

Course Syllabus
15:291:532:90
Statistical Methods II
Spring, 2013

Course Information

Instructor: Chia-Yi Chiu
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Time: Course materials will be posted on **Mondays**
Live Session: **Mondays 6pm**
Discussion: Every weekday
Text: Moore, D. S., & McCabe, G. P. (2010). *Introduction to the practice of statistics (7th ed)*. New York: W. H. Freeman.
Software: *SPSS for Windows (Version 19)*. New York: Prentice-Hall.

Course 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 or have equivalent knowledge through one-sample t-test. Topics covered in this course include two-sample t-test, chi-square test, regression analysis, and one- and two-way analysis of variance (ANOVA).

Course Goals

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

1. Understand the probability theory, 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. Carry out the statistical analysis using both hand calculation and computer software (SPSS).
5. Test hypotheses applying probability theory.

6. Explain the differences among 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 Requirements

1. **Email & eCollege Access:** Efficient communication is the key to evaluate how successful an online course is and 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, join live sessions, do homework, take exams and access your grades from our web page. 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.
3. **Homework assignments:** Approximately 10 homework assignments, worth 40% of the final grade, will be given online throughout the semester. Homework assignments will be assigned on **Mondays** and due on the next **Sundays**. So basically you have a whole week to work on a homework assignment. 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. You can ask questions in one-to-one manner and obtain responses immediately. To efficiently organize the sessions, I would like to collect questions by every **Sunday** so that the session can be planned in advance. For those who cannot participate in the live sessions, 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. This is especially convenient for those who cannot participate in our live sessions. 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). Therefore, 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

Class Schedule

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

Date	Topic	Section
Jan 22 - Jan 27	Getting started	
Jan 28 - Feb 3	Inference for the mean of a population	7.1
Feb 4 - Feb 10	Inference for Two Population Means	7.2
Feb 11 - Feb 17	Inference for Population Variances	7.3
Feb 18 - Feb 24	Inference for Proportions	8.1, 8.2
Feb 25 - Mar 3	Analysis of Two-Way Tables	9.1, 9.2
Mar 4 - Mar 10	Simple Linear Regression I	10.1
Mar 11 - Mar 17	Simple Linear Regression II	10.2
Mar 18 - Mar 24	<i>No Class (Spring Break)</i>	
Mar 25	MIDTERM EXAM (Sections 7.1 - 10.2)	
Apr 1 - Apr 7	Multiple Regression	11.1, 11.2
Apr 8 - Apr 14	One-Way ANOVA	12.1
Apr 15 - Apr 21	Contrasts and Multiple Comparisons	12.2
Apr 22 - Apr 28	Two-Way ANOVA I	13.1
Apr 29 - May 5	Two-Way ANOVA II	13.2
May 6	FINAL EXAM (Sections 11.1 - 13.2)	

Policy on Academic Integrity

Please refer to the Policy on Academic Integrity for Undergraduate and Graduate Students at <http://academicintegrity.rutgers.edu>. I will follow the policy strictly.