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## Statistics

Spring 2024

PSYC BC1101 003/004

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TA: Mindy Rosengarten

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Recitation Assistant: Molly Roitman

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Lecture: Mondays and Wednesdays from 10:10 to 11:25 am in 328 Milbank

Recitation: Mondays 12:10 to 2:00 pm (222 Milbank) and 2:10 to 4:00 pm (222 Milbank)

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### Course Description and Goals

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When scientists do research, they collect data and analyze it using statistics. The conclusions they draw—and the certainty with which they draw those conclusions—are based on those statistics. Even outside of scientific research, and in the era of “big data”, many of today’s leading companies and non-profit organizations employ researchers who have statistical training to help organizations make better data-driven decisions. In this course, you will learn statistical methods commonly used in psychological research. We will cover topics such as measures of central tendency and variability, probability and distributions, confidence intervals and hypothesis testing, t-tests and analysis of variance, and correlation and regression. You will learn to calculate and interpret statistics with reference to real-world contexts and research questions typical in psychological research. In the weekly recitation meetings, you will learn how to use SPSS—a statistical software package commonly used in behavioral science research—to describe and analyze data.

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### Text and Materials

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- ✦ Gravetter, F. J., Walnau, L. B., Forzano, L. B., & Witnauer, J.E. (2021). *Essentials of Statistics for the Behavioral Sciences (10th Ed)*. Cengage.
  - ✦ Announcements and other course materials will be available on CourseWorks.
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### Course Policies and Resources

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**Statement of Values:** I am committed to inclusive and equitable pedagogical practices. I strive to create a learning environment that (1) recognizes, values, and supports individual differences and identities and (2) works against societal inequalities. I consistently reflect on these values and how I am implementing them. I will seek your feedback—if you are willing to provide it—regarding how well you

think these values are practiced in our class and what could be improved. If, at any time, you feel that I am not living up to this commitment, I would appreciate speaking with you about your experiences, if you are willing. Please reach out to me, and we will set up a time to talk.

**Contact Policy:** The best way to contact me outside of class is via email. I will do my best to respond to you within one business day. For example, if you email me on Tuesday at 11 am, I will aim to email you back by Wednesday at 11 am. If you email me on Friday at 3 pm, I will aim to email you back by Monday at 3 pm. If I do not email you back within one business day, please feel free to send me another email to follow up. Sometimes, I cannot fully answer your question within one business day. In these situations, I will email you back to let you know that I received your email and that I will follow up as soon as I can.

**Representation:** Unless otherwise stated, any comments I make regarding specific actions, statements, or positions taken by public officials or governmental bodies at local, state, federal, or international levels reflect only my views and not the views of Barnard College. I speak for myself on these issues, and not on behalf of Barnard College, unless I explicitly state otherwise.

**Office Hours:** Office hours with me are usually on Wednesdays from 11:30 am to 1:30 pm. Please use Calendly to sign up for a 15-minute appointment in person or on Zoom (see link below). If you think you will need more than fifteen minutes, please sign up for two timeslots. I can also meet at another time that you and I mutually agree upon—just email me to set this up.

During office hours, I am available to discuss questions regarding this course, and I'm also available to discuss other topics in psychology, your education more broadly, and career development. These hours are for you – please do not worry that you are interrupting me or my work by coming to them.

You will receive five extra points on the first exam if you attend my office hours (not the TA's) to introduce yourself before the first exam – with or without a specific question. I do this because I want to get to know you all outside of class, and I also know it is easier to seek help later in the semester if you have already come to office hours before.

When you start to struggle in this course, please seek help as soon as possible so that you do not fall behind. Our TA, Mindy, also has weekly office hours from 3 pm to 6 pm on Wednesdays (see link below). If you have additional questions about office hours in general, I encourage you to visit this [resource](#) from the Center for Engaged Pedagogy.

Office hours link for Prof Thorson: <https://calendly.com/profthorson/office-hours-for-spring-2024>

Office hours link for Mindy: <https://calendly.com/mlr2204/30min>

**Announcements:** I may make changes and additions to this syllabus. I will announce these changes in lecture and/or via CourseWorks.

**Delivery of Course Content:** Lectures and recitation will be in person. Please make every effort to be in class in person. I promise you that we all have a better time when everyone is here! For an expected absence, please contact me in advance, and we can discuss alternative arrangements. For an unexpected absence, please contact a classmate to obtain course notes. If you miss lecture or recitation, please do not expect to be able to make up missed material during office hours; they are not a suitable alternative for missing class.

**Participation:** Although participation is not explicitly graded in this course, everyone is expected to attend all lectures and recitations. I expect students to be prepared for class, to respond to questions when asked, to volunteer information when prompted, and to avoid hogging attention or disrupting class. While others are talking, I expect everyone to be active and respectful listeners. This class must be a space for everyone to raise questions and voice confusion. The Center for Engaged Pedagogy at Barnard has some helpful [resources](#) if you want to increase your class participation.

**SPSS.** Many of the assignments and recitation worksheets rely on a software program called SPSS. You can access this program in 516 Milstein or in 222 Milbank. You also access a limited version of SPSS virtually via Barnard's Virtual Labs platform, Apporto. Go to [barnard.apporto.com](http://barnard.apporto.com) and login using your Columbia UNI and password. Once logged in, you will see two Virtual Lab desktop icons, BC GPU Virtual Desktop and BC Virtual Desktop. These two virtual environments have some common applications on both, but mostly contain different software for different types of classes. If you know what application you want to use, search for it directly in the search field and the correct virtual desktop will display; then click the blue launch button.

If you are unsure which Virtual Desktop environment you need, click or hover on the name of each virtual desktop icon to find which applications are installed in that environment. Then click on the blue launch button for that Virtual Lab and you will have access to those applications. If you can login successfully, but experience issues opening applications or accessing the virtual lab platform, please open up a ticket with BCIT via email to [help@barnard.edu](mailto:help@barnard.edu) or by logging into Service Now with your Barnard credentials. You can also access Apporto's Help Center which explains how to access and launch applications.

**Honor Code:** I expect students to adhere to the [Barnard Honor Code](#). Be honest about your work. This is your education, so use it wisely.

Examples of academic dishonesty include but are not limited to cheating (e.g., copying from another student or using unauthorized aids during an exam), plagiarizing (copying someone else's work or ideas and misrepresenting them as one's own), falsification (making up fictitious information and presenting it as real or altering records for the purpose of misrepresentation), and facilitation (helping another student to cheat, plagiarize, or falsify).

You may not use ChatGPT or other generative AI software at any stage or in any phase in any type of work in this course, even if properly attributed. If you have questions about what is permissible at any point in the semester, please reach out to me.

**Academic Accommodations:** If you are a student with a documented disability and are eligible for academic accommodations, you must visit the [Center for Accessibility Resources and Disability Services](#) (CARDS) for assistance. Students requesting accommodations in their courses will need to meet with a CARDS staff member for an intake meeting (and then for check-in meetings in subsequent semesters). Accommodations are not retroactive, so it is best to register with CARDS early each semester to access your accommodations. If you are registered with CARDS, please email me your faculty notification letter. If you have extension and/or absence accommodations, I will ask you to sign a separate form acknowledging that you understand how these accommodations can be used in this class.

**Missed Class for Holidays:** If you are observing religious holidays this semester and you need accommodations for any class or assignment, please contact me at least one week in advance of class or the assignment due date.

**Communication:** Communication is key. I am more than willing to work with you to provide accommodations to course policies and requirements, but you need to be in contact with me. If you do not let me know what you need or if you do not respond to my emails, it is very difficult for me to help you. Please be proactive about what you need in this class and contact me well in advance of deadlines, and I will do my best to support you.

**Course Reserves:** At least one copy of our textbook is available on Course Reserves.

**Textbook or Laptop Assistance:** If purchasing the textbook for this class is financially difficult for you or if you need access to a loaner laptop, please fill out the Supplemental Academic Support Application on myBarnard (instructions [here](#)). If you are having trouble accessing the request form or knowing what to do, please the Access Barnard office at [accessbarnard@barnard.edu](mailto:accessbarnard@barnard.edu) or visit the office on the first floor of Milbank Hall.

**Peer-to-Peer Tutoring:** You can receive two hours of tutoring per week for this course from a peer tutor for free via the [Peer-to-Peer Tutoring Program](#). You can request a tutor after the second week of the semester. In order to provide the most effective peer tutoring experience, you should be able to clearly articulate why you need a peer tutor for this course.

**Wellness:** College can be a stressful time, and supporting your own health and well-being will help you get the most out of your college experience. Please take care of yourself – get enough sleep, eat healthy, exercise, and spend time with friends. *Your health is more important than your grade in this course.* Barnard has several resources that can help you in different areas of your life, and I encourage you to take advantage of them at any point during the semester (for example, [Primary Care Health Service](#), the [Rosemary Furman Counseling Center](#), and the [Well-Woman Health Promotion Program](#)).

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## Course Requirements

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**Exams:** There will be three non-cumulative exams on material covered in the course readings, lectures, and recitations. Please note that the last two exams are weighted more heavily than the first one is. The exams are closed-book and will be administered in class. If you are going to miss an exam for any reason, you must contact me PRIOR to the exam. If you are going to miss an exam because you are sick, you need to provide a doctor's note that states you were unable to attend that particular exam. It is your responsibility to schedule a make up for the exam (assuming you have appropriate documentation). If you do not respond to any of my emails about rescheduling the exam within 72 hours (3 days), you will receive a grade of zero on the exam.

**Assignments:** There are nine homework assignments throughout the semester; eight of these count toward your final grade. The goal of assignments is to practice what you have been learning in class and in recitation. Each assignment is only worth 2.5% of your overall grade, and I do not expect you to answer everything perfectly. Assuming you complete the entire assignment clearly and turn it in on time, the lowest you can receive is 70%. You can earn an additional 25% with "mostly" accurate answers. You will receive feedback, and I will also post the answers to assignments on CourseWorks. If you have additional questions about your answers or your work, I encourage you to meet with me during student hours.

Assignments are graded as follows:

- 60 points for completion: Did you complete all parts of the assignment, including calculations, written answers, and SPSS analyses?
- 30 points for accuracy: Did you answer the questions correctly?
- 10 points for presentation: Is your work easy to understand? Can I find your answers and read them easily?

Assignments are due on CourseWorks (as a PDF or Word file, NOT a Pages file nor any other file type) by the beginning of lecture (10:10 am) on the day they are due. You must upload your assignment as ONE file – not multiple files. If you have trouble uploading your assignment on CourseWorks, email your assignment to me directly. Problems with CourseWorks will not be considered a reasonable excuse for not turning in your assignment on time. No assignments will be accepted after class ends unless you have made alternative arrangements with me prior to the start of class. I typically do not grant extensions on assignments, unless you have a CARDS accommodation for extensions or if you have truly extenuating circumstances.

**Final Project:** The final project is a one-page report of an analysis that you will conduct using one of several datasets that I will provide. In this report, you will describe your research question, the method you used for answering the question, and the results of your analysis. The project gives you an opportunity to complete your own statistical analysis independently and to explain the results of that analysis to others. I will provide a detailed rubric for this project later in the semester.

**Extra Credit:** There is no extra credit in this course.

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### *Requirements and Weights*

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<i>Requirement</i>	<i>Weight</i>
Exam 1	20%
Exam 2	25%
Exam 3	25%
Assignments (8 worth 2.5% each)	20%
Final Project	10%

Numeric scores will be rounded up or down to the nearest whole number. **Please note that if you are a psychology major, you must receive a C- or better (71 or higher) for this class to count toward your major requirements.** Below are the numeric cutoffs for letter grades. You need to earn the number listed or higher to receive the corresponding letter grade.

A+	A	A-	B+	B	B-	C+	C	C-	D	F
98	94	91	88	84	81	78	74	71	61	< 61

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### Course Schedule

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Date	Lecture Topic	Textbook Chapter	Assignments
Wed., Jan. 17*	Introduction	--	
Mon., Jan. 22*	Variables and Measurement; Frequency Distributions	1 and 2	
Wed., Jan. 24*	Central Tendency	3	
Mon., Jan. 29	Variability	4	#1 due
Wed., Jan. 31	z-Scores	5	
Mon., Feb. 5	Probability	6	#2 due
Wed., Feb. 7	Probability and Samples	7	
Mon., Feb. 12	Review	--	#3 due
Wed., Feb. 14	<b>EXAM 1</b>	--	
Mon., Feb. 19	Hypothesis Testing	8: Sections 1 through 3	
Wed., Feb. 21	Hypothesis Testing (cont'd)	8: Sections 4 through 6	
Mon., Feb. 26	Introduction to <i>t</i> -statistic	9	#4 due
Wed., Feb. 28	Intro to <i>t</i> (cont'd) and <i>t</i> -tests for Independent Samples	10	
Mon., Mar. 4	<i>t</i> -tests for Independent Samples (cont'd) and <i>t</i> -tests for Related Samples	11	#5 due
Wed., Mar. 6	<i>t</i> -tests for Related Samples (cont'd)		
Mon., Mar. 11	<i>SPRING BREAK</i>		
Wed., Mar. 13	<i>SPRING BREAK</i>		
Mon., Mar. 18	Review		#6 due
Wed., Mar. 20	<b>EXAM 2</b>		
Mon., Mar. 25*	<i>Guest Lecture</i>		
Wed., Mar. 27*	<i>No Class</i>	--	
Mon., Apr. 1	ANOVA	12	
Wed., Apr. 3	Two-Factor ANOVA	13: Section 1	
Mon., Apr. 8	Two-Factor ANOVA (cont'd)	13: Sections 2 and 3	#7 due
Wed., Apr. 10	Two-Factor ANOVA (cont'd)	13: Sections 2 and 3	
Mon., Apr. 15	Correlation	14: Sections 1 through 5	#8 due
Wed., Apr. 17	Regression	14: Section 6	
Mon., Apr. 22	Review	--	#9 due
Wed., Apr. 24	<b>EXAM 3</b>		
Mon., Apr. 29	Working day for final projects		
Thurs., May 9	End of exam period		Final project due by 12 noon

\*We will not have recitations these weeks.