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Course Syllabus
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Statistical Methods in Education I
Spring, 2013
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Instructor: Soo Y. Lee

Office: Room 304, Graduate School of Education

Email: sooyolee@eden.rutgers.edu

Time: New course materials will be posted on Mondays, starting from January 28.

Class time: Mondays 4:50pm-7:30pm.

Office Hour: By appointment

Text: Moore, D. S., & McCabe, G. P. (2012). Introduction to the practice of statistics

(7th edition). New York: W. H. Freeman.

Software: SPSS for Windows (Version 18). 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 complete the following tasks:

1. Understand and interpret how to use graphical representations.
2. Understand the basic probability theory, the foundation of statistical methods.
3. Understand the normal distributions of random variables as well as their properties.
4. Have a basic understanding of estimating correlation and linear regression.
5. Carry out the basic statistical analysis using calculator or computer software (SPSS).
6. Conduct the basic test research hypotheses and perform confidence intervals.
7. Make a decision based on the statistical results and interpret the 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 read information, download files, drop messages, do homework, and access your grades from our webpage. All information and activities are time sensitive. Late responses and requests will not be handled. For example, we may need to vote to make a decision and late votes will not be taken. Another example is that you will have a run of time to finish each homework assignment. However, you will not be able to access the homework questions after designated time.

2. Exams: The two 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** after class and are <u>due on **Sundays**</u> the week after they are assigned. So basically you have a whole week to work on a homework assignment. No late homework assignments will be accepted.

4. Participation: Your participation is expected during the semester.

5. Calculator: A calculator that performs basic operations (e.g., arithmetic and square-root operations) is necessary for homework assignments and exams but not for the class.

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

A calculator that performs basic operations (e.g., arithmetic and square-root operations) is necessary for homework assignments, class exercises, and exams.

Reading assignments must be completed prior to each lecture.

Date	Topic	Assigned Readings
Week1: Jan 28	Displaying and Describing Distributions	1.1, 1.2
Week2: Feb 4	Normal Distribution Theory	1.3
Week3: Feb 11	Scatter Plots and Correlation	2.1, 2.2
Week4: Feb 25	Regression Analysis	2.3
Week5: Mar 4	Cautions About Regression and Correlation	2.4
Week6: Mar 11	Designs of Experiment and Statistical Inference & Review Session	3.1, 3.3
Week7: Mar 18	**Spring Recess- No class**	
Week8: **Mar 25**	**MIDTERM EXAM (Sections 1.1 – 3.3)**	
Week9: Apr 1	Randomness and Probability Models	4.1, 4.2
Week10: Apr 8	Random Variables and Moments	4.3, 4.4
Week11: Apr 15	Sampling Distributions of Means	5.1, 5.2
Week12: Apr 22	Hypothesis Testing	6.2
Week13: Apr 29	Confidence Interval	6.1
Week14: May 6	Use and Abuse of Tests	6.3
Week15:**May 13**	**FINAL EXAM (Section 1.1 – Section 6.3)**	

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.