Instructor: Dr. Sumi Seo  
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Office Hours: MWR 12:30-1:15 and W 2:45-3:30, or by appointment

COURSE OBJECTIVE:

The goal of this course is to be able to understand the basic concepts of statistics and be able to apply statistical thinking in various applications. In this course, the student should acquire the ability to carry out a study, including formulating the problem, designing the study properly, collecting and analyzing data with the help of a computer, and drawing conclusions. Specifically you will learn to:

- Organize and present data in a clear and logical manner;
- Design proper data collection, using randomization;
- Summarize the data through numerical and graphical methods;
- Do basic probability, including the normal and binomial distributions;
- Understand basic statistical terminology and be able to communicate your results;
- Formulate research problems into statistical language and choose appropriate procedures;
- Carry out data analysis with the help of computer software.

Text and Online Homework Access Code: STATISTICS WITH SOFTWARE by Alan Bluman. First Custom Edition for Northeastern University bundled with Connect Math (the online homework system).

Note: If you are comfortable using the electronic version of the text then you do NOT need to purchase the textbook. You will need to get online (www.connectmath.com) to purchase ConnectMath with the eBook.

The course code for ConnectMath: ******

Strongly Recommended Materials: A graphing calculator; TI-83/84 or TI-83/84 Plus.

GRADE: The course grade will be determined as follows:

- Homework and ICPs: 14%
- Computer labs: 10%
- Four 65-min Exams: 36% - The best three exams will be counted.
- Final Exam: 40%

Letter grades are determined from the numerical grades as follows:
A: 93-100,  A-: 90-92,  B+: 87-89,  B: 83-86,  B-: 80-82,  C+: 77-79,  

Border line grades are determined by the final exam score.

As a matter of Math Department policy, the I grade (incomplete) will be given only rarely. It is intended to cover real emergency situations in which a student who is doing reasonably well (C- or better) is unable, due to circumstances beyond the student's control, to complete all course requirements (e.g., is unable to take the final exam due to hospitalization). An I may not be used to rescue a failing grade, or to postpone the final.

COURSE POLICIES:

- ICPS: An in-class problem set (ICPS) will be given at least once a week.
- Labs: There are two “laboratory exercises” which provide hands-on experience in collecting and analyzing data. These labs must be handed in on time. Points will be deducted for late labs.
**Academic Honesty:** Collaboration on tests and exams is not allowed. From Student Code of Conduct (see [http://www.northeastern.edu/osccr/academicintegrity](http://www.northeastern.edu/osccr/academicintegrity)): “A necessary prerequisite to the attainment of the goals of the University is maintaining complete honesty in all academic work. Students are expected to present as their own only that which is clearly their own work in tests and in any material submitted for credit. Students may not assist others in presenting work that is not their own. Offenders are subject to disciplinary action.” For more on Academic Integrity see: [http://www.northeastern.edu/registrar/courses/cat1213-univ-proc.pdf](http://www.northeastern.edu/registrar/courses/cat1213-univ-proc.pdf)

**Attendance:** Students are expected to attend all classes, and are responsible for all the information given when they are absent. The best way to learn the material is to attend every class, and pay full attention in class. In this course, if you miss four classes, you will be dropped two letter grades from whatever you attain as a final average. Missing six or more classes, you will be asked to withdraw from the class.

The use of the electronics during the class period is strongly discouraged, except for note-taking purposes. Any student who fails to abide by this policy will lose 1% of the final grade each time this policy is violated.

**Homework Exercises:** You have homework exercises that must be completed for each section that we cover in the course. The homework will be done on the ConnectMath website: [www.connectmath.com](http://www.connectmath.com). There is a **deadline** (posted in ConnectMath) of homework. Homework assignments can be printed so that you may work on them offline. You may work on the homework without submitting it, then leave and go back to it at another time. When you have finished the homework, just simply click the Submit Quiz button in order to grade the assignment. You can redo any assignment as many times as you like during the week that it is open to get a better grade. ConnectMath is setup to record your highest score of all attempts on that assignment. **If you ever feel your homework was graded incorrectly** due to syntax (i.e. the ConnectMath program misinterpreted your answer) please let me know within one week of the due date with the homework problem number and the assignment number. I will go in and look at your answer and give back points accordingly. Never be shy to ask for partial credit or points back because I’m happy to look at the work you’ve done and see if there is anything we can do.

**Exams:** There will be four one-hour exams (the best three will be counted) and a two-hour, cumulative, departmental final exam. No student will be granted a request for a special final exam unless it is due to a registrar created conflict. If you miss either of these exams, for any reason other than a university sanctioned absence, you will receive a grade of zero, as there will be no make-up exams given. Our final exam is scheduled for **TBA**. A plane ticket home will not excuse you from this exam, so please plan accordingly. **Do not make travel plans that conflict with the exam.** There is no “extra credit work” or “special project” available to make-up for poor grades at the end of the semester.

If you have a concern about this course that cannot be resolved by speaking with your instructor, you should contact the Course Coordinator, Dr. Seo, at s.seo@neu.edu. For any matters that remain unsolved, contact the Teaching Director, Prof. Massey, at d.massey@neu.edu.

The Mathematics Department Tutoring Center is in Room 540B, Nightingale Hall. The free tutoring center will starts on Monday, September 12th. Hours will be 10am-8pm Monday-Thursday and 10am-1pm on Friday. No weekends. Students sign up through their myNeu where they can see the available tutors and classes each tutor will be able to help with.

**Note:** Syllabus is subject to change. It is your responsibility to be aware of any changes the instructor may make to the syllabus as they are announced in class. Students are responsible for all information given when they are absent.

Any student with a disability is encouraged to meet with the instructor during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Disability Resource Center (DRC, 20 Dodge Hall, ext. 2675).

If you are an athlete and have conflicts with an important class activity (quiz, mid-term, or final), you should let your instructor know before the end of second week of classes. You should also bring an official letter from the Office of Athletics.

Please complete the **TRACE** evaluations at the end of the course.

**Some Important Dates:**
- **September 27** is the last day to drop a class without a W grade.
- **September 30** is the last day to file a Final Exam Conflict Form.
- **December 8** is the last day to drop a class with a W grade.
Tentative Academic Calendar Fall 2016

9/5-9/9  
Sec 1.1 Descriptive and Inferential Statistics 1, 2, 4-8  
Sec 1.2 Variables and Types of Data 9, 10, 11-16  
Sec 2.1 Organizing Data 5-8, 9, 10, 14, 26  
Sec 2.2 Histograms 2, 14, 20

9/12-9/16  
Sec 2.3 Other Types of Graphs 4, 10, 14, 17  
Sec 3.1 Measures of Central Tendency 2, 6, 25, 27, 29  
Sec 3.2 Measures of Variation 6, 27, 29  
Sec 3.3 Measures of Position (Standard Scores and Quartiles) 12, 14, 16, 30

9/19-9/23  
Sec 3.4 Exploratory Data Analysis 5, 9, 12  
Sec 4.1 Sample Spaces and Probability 10-15, 21, 23, 24  
Sec 4.2 Addition Rules for Probability 3, 4, 7, 6, 10, 12, 14, 24

9/26-9/30  
Sec 4.3 Multiplication Rules and Conditional Probability 1, 2, 6, 8, 16, 20, 22, 27, 30, 35, 38, 43, 44, 50  
Sec 4.4 Counting Rules 3, 6, 7, 10, 12  
9/29  Exam 1  Chapters 1, 2, & 3

10/3-10/7  
Sec 4.5 Probability and Counting Rules 3, 6, 7, 10, 12  
Sec 5.1 Probability Distributions 7, 9, 11, 18  
Sec 5.2 Mean, Variance, Standard Deviation, and Expectation 2, 10, 16, 20

10/10-10/14  
10/10  Columbus Day, no classes  
Sec 5.3 The Binomial Distribution 3, 8, 14, 16, 22, 24, 30  
Sec 6.1 Normal/Standard Normal Distributions 28, 34, 36, 40, 41, 43, 47, 48, 49, 50

10/17-10/21  
Sec 6.2 Applications of the Normal Distribution 6(a, c), 8(a, b), 16(a, b), 20 22, 24, 26, 36  
Sec 6.3 Central Limit Theorem (Distribution of Sample Means) 8, 16, 18(a, b), 22(a, b, c), 24(a, b)  
10/20  Exam 2  Chapters 4 & 5

10/24-10/28  
Sec 6.4 The Normal Approximation to the Binomial Distribution 5b, 7b, 10, 12, 20  
Sec 7.1 Confidence Intervals for the Mean When Sigma Is Known 3, 7, 12, 16, 20, 25  
Sec 7.2 Confidence Intervals for the Mean When Sigma Is Unknown 3, 8, 10, 16, 18

10/31-11/4  
Sec 7.3 Confidence Intervals and Sample Size for Proportions 4, 8, 12, 16, 17, 20  
Sec 8.1 Steps in Hypothesis Testing 1(a, b), 5(a, b), 9, 10, 13(d)  
Sec 8.2 z Test for a Mean: Traditional Method / P-value Method 2, 4, 8, 12, 15(b, c), 16, 18

11/7-11/11  
Sec 8.3 t Test for a Mean 8, 12, 16, 19, 23  
Sec 8.4 z Test for a Proportion 3, 6, 12, 16, 17  
11/10  Exam 3  Chapters 6 & 7

11/14-11/18  
Sec 8.6 Additional Topics Regarding Hypothesis (only Type I, II Errors)  
Sec 9.1 Testing the Difference Between Two Means: Using the z-Test 4, 6(a-e), 8(a, b), 18, 20  
Sec 9.2 Testing Two Means of Independent Samples: Using the t-Test 2(a-e), 4(a-e), 8(a-e), 10

11/21-11/25  
Sec 9.4 Testing the Difference Between Proportion 8, 12, 26  
11/23  Thanksgiving recess, no classes

11/28-12/2  
Sec 10.1 Scatter Plots and Correlation 11-27 odd  
Sec 10.2 Regression 11-27 odd  
12/1  Exam 4  Chapters 8 & 9

12/5-12/9  
Sec 12.1 One-Way Analysis of Variance (ANOVA) 7-19 odd  
12/7  Final Review, Last day of Fall Classes

12/9-12/16  
Final Exam