

Goal: After this course you should be able to identify what kind of test is appropriate for a particular research questions, and to interpret the statistical output – making you an informed reader of research, and giving you the tools to begin your own research.

Please note that the prerequisite for STAT E-150 is successful completion of STAT E-100 (Introduction to Statistics) or the equivalent. You should be familiar with basic descriptive statistics, as well as hypothesis testing and other inference methods. Students' preparation for STAT E-150 will be assessed before the first class meeting via an online quiz that will provide immediate feedback regarding performance. From this, students should judge whether they are prepared for the class. If you do poorly on the pretest, you should strongly consider taking an introduction course first. Please visit the class webpage prior to the first class for a link to the quiz.

Textbook (Required): STAT 2 by Cannon, Cobb, et al (Freeman. ISBN: [1464148260](#)). The textbook will be available at the Coop. You will need the textbook as soon as the course begins, as there will be an assignment the first week of class.

Course Discussion Board: The course discussion board can be used to communicate with the course staff and with other students. It will be hosted through the class website (discussion tab on the left). The board will be checked regularly to assure that your questions are answered promptly and that all postings are appropriate and accurate. This is **the best place** to ask questions about the homework, or to clarify concepts discussed in class. If you are confused, someone else is too! If you have a new question, please start a new threaded discussion topic.

Software: We will be using the statistical software SPSS in class and for most assignments. SPSS is available through Harvard Computer Services, or you may obtain your own copy. Complete instructions for accessing and using SPSS will be provided.

Sections: Weekly section meetings will be scheduled for review and for help with both classwork and homework. You can attend any section in a given week. Times will be set once the class list is more finalized. There will also be at least one online section via blackboard collaborate.

Homework: Assignments should be submitted **as pdf files only** to their designated dropbox on the course website. Please use a filename of the form HW1_Lastname.pdf. Do not email assignments to the graders. When you submit an assignment to a dropbox, please be sure to allow enough time to check that the assignment has been uploaded correctly and completely.

All assignments are due by midnight (Boston time) on the due date. You will be allowed two late assignments, which must be turned in no later than 1 week late. The last assignment and the assignment before the midterm cannot be late.

After your assignment is graded you will be able to check the dropbox to see your grade and any comments from the grader. This will serve as your record of your homework grades, and the comments will help you to successfully complete future assignments. If you have questions about grading of an assignment, please be sure to raise the issue within **two weeks** of the date the assignment was graded; no adjustments will be considered after that date. Please direct your questions directly to the TA that graded your homework – which you can tell by who uploaded the corrected version.

Homeworks will be graded on a check/plus system:

Check/plus = 5pts.

Check/minus = 3pt.

Check = 4pts.

Incomplete = 0pts.

Solutions to all assignments will be available on the course website after graded assignments have been returned.

Quizzes: There will be weekly multiple choices quizzes that need to be completed by **9am the day of class**. They will be posted on the class website under the quizzes tab. They will be designed to test general knowledge about what will be covered in class that day – to encourage you to read the book BEFORE class. They will also be used to guide how much time we spend on topics. They will be graded on a pass/fail system, where passing is worth .25 points, and failing is worth 0. You pass if you get over 50% correct. They will count as extra credit at the end of the course, by being added to your homework grade.

Examinations: There will be a two-hour midterm examination and a two-hour final examination; both will be open book. The use of statistical functions on graphing calculators will not be permitted, nor will the use of cell phone calculators or PDA calculators.

Grading (Undergraduate credit): Your final grade will be the average of your homework grade, your midterm examination grade, and your final examination grade.

Grading (Graduate students): Graduate students will design and complete an

independent assignment. This assignment will be worth 20% of your final grade; the remaining 80% will be the average of your homework grade and your examination grades. The project will involve two parts, the proposal of a project testing a specific hypothesis, where data is either collected on your own, or downloaded from the internet. More details will be given before the midterm.

Spring 2015 Course Schedule

Specific reading assignments will be given out the week before along with the HW assignments.

Date	Chapt	Topics
28-Jan	0,1	Introduction to regression: assumptions of regression, transformations, and influential points
4-Feb	2, skip pg 72 & pg 74, 3.1-3.2	Inference from regression, interpreting Betas, assessing the model, intro to multiple regression, adjusted Rsq, individual betas
11-Feb	3.3-3.6, 4.4, 4.2	Multiple regression: binary variables, exponentials, collinearity, stepwise regression
18-Feb	Chapt 8, skip 8.2, Chapt 5, Chapt 7.1, 7.2,	Experimental design, One-way Anova: assumptions, posthoc analysis, correction for multiple comparison's, interactions
25-Feb	chapt 6 (p.283-294(first half of pg), pg 295, starting with choose -300)	Two-way ANOVA, repeated measures ANOVA
4-Mar		Review for midterm, go over project proposals
11-Mar		MIDTERM
18-Mar		Spring Break
25-Mar	chapt 3, 3.6	nested F, midterm recap
1-Apr	9.1, 9.2	Logistic regression: probability/odds, odds ratio, logit plots, assumptions /project presentations
8-Apr	9	Logistic regression: Wald statistics, log likelihood /project presentations
15-Apr		Project presentations
22-Apr	10	Multiple logistic regression, nested log likelihood
29-Apr	4,7	Nonparametric techniques: randomization test, bootstrap, Wilcoxon rank sum test
6-May		Review
13-May		Final Exam

