

# COURSE SYLLABUS

## Online Statistical Methods I

15:291:531:90

Fall, 2014

### Instructor Information

<b>Instructor:</b>	Chia-Yi Chiu
<b>Office:</b>	Room 326, Graduate School of Education
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<b>Office hours:</b>	By appointment

### Course Information

<b>Text:</b>	Moore, D. S., McCabe, G. P., & B. A. Craig (2012). <i>Introduction to the practice of statistics (7<sup>th</sup> ed)</i> . New York: W. H. Freeman.
<b>Software:</b>	<i>SPSS for Windows (Version 17 or newer)</i> . New York: Prentice-Hall.

### Course Description

This course is the first part of a one-year sequence in statistical methods designed to introduce students to the most commonly used methods in educational and social science research. No prior knowledge of statistics is required, but essentials of arithmetic and basic algebra will be used throughout the semester. Topics covered in this course include graphical representations, descriptive statistics, correlation, regression, experimental designs, basic probability, sampling distributions, confidence intervals, and hypothesis testing.

### Course Goals

Upon successful completion of this course, you will be able to:

1. Describe the distribution of your data and summarize the data using plots.
2. Compute the descriptive statistics.
3. Understand the normal distribution and its properties.
4. Have a basic understanding of correlation and linear regression.
5. Test simple hypotheses by applying probability theory.
6. Interpret the outcomes of an analysis and make a decision based on the statistical results.
7. Describe data and carry out statistical analysis using both hand calculation and computer software (SPSS).

### Course Requirements

1. **Email & eCollege Access:** Efficient communication is a key to evaluate the success of an online course. In this course, **emailing** and **eCollege** are the two communication tools that we heavily rely on. To maximize the teaching and learning effects, you have

to check your email account frequently and make sure you are able to receive information, download files, drop messages, watch live sessions, 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 handled. For example, you will have a week to finish each homework assignment. However, you will not be able to access the homework questions after the due day.

2. **Exams:** The two online exams, midterm and final, are worth 30% and 30% of the final grade, respectively. No extra credit exam will be given.
3. **Homework assignments:** About 10 homework assignments, worth 40% of the final course grade, will be given online throughout the semester. You have a whole week to work on each of the homework assignments. No late homework assignment is accepted.
4. **Participation:** Your participation is expected throughout the semester.
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.

### **Live Sessions**

Live sessions of this online course are analogous to office hours of a regular course. To efficiently organize the sessions, I would like to collect your “wish list,” if there is any, by the day before the live session is made so that the session can be planned in advance. I will record the sessions and make them available on our course page.

### **Dropbox**

In addition to live sessions, an alternative to find the answer to your question is to simply post your questions online. A **Basket** labeled **Question Box** will be created every week for you to drop content-related questions. Your questions will be replied on a daily basis (weekdays). Please make sure you are familiar with the **Dropbox** function.

### **Final Grade**

Final letter grade 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

### **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

[http://academicintegrity.rutgers.edu/files/documents/AI\\_Policy\\_2013.pdf](http://academicintegrity.rutgers.edu/files/documents/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>.

### **Class Schedule**

The following class schedule is subject to change if necessary. Reading assignments must be completed prior to each lecture.

Date	Topic	Readings
Week 1 (09/02-09/08)	Getting started	
Week 2 (09/09-09/15)	Displaying and Describing Distributions	1.1, 1.2
Week 3 (09/16-09/22)	Normal Distribution Theory	1.3
Week 4 (09/23-09/29)	Scatter Plots and Correlation	2.1, 2.2
Week 5 (09/30-10/06)	Regression Analysis	2.3
Week 6 (10/07-10/13)	Cautions About Regression and Correlation	2.4
Week 7 (10/14-10/20)	Designs of Experiment and Statistical Inference	3.2, 3.4
Week 8 (10/21-10/27)	<b>MIDTERM EXAM (Sections 1.1 – 3.4)</b>	
Week 9 (10/28-11/03)	Randomness and Probability Models	4.1, 4.2
Week 10 (11/04-11/10)	Random Variables and Moments	4.3, 4.4
Week 11 (11/11-11/17)	Sampling Distributions of Means	5.1, 5.2
Week 12 (11/18-11/24)	Confidence Intervals	6.1
Week 13 (11/25-12/01)	Hypothesis Testing	6.2
Week 14 (12/02-12/08)	Inference for a Mean of a Population	7.1
Week 15 (12/09-12/15)	<b>FINAL EXAM (Section 4.1 – Section 7.1)</b>	