

**Psychology in Education 2018
Statistical Methods I**

**School of Education, University of Pittsburgh
Fall Term 2020**

Tuesday 1:00 pm - 1:30 pm

Instructor: Xu Qin (xuqin@pitt.edu)

Office Hour: By appointment

Teaching Assistant: Shangmou Xu (SHX23@pitt.edu)

Office Hour: By appointment

Course Overview:

This course provides an introduction to statistics for the behavioral sciences and a foundation for more advanced courses in applied statistics. The course covers descriptive statistics, an introduction to statistical inference, t test, correlation, simple linear regression, and chi-square test. All statistical concepts and methods will be illustrated with applications in behavioral sciences. There are no formal prerequisites for the course, other than a good knowledge of basic algebra. At the end of the course, students should be able to: (1) accurately define and interpret basic concepts commonly used in quantitative inquiry processes; (2) flexibly use descriptive and inferential statistics to analyze data and interpret analytical results; (3) use SPSS to conduct basic statistical analysis.

Textbook:

Gravetter, F. J., & Wallnau, L. B. (2015). *Statistics for the behavioral sciences*, 10th/9th ed. Belmont, CA: Wadsworth Publishing.

Class Format:

The course uses a hybrid learning method with a blend of asynchronous and synchronous online learning.

- **Asynchronous: One week before the lecture date listed on the last page, slides, pre-recorded videos, and ungraded practice quizzes for the lecture will be posted on Canvas.** In the videos that are based on the slides, I will introduce the concepts and show how to use statistical methods to address substantive research questions by conducting analyses and interpreting the results. Please read the associated chapters listed on the last page and slides, watch the videos, and complete the practice quizzes before the lecture date. The quizzes will not be graded, and they are for helping you make sure you have understood the content from the textbook and lecture.
- **Synchronous: On the lecture date listed on the last page, we hold a 30-minute synchronous session via Zoom.** We will discuss the practice quizzes and any questions that you have about the lecture. Solutions to the quizzes will be posted on Canvas right after the session. **You are required to attend every synchronous session. If you are not able to attend due to a valid emergency, you should contact the instructor beforehand.**

Software:

Statistical computing is an integral part of PSYED 2018. A small portion of class lectures will be dedicated to applications of SPSS (Statistical Package for Social Science) for data organization, analysis, display, and interpretation. The virtual computer labs (<https://www.technology.pitt.edu/services/virtual-lab>) have SPSS installed on them. If you prefer to have your own copy, you may download the software for free from the PITT download center (<http://software.pitt.edu/>).

Collaboration and Study Groups:

Collaborative learning is central in this course and serves as a way to foster deep learning and leverage expertise. 3 or 4 students from different disciplines will be assigned to one study group. Discussions about the course materials, practice quizzes, assignments, and final project within study groups are strongly encouraged. Discussion boards are available on Canvas. If you have any questions, please feel free to post them on either the class discussion board (see main menu on the left of your homepage) or the group discussion board in your own group's view (click your group number on the right of your homepage).

Homework Assignments:

There will be two collaborative assignments. They will be posted on Canvas on the date listed on the last page. Each assignment should be submitted before the synchronous session on the listed due date.

- Please submit your assignment following the instruction here: <https://community.canvaslms.com/t5/Student-Guide/How-do-I-upload-a-file-as-an-assignment-submission-in-Canvas/ta-p/274>
- Collaborations within assigned study groups are encouraged. Please understand that each student must turn in individual homework assignments, not group work. Your text should reflect your own understanding of the material. **Students who submit group homework assignments will be given zeros.** To properly acknowledge the contribution of your collaborators, please indicate on the cover page of each assignment the names of the people with whom you worked.
- Because homework solutions are made available after the homework is turned in, **late homework will not be accepted.** In a valid emergency appropriate accommodations will be made. It is best, if possible, to contact the instructor prior to the due date.
- If you have questions/concerns about your grades, please directly email the instructor and TA rather than leaving a comment on the Canvas grading page, because we will not get automatic notifications.

Final Project:

The final project will allow you to apply the key concepts you have learned in the course to the real world. Discussions within assigned study groups are encouraged, but you should turn in individual work. Data and analytic guideline will be posted in the middle of the semester. The final project will be due on 12/08/2020.

Additional Practice:

There are exercises/problems at the end of each chapter in the textbook, and you are strongly encouraged to go over them carefully. You may not need to do all of the exercises, but you should do as many of them as you can (or need).

Grading:

You will be evaluated on the basis of your assignment 1 (25%), assignment 2 (30%), and the final project (45%).

Letter grades will be based on actual points earned as follows:

Point	Letter	Point	Letter
≥ 93	A	77 - < 80	C+
90 - < 93	A-	74 - < 77	C
87 - < 90	B+	70 - < 74	C-
84 - < 87	B	67 - < 70	D+
80 - < 84	B-	64 - < 67	D
		60 - < 64	D-
		<60	F

Academic Integrity:

Please make sure you read the university guidelines on Academic integrity (<http://www.pitt.edu/~provost/ai1.html>). Attention to this policy is particularly important in a course like PSYED 2018, in which collaboration with other students is encouraged. If, for instance, you work closely with other students during the planning, execution, or interpretation of your data analyses – a process that I encourage and fully support – you should make sure that the other students' contributions are recognized explicitly in your written account. If you have any questions about what constitutes appropriate collaboration, or how to define what constitutes your own work, please see me.

Special Accommodation:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services, 140 William Pitt Union, (412) 648-7890/(412)383-7355 (TTY), as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Course Outline (subject to change)

Week	Date	Topic	Reading	Assignment Posted	Assignment Due
1	08/25/2020	Introduction to the course			
2	09/01/2020	Basic concepts	Chapter 1		
3	09/08/2020	Frequency distributions Central tendency	Chapter 2 Chapter 3		
4	09/15/2020	Variability Z-scores	Chapter 4 Chapter 5		
5	09/22/2020	Probability Normal distribution	Chapter 6		
6	09/29/2020	Sampling distributions Hypothesis testing	Chapter 7 Chapter 8		
7	10/06/2020	Uncertainty of hypothesis testing SPSS: Data preparation and management SPSS: Frequency & descriptive statistics	Chapter 8	Assignment 1	
8	10/13/2020	T-test I			
9	10/20/2020	T-test II	Chapter 9 Chapter 10 Chapter 11		Assignment 1
10	10/27/2020	Confidence intervals SPSS: T-test	Chapter 9 Chapter 10 Chapter 11		
11	11/03/2020	Correlation	Chapter 15		
12	11/10/2020	Simple linear regression SPSS: Correlation & regression	Chapter 16	Assignment 2	
13	11/17/2020	Contingency tables SPSS: Chi-square test	Chapter 17		
14	11/24/2020	Nonparametric statistics	Chapter 18 Appendix E		Assignment 2
15	12/01/2020	No class			
16	12/08/2020	Final project due			