EFOP 2018
Statistics I: Descriptive and Inferential Statistics
School of Education, University of Pittsburgh
Fall Term 2023

Instructor: Xu Qin (xuqin@pitt.edu)
Office Hours: Tuesdays 9:00 am – 10:00 am, Fridays 12:30 pm – 1:30 pm, or by appointment
Zoom link: https://pitt.zoom.us/my/xuqin

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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, 9th/10*th edition. Belmont, CA: Wadsworth Publishing.

The textbook is on Course Reserve with a 1-day loan period. You can access the textbook on Course Reserve using the following steps:
- Go to http://library.pitt.edu.
- Click "Course Reserves" below the search box.
- Click "SIMPLE SEARCH" located on the right panel of the page.
- In the PittCat Course Reserves search box enter "Qin EFOP 2018".
- Click on the title of the item that you wish to access.
- Write down the call number and take it to the Service Desk at the appropriate library.

Software:

Statistical computing is an integral part of EFOP 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/).

Class Format:

We use 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 assignment 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 and watch the videos before the lecture date.

- **Q & A:** Please feel free to stop by my office hours on Zoom during 9:00 am - 10:00 am on Tuesdays or 12:30 pm – 1:30 pm on Fridays. If this time does not work for you, you are welcome to schedule individual meetings with me. You are also welcome to post questions on Canvas or email me your questions. I will respond to you as soon as possible.

Collaboration and Study Groups:

Collaborative learning is central to this course and serves as a way to foster deep learning and leverage expertise, especially in the online learning environment. 4 - 5 students from different disciplines are assigned to one study group.

Discussions about the course materials within study groups are encouraged. Different formats of group discussions can be adopted. Your group can discuss by posting your questions and comments on the Canvas group discussion board in your own group's view (click your group number on the right of your Canvas homepage). Your group can also meet in person or online. You are welcome to ask me questions as a group.

Homework Assignments:

There will be a homework assignment associated with every lecture. **Each assignment will be posted on Canvas two weeks before the due date and must be submitted by 11:59 pm on the due date listed on the last page.** This will allow you to have a chance to ask questions about the assignment during the synchronous session on the 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 solutions to assignments will be posted on Canvas right after the due time, **late assignment will not be accepted**. In a valid emergency appropriate accommodation 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.

Midterm and Final Examinations:

There will be one 3.5-hour midterm exam and one 3.5-hour final exam. The midterm exam will be available on Canvas from 11:59 pm on Oct 15 to 11:59 pm on Oct 20, and the final exam will be available on Canvas from 11:59 pm on Dec 10 to 11:59 pm on Dec 15. You can take the exams at your convenience during the time windows. Each exam is timed for 3.5 hours by the system. Once you begin the exam, the system will not allow you to start over. Discussion with others is not permitted during the exam. Although you are allowed to access the course materials during the exam, summarizing key knowledge points on a single two-side 8.5x11 sheet of paper will help improve your efficiency. The sheet will also serve as a useful resource for your future reference.

To help you correct the errors in the midterm exam, I will hold a synchronous session at 9:00 a.m. on Oct 24. The session will be recorded.

To help you better prepare for the final exam, I will hold a synchronous session for the final review at 9:00 a.m. on Dec 5. The session will be recorded.

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 weekly assignments (50%), midterm examination (25%), and the final exam (25%). Letter grades will be based on actual points earned as follows:

Point	Letter		Point	Letter
$\geqslant 93$	A		74 - < 77	C
90 - < 93	A-		70 - < 74	C-
87 - < 90	B+		67 - < 70	D+
84 - < 87	B		64 - < 67	D
80 - < 84	B-		60 - < 64	D-
77 - < 80	C+		<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 EFOP 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
1	08/29/2023	Introduction to the course Basic concepts	Chapter 1	
2	09/05/2023	Frequency distributions Central tendency	Chapter 2 Chapter 3	Assignment 1
3	09/12/2023	Variability Z-scores	Chapter 4 Chapter 5	Assignment 2
4	09/19/2023	Probability Normal distribution	Chapter 6	Assignment 3
5	09/26/2023	Sampling distributions Hypothesis testing	Chapter 7 Chapter 8	Assignment 4
6	10/03/2023	Uncertainty of hypothesis testing SPSS: Data preparation and management SPSS: Frequency & descriptive statistics	Chapter 8	Assignment 5
7	10/10/2023	T-test I Midterm review	Chapter 9	Assignment 6
8	10/17/2023	**Midterm exam**		
9	10/24/2023	Summary of midterm exam T-test II	Chapter 10 Chapter 11	
10	10/31/2023	Confidence intervals SPSS: T-test	Chapter 9 Chapter 10 Chapter 11	Assignment 7
11	11/07/2023	Correlation	Chapter 15	Assignment 8
12	11/14/2023	Simple linear regression SPSS: Correlation & regression	Chapter 16	Assignment 9
13	11/21/2023	No class		
14	11/28/2023	Contingency tables SPSS: Chi-square test	Chapter 17	Assignment 10
15	12/05/2023	Nonparametric statistics Final review	Chapter 18 Appendix E	Assignment 11
16	12/12/2023	**Final exam**		