**Statistics**

Fall 2020

PSYC BC1101 003/004

Last Updated 9.8.20

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| Professor: Kate Thorson | TA: Priscilla Kong | Preceptor: Magnolia Totaro |
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| Pronouns: she/her/hers | Pronouns: she/her/hers | Pronouns: she/her/hers |
| Student hours: Wednesday 11:45 am to 1:45 pm Also by appointment | Student hour: Monday 5 to 6 pm |  |

Lecture: Mondays and Wednesdays from 10:10 to 11:25 am
Recitation: Mondays from 12:10 to 2:00 pm (003) or 2:10 pm to 4:00 pm (004)

Zoom information for all course meetings and student hours is listed at the end of the syllabus.

**Course Description and Goals**

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.

**Text and Materials**

* Gravetter, F. J., Walnau, L. B., & Forzano, L. B. (2018). *Essentials of Statistics for the Behavioral Sciences (9th Ed).* Belmont, CA: Wadsworth.
* Announcements and other course materials will be available on CourseWorks.

**Course Policies**

**Delivery of Course Content**: I will host lectures synchronously on Zoom, and these lectures will be recorded. I will then post these lectures on CourseWorks as soon as they become available if you want to view them asynchronously at a later time. I will post demonstrations for recitation on Zoom. I suggest that you watch these synchronously (i.e., at the time your recitation meets) and that you work through the recitation worksheets at that time. During the second half of your recitation (i.e., starting at 1:05 pm for section 003 and starting at 3:05 pm for section 004), I will be available on Zoom to answer questions about the recitation worksheets. This portion of recitation will not be recorded. This structure is effective because it allows you plenty of time to watch the demonstration (which usually uses SPSS) and then practice it on your own. If you run into trouble, you then have the second hour of recitation during which you can ask me questions.

**Participation**: Although participation is not explicitly graded in this course, everyone is expected to attend lecture and recitations regularly—although it is up to you whether you attend synchronously or asynchronously. If you attend synchronously (which I recommend if you are able), I hope that you will be prepared, respond to questions when asked, volunteer information when prompted, and avoid hogging attention or disrupting class. While others are talking, I expect everyone to be active and respectful listeners. This class must be a safe space for anyone to raise questions and voice confusion. Occassionally, we will use breakout rooms during lecture. You are not required to attend these breakout rooms, but students usually find them very helpful. I will not record what you do in the breakout rooms.

**Zoom Video Policy:** If you attend class synchronously, it is helpful for me and for your classmates if you turn on your video. I use your nonverbal cues (e.g., furrowed brows, head nods, smiles, etc.) to gauge whether I am on the right track—they help me understand whether you are confused, bored, amused, etc. by what I am saying and whether I need to try a different method of explanation. In addition, videos help create a sense of community that we are all in the same “space” trying to learn the same material together. I know it is sometimes strange to see yourself on the screen while you are in class. It’s strange for me to see myself lecturing! Please don’t worry about whether you look perfect that day or have the absolute best lighting situation. If you feel comfortable and are able, I would appreciate it if you would turn your video on because it is helpful for me and for others. That being said, I completely understand if you feel uncomfortable turning your video on or if you cannot turn your video on (e.g., because of internet issues), and I will not judge or grade you by whether your video is on.

**Zoom Chat Policy:** We are lucky to have an experienced TA for this class who will help manage questions during lectures. Please feel free to use the chat function to ask her questions as I am lecturing. You can also use the chat function to provide feedback—for example, if I ask whether people understand what I’m saying, you can nod or shake your head or type in the chat box. I will pause every ten to fifteen minutes to answer any questions that Priscilla was not able to answer via chat. Some students find it distracting to watch the chat and listen to/watch lecture at the same time. If you find yourself in this position, please ignore the chat! You are welcome to ask questions, instead, when I pause approximately every ten to fifteen minutes.

**SPSS.** Most of the assignments and recitation worksheets require that you use a software program called SPSS. You will be able to access SPSS virtually via Barnard’s Virtual Labs platform, Apporto. Go to 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 of 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 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.

**Student Hours:** Student hours are listed at the top of the syllabus and are by appointment also (i.e., by any other time that you and I mutually agree upon). During these times, 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 student 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 student hours before. When you start to struggle in this course, please seek help as soon as possible so that you do not fall behind. I will utilize the “waiting room” function in Zoom for student hours, so that your meetings with me are private. This means that if I am in a meeting with another student, I will not “let you in” to the meeting room until that student has left. Don’t leave just because another student is there – I want to talk to you, and I will be with you as soon as I can! Student hours will not be recorded.

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

**Honor Code:** I expect students to adhere to the [Barnard Honor Code](https://barnard.edu/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). All work in this course must be your own.

**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](https://barnard.edu/disabilityservices) (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 acknowleding that you understand how these accommodations can be used in this class.

**Missed Class for Holidays:** If you are observing Jewish holidays this fall 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 BEFORE deadlines, and I will do my best to help you.

**Course Requirements**

**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 online. 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 course of the semester; however, only eight of these will count toward your final grade. Assignments are due in person on CourseWorks by the beginning of lecture (10:10 am) on the day they are due. No assignments will be accepted after class ends.

Assignments will be graded out of four points: one point will be awarded for presentation (for work that is easy to understand and on time), two points will be awarded for completion (for completing all parts of the assignment, including calculations, written answers, and SPSS analyses), and one point will be awarded for accuracy (for mostly answering the questions correctly, although you do not need to answer every single item correctly). I want to see that you have given the assignment your best effort and used the assignment to practice what you have been learning in class and in recitation. I will post the answers on CourseWorks so that you can check your work.

**Requirement Weights**

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| --- | --- |
| *Requirement* | *Weight* |
| Exam 1  | 21% |
| Exam 2 | 27% |
| Exam 3 | 27% |
| Assignments (8 worth 3.125% each) | 25% |

Numeric scores will be rounded up or down to the nearest whole number. Below are the numeric cutoffs for letter grades:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A+ | A | A- | B+ | B | B- | C+ | C | C- | D | F |
| 97 | 93 | 90 | 87 | 83 | 80 | 77 | 73 | 70 | 60 | < 60 |

**Class Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Lecture Topic** | **Textbook Chapter** | **Assignments** |
| Wed., Sept. 9\* | Introduction | -- |  |
| Mon., Sept. 14\* | Variables and Measurement; Frequency Distributions | 1 and 2 |  |
| Wed., Sept. 16\* | Central Tendency  | 3 |  |
| Mon., Sept. 21 | Variability | 4 | Assignment #1 due |
| Wed., Sept. 23 | *z*-Scores | 5 |  |
| Mon., Sept. 28 | Probability  | 6 | Assignment #2 due |
| Wed., Sept. 30 | Probability and Samples | 7 |  |
| Mon., October 5 | Review | -- | Assignment #3 due |
| Wed., October 7 | **EXAM 1** | -- |  |
| Mon., October 12 | Hypothesis Testing  | 8: Sections 1 through 3 |  |
| Wed., October 14 | Hypothesis Testing (cont’d) | 8: Sections 4 through 6 |  |
| Mon., October 19 | Introduction to *t*-statistic | 9 | Assignment #4 due |
| Wed., October 21 | NO CLASS: Technology Break\*\* |  | See readings below |
| Mon., October 26 | *t-*tests for Independent Samples  | 10: Sections 1 through 3 |  |
| Wed., October 28  | *t*-tests for Independent Samples (cont’d) | 10: Sections 4 and 5 | Assignment #5 due |
| Mon., Nov. 2\* | NO CLASS: Academic Holiday |  |  |
| Wed., Nov. 4\* | *t*-tests for Related Samples | 11 |  |
| Mon., Nov. 9 | Review | -- | Assignment #6 due |
| Wed., Nov. 11 | **EXAM 2** |  |  |
| Mon., Nov. 16 | ANOVA | 12 |  |
| Wed., Nov. 18 | Repeated Measures ANOVA | 13: Sections 1 through 3 |  |
| Mon., Nov. 23  | Two-Factor ANOVA | 13: Sections 4 and 5 | Assignment #7 due |
| Wed., Nov. 25  | NO CLASS: Thanksgiving |  |  |
| Mon., Nov. 30 | Two-Factor ANOVA (cont’d) | 13: Sections 4 and 5 |  |
| Wed., Dec. 2 | Correlation | 14: Sections 1 through 5 | Assignment #8 due |
| Mon., Dec. 7 | Regression | 14: Section 6 |  |
| Wed., Dec. 9 | Review | -- | Assignment #9 due |
| Mon., Dec. 14 | **EXAM 3** | -- |  |

\*We will not have recitations these weeks.

\*\*We will not have class on Wednesday, October 21, to give you a “technology break.” I would like you to use class time to read the following short articles (available on CourseWorks in the “Readings” folder), which discuss important “real-world” issues related to statistics in an accessible manner. If you have the option, I suggest printing these articles out to make your break truly “tech-free.” As you are reading each article, consider why I assigned it. What topics have we covered that are related? Select two articles and describe them to a friend or family member. See how well you can describe the key issues to them. What struck you the most in reading and discussing these articles? We will discuss your reactions in class on Monday, October 26.

Gupta, S. (2020). Science by press release: When the story gets ahead of the science. *CNN.* <https://www.cnn.com/2020/06/27/health/science-by-press-release-gupta/index.html>.

Harris, R. (2020). Rapid, cheap, less accurate coronavirus testing has a place, scientists say. *NPR.* <https://www.npr.org/sections/health-shots/2020/07/22/893931848/rapid-cheap-less-accurate-coronavirus-testing-has-a-place-scientists-say>

Knox, D. & Mummolo, J. (2020). A widely touted study found no evidence of racism in police shootings. It’s full of errors. *The Washington Post.*  <https://www.washingtonpost.com/outlook/2020/07/15/police-shooting-study-retracted/>

Oster, E. (2015). Everybody calm down about breastfeeding. *FiveThirtyEight.* <https://fivethirtyeight.com/features/everybody-calm-down-about-breastfeeding/>

Stein, R. (2017). Troubling history in medical research still fresh for Black Americans. *NPR.* <https://www.npr.org/sections/health-shots/2017/10/25/556673640/scientists-work-to-overcome-legacy-of-tuskegee-study-henrietta-lacks>

**Other Resources**

**Course Reserves:** Our textbook was not available for library purchase as an e-book. However, it is available for individual puchase for a cost of $15.99 at [Class Complete](https://classcomplete.com/essentials-of-statistics-for-the-behavioral-sciences-9th-edition-pdf-ebook/).

**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](https://barnard.edu/access-barnard)). If you are having trouble accessing the request form or knowing what to do, please contact [Jemima Gedeon](https://barnard.edu/profiles/jemima-gedeon), the Associate Dean for Student Success (jgedeon@barnard.edu).

[**Peer Learning Program**](https://barnard.edu/individual-small-group-tutoring): You can receive two hours of tutoring per week for this course from a peer tutor for free via the Peer Learning 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**](https://barnard.edu/health-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](https://barnard.edu/primarycare), the [Rosemary Furman Counseling Center](https://barnard.edu/rosemary-furman-counseling-center), and the [Well-Woman Health Promotion Program](https://barnard.edu/wellwoman)).

**Zoom Information**

You can join the following meetings by opening Zoom and typing in the appropriate information. You can also find links for lecture and recitation on CourseWorks under “Zoom Class Sessions.”

**Lecture:**

Meeting ID: 912 1421 0382

Passcode: 1l743i

**003 Recitation:**

Meeting ID: 968 0190 4427

Passcode: 1m562i

**004 Recitation:**

Meeting ID: 987 1463 1070

Passcode: 9i254e

**Prof. Thorson’s Wednesday Student Hours:**

Meeting ID: 912 8373 4823

Passcode: 241928

**Priscilla’s Monday Student Hour:**

Meeting ID: 763 383 8627

Passcode: 983645