles due in class (10 points)</b>
1/24	Language of Variables, Measuring Concepts	G&F Ch. 3 & 4	
1/26	Sampling, Descriptive Research Research Designs	G&F Ch. 5 & 13	
1/28 Lab	APA Method Section, Survey Construction, Group Work		<b>Quiz # 3 Online Ethics Certification due in class Survey items due in class (5 points)</b>
1/31	Validity, Intro to Stats, Frequency Distributions	G&W Ch. 1 & 2	<b>Group Survey is due on Blackboard by 11:59pm CST (5 points)</b>
2/2	Central Tendency/ Variability	G&W 3 & 4	
2/4 Lab	<b>Midterm (Test 1)</b>		<b>Test 1 in Lab</b>
2/7	Variability, Correlational Design	G&W Ch. 4, G&F Ch. 12	<b>Draft 1 due on Blackboard by 11:59pm CST</b>
2/9	Pearson's Correlation, <b>SPSS</b>	G&W Ch. 14 (450-471), G&F Appendix C	

2/11 Lab	Intro to SPSS, Data Entry, APA Results & Discussion	G&F Appendix C & D, Blackboard Materials, G&F Ch. 16	<b>Quiz #4</b>
2/14	SPSS and APA Project Discussion	G&F Appendix C & D, Blackboard Materials, G&F Ch. 16	<b>Group Data is due on Blackboard by 11:59pm CST (10 points)</b>
2/16	Other correlations, Regression	G&W Ch. 14 (472-496)	
2/18 Lab	SPSS, APA Paper Discussion		<b>Quiz #5</b>
2/21	Z-scores, Standard Deviations, & Probability	G&W Ch. 5 & 6	<b>Draft 2 due on Blackboard by 11:59pm CST</b>
2/23	Probability, Distribution of Sample Means, Hypothesis testing	G&W Ch. 6 & 7	
2/25 Lab	Computational practice		<b>Quiz #6 Group Evaluation forms (15 points)</b>
2/28	Types of correlational and Qualitative research, Paper Questions	G&W Ch. 7 & 8	<b>Final Paper due on Blackboard by 11:59pm CST</b>
3/2	Review for Final	G&W Ch. 8	
3/4 Lab	<b>Final (Non-comprehensive: Test 2)</b>		<b>Test 2 in Lab</b>

- ❖ Students are obligated to uphold the student code.
  - ❖ Plagiarism on any course assignment will result in a point score of zero on the plagiarized assignment of the student who plagiarized.

**Petitions in Writing Only:** Sometimes, discrepancies arise between a student's and an instructor's perceptions regarding grades. You are always welcome to discuss your grades with the instructor. However, if you want me to consider changing your grade, then you must submit a petition in writing via email **within 48 hours** of receiving your grade on the quiz or assignment. You must outline specifically why and how your work warrants more credit. Submitting written petitions does not guarantee point adjustments.

**STUDENT RESOURCES:**

Lovejoy Library  
618-650-4636  
<http://www.siu.edu/lovejoylibrary/>

Technology Support  
Lovejoy Library Room 0005  
618-650-5500  
[help@siue.edu](mailto:help@siue.edu)

Writing Center  
MUC –Student Success Center 1254  
618-650-2045  
[http://www.siu.edu/is/writing/location\\_hours.shtml](http://www.siu.edu/is/writing/location_hours.shtml)

Computer Labs

Lab Location and Availability posted online

<http://www.siu.edu/its/labsclassrooms/sum09reg.shtml>

**The Psychology Department's 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>.

**Accommodations for Disabilities:** Notify the professor immediately of any needed accommodations for documented disabilities at the beginning of the course. If you are expecting accommodations at any time in this class, you must speak Disability Support Services in the Student Success Center in Rm 1270 (650-3726) before you need accommodations. Also, According to SIUE safety and procedures policies, students with disabilities have the option of developing a written plan for evacuation in the unlikely event of an emergency that requires evacuation. If any student with a disability would like to develop a written evacuation plan for this class, please contact the instructor.

Online courses are required to meet ADA accessibility guidelines. This means that all aspects of the online learning experience are accessible. Please let me know if you have adaptive software and hardware to assist you with taking this course or if you have any specific needs I should be aware of. You can access the **SIUE Disability Support Services** through the following link: <http://www.siu.edu/dss/>.

If you have a documented disability that requires academic accommodations, please contact Disability Support Services for coordination of your academic accommodations. The DSS office is located in the Student Success Center, Room 1270 and is open Monday - Friday from 8:00 a.m. - 4:30 p.m.\* You may contact their office by calling [\(618\) 650-3726](tel:6186503726) or sending an email to [disabilitysupport@siu.edu](mailto:disabilitysupport@siu.edu). In order to request accommodations in an online course, students with disabilities will need to present an electronic copy of their DSS ID Card prior to application of those accommodations. To request an electronic DSS ID card, email [disabilitysupport@siu.edu](mailto:disabilitysupport@siu.edu) prior to requesting the accommodation of the instructor.

*\*Please note: The DSS Office is closed on days when the entire University is closed, which includes December 24, 2014 - January 2, 2015. Visit the DSS website located online at [www.siu.edu/dss](http://www.siu.edu/dss) for more information.*

**The Psychology Department's Policy on Incomplete Grades:** It is the student's responsibility to officially withdraw from a course 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 F. Only under special circumstances a faculty member may agree to give a 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 professor. If a professor agrees to give a student an INC grade, the professor and the 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 professor, and the Department of Psychology secretary will keep one copy. If the work is not completed by the time specified on the Memorandum of Incomplete Grade form, the grade will be changed from INC to F.

**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.

**SIUE 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 a **grade**. Please see the **Psychology Writing Resources** page for additional resources to improve your writing. (<http://www.siue.edu/education/psychology/faculty/writing-resources.shtml>).

### **General Health Measures**

At all times, students should engage in recommended health and safety measures, which include:

- Conducting a daily health assessment. If you have COVID-19 symptoms, but not yet tested positive, have had COVID-19 close contact exposure, or are COVID-19 diagnosed as presumptive or confirmed positive, stay home and contact your health provider or SIUE Health Service at [cougarcare@siue.edu](mailto:cougarcare@siue.edu) or 618-650-2842.
- Frequent washing or disinfecting of hands.
- Physical distancing.
- Face masks or face coverings that cover the nose and mouth are required in indoor public spaces regardless of the ability to maintain physical distance. Indoor public spaces include common spaces or community settings that anyone can access, such as reception areas with walk-in access, restrooms, hallways, classrooms, teaching and research laboratories, as well as common spaces in residence halls, conference rooms, lobbies, and break rooms.
- If present, adhere to directional signs and traffic flow patterns in buildings and offices. In many spaces, doors for entering and exiting buildings are designated.