

Fall 2016
Statistical Methods II
15:291:532:01

3 Credits

Tuesday, 4:30-7:30 PM, SC-119

Instructor Name: Nathan Minchen Wenchao Ma	Email Addresses: nathan.minchen@gse.rutgers.edu wenchao.ma@rutgers.edu
Phone Number: use email	Office: 10 Seminar Place, Room 304
Office Hours: Tuesday 3:30-4:30 PM or by appointment	Prerequisites or other limitations: Statistical Methods I
Mode of Instruction: <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Hybrid <input type="checkbox"/> Online <input type="checkbox"/> Other	Permission required: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Directions about where to get permission numbers: No permission required.

Learning goals: Upon successful completion of this course, you will be able to complete the following tasks:

1. Have a basic understanding of probability theory, which is the foundation of statistical methods.
2. Understand the distributions of random variables as well as their properties.
3. Have a basic understanding of correlation and linear regression.
4. Be able to carry out statistical analyses by using both hand and computer software (SPSS).
5. Apply probability theory knowledge to hypothesis testing problems.
6. Explain the differences between various statistical techniques and identify an appropriate technique for a given set of variables and research questions.
7. Interpret the outcomes of an analysis and make a decision based on the statistical results.

Course catalog description:

This course is the second part of a two-semester sequence in statistical methods designed to introduce students to the most commonly used methods in educational and social science research. This course assumes that students have taken the first part of the sequence. Topics covered in this course include two-sample t-test, chi-square test, multiple regression analysis, one- and two-way analysis of variance (ANOVA) and post-hoc procedure.

Class materials/textbooks:

Textbook: Moore, D. S., McCabe, G. P., & Craig, B. (2014). *Introduction to the practice of statistics* (8th ed). New York: W. H. Freeman.

Software: SPSS for Windows (version 20 or newer). New York: Prentice-Hall

Grading policy:

Final letter grades will be assigned as follows:

Final Score	Letter Grade
90% and Above	A
80%-89%	B+
75%-79%	B
65%-74%	C+
60%-64%	C
Below 60%	F

Assignments and Requirements:

- 1) Email & eCollege Access:** Efficient communication is a key to the success of instruction. In this course, email, eCollege, and face-to-face meetings are the main communication tools. For optimal teaching and learning, please check your email account frequently and make sure you are able to receive information, download files, drop messages, do homework, take exams and access your grades online from our course web. All information and activities are time sensitive. Late responses and requests will not be honored.
- 2) Course Notes and Handouts:** Course notes and handouts of each section will be posted.
- 3) Exams:** The two in-class exams—a midterm and a final—are worth 30% and 40% of the final grade, respectively. The exams may consist of multiple choice items, computations, and short answer/essay questions.
- 4) Homework assignments:** Approximately 8-10 homework assignments (worth 30% of the final grade) will be given throughout the semester. Homework assignments are due at the beginning of the class the week after they are assigned. No late homework assignments will be accepted, but the lowest homework assignment score will be dropped.
- 5) Software & Calculator:** SPSS for Windows will be used extensively to conduct statistical analyses for homework assignments and class exercises. However, for the exams, a calculator that performs basic operations will suffice.

- 6) **Final Grade:** Please note that the instructors reserve the right to adjust the weighing of the components that comprise the final grade, but adjustments will only be made to benefit the student.

Web site: eCollege System (<https://onlinelearning.rutgers.edu/ecollege-student-login>)

Academic Integrity Policy:

The Office of Student Conduct supervises issues related to violations of academic integrity(see <http://academicintegrity.rutgers.edu>). Please familiarize yourself with the university policy on academic integrity at https://slwordpress.rutgers.edu/academicintegrity/wp-content/uploads/sites/41/2014/11/AI_Policy_2013.pdf

Office of Disability Services:

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Course Schedule:

Date	Topic	Textbook Chapter
9/6	*Review and Procedure for Dependent Samples	
9/13	*Inference for Two Population Means	7.2
9/20	*Inference for Population Variances	7.3
9/27	*Inference for Proportions	8.1 & 8.2
10/4	*Analysis of Two-Way Tables	9.1 & 9.2
10/11	Simple Linear Regression I	10.1
10/18	Review	
10/25	MIDTERM EXAM	
11/1	Simple Linear Regression II	10.2

Date	Topic	Textbook Chapter
11/8	Multiple Regression	11.1 & 11.2
11/15	One-Way ANOVA	12.1
11/22	No Class	
11/29	Contrasts and Multiple Comparisons	12.2
12/6	Two-Way ANOVA	13.1
12/13	Review	
12/20	FINAL EXAM (Cumulative)	

Note: * represents the contents that will be covered in the midterm exam.