Research Methods & Statistics Essentials II
Dr. Cong Liu
Spring 2025

Classroom: Smithers Hall 200
Office Hour: By Appointment
Emai: cong.a.liu@rutgers.edu
Zoom meeting: https://rutgers.zoom.us/my/cl1723

This course is an introduction to correlation and multiple regression. It covers the application and theory underlying these methods, including assumptions, interpretation, limitations, and use. A lab section is associated with the course. The lab will cover computer data analysis with SPSS.

Departmental Goals and Objectives

Mission Statement: The mission of the Psy.D. Program in Organizational Psychology is to graduate students with a breadth of knowledge in I/O psychology and the skills needed to apply that knowledge. We will train the students by following the scientist-practitioner model, emphasizing the use of theoretical knowledge to solve practical problems in the workplace.

Specific objectives: Students who successfully complete this course should be able to:

- Master advanced statistical techniques used in psychological research.
- Develop proficiency in research design and data analysis.
- Explain the basic principles of these methods.
- Apply statistical software to analyze data and interpret results.
- Interpret correlation, regression, and path coefficients computed on real data.
- Enhance skills in reporting and communicating research findings.

Required Textbook

Howell, D. C. (2013). Statistical Methods for Psychology (8th Ed.) Cengage Learning. **ISBN:** 9781111835484. http://www.uvm.edu/~dhowell/methods7/
Supplemental readings will be used to complement the textbook.
You are required to read the assignments before coming to each class.

Statistical Software

We will use SPSS, which is an extremely popular platform for statistical analysis. Each of us has access to SPSS via Rutgers University. Although SPSS is an industry standard it is by no means the only available option for statistical computing. Below discusses R for anyone who, by interest or need, would like to find something with different features or greater accessibility (e.g., lower price).

R: This is a widely used platform for statistical computing. There is no graphic user interface in the base version, and all analysis or data management is written in R syntax. This program is available for free download, as are hundreds of add-ons created and maintained by statisticians and researchers worldwide. Some of these add-ons are graphic user interfaces meant to shorten the learning curve for new users. If you plan to learn to use R, I highly recommend downloading "R Studio"—there's a free version.

Grades will be determined by performance on

1. In-class exercises (10 X 10 = 100)

2. Lab worksheets (10 X 10 = 100)
3. CITI training (20)
4. Exams (100 + 100 = 200)

A: 90-100 B+: 87-89 B: 80-86 C: 70-79 D: 60-69 F: 0-59

CITI Training

Please complete the Collaborative Institutional Training Initiative (CITI) program through Rutgers Research. The training can be finished in just a few hours, and you do not need to complete it in one sitting. After finishing, CITI will send you a PDF certificate, which you should send to me to fulfill this course requirement.

Class Attendance

Students are expected to attend all classes. Missing more than the first half hour of a class will be considered an absence unless prior arrangements are made. You will be dropped a letter grade for any two (2) unexplained absences (e.g., without prior notification or a verifiable excuse).

If you are unable to attend a class due to unusual circumstances (e.g., illness, family care) or religious observance, please inform the instructor in writing as soon as possible. Any absence must be reported through the University's Self Reporting Absence System (https://sims.rutgers.edu/ssra/). Faculty will receive notification of anticipated absence(s) via email from the Dean of Students Office about confirmed health and emergency circumstances that may influence students' attendance in classes. Students with long-term illnesses that prevent regular attendance should coordinate with their academic advisors and Student Access Services (SAS) for appropriate accommodations.

It is the responsibility of the student to discuss with the instructor and make up any missed assignments, quizzes, or exams and to fulfill all class participation requirements in a timely manner.

Late Policy

Unexcused late assignments can receive up to 50% of the points earned.

Cell Phones and Laptops

Statement of the obvious—if you bring a cell phone to class, turn it silent or off. If you bring a laptop to class, all activities should be course-related.

Class Schedule

WK	Date	Topic	Howell (2013)	Due	Format
1	1/21	Introduction			Remote
2	1/28	Correlation	CP 9	Lab 1	In-person
3	2/4	Simple Linear Regression I	CP 9	Lab 2	In-person
4	2/11	Simple Linear Regression II	CP 9	Lab 3	Remote
5	2/18	IRB CITI Training			Remote

6	2/25	Multiple Linear Regression I	CP 15	Lab 4	Remote
7	3/4	Multiple Linear Regression II	CP 15	Lab 5	In-person
8	3/11	Low Residency			
9	3/18	Spring Break, No Class			
10	3/25	**Exam I**		CITI Certificate Due	Remote
11	4/1	ANOVA & Regression	CP 16	Lab 6	In-person
12	4/8	Mediation	Baron & Kenny (1986)	Lab 7	In-person
13	4/15	Moderation	Baron & Kenny (1986)	Lab 8	Remote
14	4/22	PROCESS and bootstrapping I	Preacher & Hayes (2008)	Lab 9	In-person
15	4/29	PROCESS and bootstrapping II	Preacher & Hayes (2008)	Lab 10	Remote
16	5/6	No class			
17	5/13	**Exam II**			Remote

Instructor and Student Responsibility:

Instructors reserve the right to adjust course content and/or the pace of course progress. Students are responsible for staying up to date with all adjustments.

Availability of Course Materials When Students are Unable to Attend Class:

Each faculty member will determine a method(s) to accommodate students who cannot attend class(es) due to medical reasons and are enrolled in classes which include an in-person component. Some examples of course materials faculty may make available include PowerPoint presentations, class notes, or other resources deemed appropriate by the instructor. It is understood that only students enrolled in the course may view any materials posted online.

Freedom of Speech and Academic Freedom:

Rutgers adopted its Policy on Academic Freedom. Please refer to the website Freedom of Speech and Academic Freedom: https://www.rutgers.edu/president/academic-freedom-free-speech

Safety Escort:

If you need safety escort for the night classes, please see: https://ipo.rutgers.edu/publicsafety/rupd/escorts

Web Cameras:

When a synchronous online class meeting is warranted, for pedagogical, academic integrity, and security reasons, instructors may require students to have their web cameras turned on during synchronous online class meetings, labs, and exams. If specific testing software is required for exams, the student is responsible for making sure it works properly before an exam. Instructors should clearly indicate on the syllabus any course requirements for camera use. If a student has compelling technological or environmental reasons for

leaving the camera off during class, the student should communicate directly and privately with the instructor to request an exemption and explore possible solutions.

Campus Closures/Snow Days

When the campus is closed for snow or other inclement weather, faculty are encouraged to hold classes remotely whenever pedagogically appropriate and logistically reasonable. The decision to do so is left to the discretion of each faculty member and should be communicated to students in a timely manner.

On snow days or other school closures, childcare interruptions, weather emergencies, bandwidth, technology or other home arrangements may interrupt class attendance. Students who are experiencing these issues should speak with faculty about possible ways to participate in class and/or catch up on missed work.