

**Course Syllabus: Statistics 311
Elements of Statistical Methods
Summer 2008**

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Textbook: Elementary Statistics by Mario Triola, 10th Edition. You need the multimedia edition that includes a license for the web applications.

Class Meetings: Lecture: MWF 8:30-9:30, Thomson 125
Quiz: with Mark Wheldon
TTh 8:30 – 9:30 (AA) or 9:40 – 10:40 (AB), Communications 228

Course website: <http://faculty.washington.edu/tamre/Stat311.shtml> (a link is also provided on the Statistics Department home page at www.stat.washington.edu).

Course Description: This course provides an introduction to the use of statistical methods from the points of views of both consumers and producers of statistics. We begin with definitions and examples to get you thinking about statistical reasoning. This is followed by introducing types of data, data collection methods, methods for data visualization and the use of descriptive statistics. The course then moves on to parameter estimation and several inferential methods. Specific topics include graphical displays for qualitative and quantitative data; calculation and interpretation of summary statistics; elementary concepts of probability and sampling; binomial and normal distributions; basic concepts of hypothesis testing, estimation, and confidence intervals; *t*-tests; and correlation and simple linear regression. If time permits, chi-square tests will be introduced.

The lectures will emphasize understanding the material. I will generally follow the text; however, some chapters and sections will be skipped and examples not in the text will be presented. Readings other than from the textbook may also be required; these will be posted to the course website or to Stat 311 E-Reserves.

Class participation is strongly encouraged; please feel free to ask questions at all times. Class meetings will consist of lectures introducing each topic, and on occasion, group discussions. Example problems will be worked to illustrate concepts and problem solving.

Homework: There are eight homework assignments, due approximately weekly. All assignments have an online, web-based component that will be due by midnight the Sunday following the Thursday date listed on the tentative schedule. In addition, homework assignments 2 - 7 will have a written component that is due **at the beginning** of Thursday lectures, starting 3 July. Written exercises will consist of problems from the textbook and may include exercises that are most easily done using computer software. Written homework assignments will be posted on the course website. Graded homework will be returned in quiz sections.

You must register online at <http://www.coursecompass.com> to get access to the online component, MyMathLab. Your text book comes with a Student Access Kit that has your student access code. You will also need: **Course Name is Statistics 311 Su08, CourseCompass Course ID is cardoso39675** and the **UW zip code is 98195**. Note: MyMathLab only works under a Windows OS and Internet Explorer.

Points for online homework will vary, depending on how many problems are assigned. Each problem is worth one point (approximately 150 total points). Each written homework assignment is worth 25 points (150 total points). I encourage you to work with others on your written assignments, but you are expected to write up your own solutions. Total homework points that count toward your grade will be 40 points less than the overall final total—this will allow you to miss one assignment, or a few points from each assignment (written or online), and still receive full homework credit.

Provide detail in your solutions; you must show your work and provide explanations to get credit. If you only give an answer, it will be marked wrong even if you give the correct answer. If you are stuck, email, call, ask questions during your quiz sections, or visit either your TA or myself during our office hours.

Illegible homework will not be graded! At the top of the first page of the assignment write your ***name, quiz section, assignment number, and date.*** Problems must be turned in appropriately numbered and in sequential order. Any computer output must also be appropriately labeled and inserted in the appropriate order. All multi-paged assignments ***must be stapled*** together in the upper left-hand corner. ***Late homework will only be accepted if prior arrangements have been made. This also applies to leaving homework in my mailbox.—only okay if prior arrangements have been made. Do not email homework assignments.***

Group Project: There will be a group project that will involve identifying a question of interest, developing an experiment, observational study or survey, and a sampling plan, as appropriate, collecting data, and summarizing/analyzing your data in order to answer the question of interest. Previously collected data may also be used, provided that your group can get information to document how the data were collected or generated. Groups of 3-4 individuals will be formed within your quiz sections.

Each group will turn in a single write-up for the group. All group assignments must be **typed**, and well organized. Along with the group write-up, each student will submit a peer review form for the project. The form will be available on the course website. Project details, including key project due dates, will be discussed during lecture on 30 June.

Computing: Some basic statistical computing will be recommended as part of completing the homework exercises. You are not required to use any particular software; some options you might try include MS Excel with DDXL installed, STATDISK, Minitab, SPSS, R, or a TI-83/84 calculator. The CD that comes with your textbook contains STATDISK and DDXL, as well as TI-83/84 programs and datasets referenced in the book. There are directions for installation on Macs and PCs. SPSS is available on the PCs in MGH and Odegaard.

Quizzes: There will be two quizzes given during the last 45 minutes of Thursday quiz sections (see Tentative Outline on page 4 for specific quiz dates). The quizzes will be closed-book except for the use of the textbook formula card. You may use a calculator. Quizzes will not be cumulative, but will only include material since the last quiz. ***There will be no make-up quizzes; a missed quiz will receive a score of zero except in the event of illness or personal emergency.***

Midterm: The exam will be closed book, although you will be allowed the formula card that comes with the textbook. In addition, you may have one page of 8.5 x 11 notes (single or double-sided; handwritten or typed). You should also bring a calculator to the exam.

If you are going to miss the exam, you must notify me prior to exam time. Failure to do so will result in an exam grade of zero. According to University policy, the only valid reasons for missing an exam are serious illness, death in the immediate family, and religious obligations provided prior notice is given. ***There will be no make-up exams unless prior arrangements have been made.***

Participation: A total of 25 participation points may be earned in a number of ways including (but not necessarily limited to) responding to posted readings and answering surveys that may come up throughout the quarter. Additionally, Mark will have up to 25 participation points to award each student. These points will be awarded for participating in problem discussions and group project work during quiz sections. Only a total of 40 participation points will count toward your grade, giving you some flexibility since I recognize that some students may need to miss class on occasion.

Grades: Your final grade for the class will be determined from a weighted average based on your performance on the homework, group assignment, quizzes, and midterm. The weighting will be as follows:

Homework	Group Project	Quizzes	Midterm	Participation
25%	35%	17%	20%	3%

Other Comments: Attendance and participation, in both lectures and quiz sections, are expected. It is your responsibility to know the course requirements and to be aware of any announcements. Announcements made in lecture or quiz sections could include additions or deletions to requirements, such as modifications to assignments, changes in due dates or exam dates, etc.

Academic Accommodations for Disabilities: To request academic accommodations, due to disability, please contact Disabled Student Services (DSS), 448 Schmitz Hall (206-543-8924 (V/TTY)). If you have a letter from DSS indicating that you have a disability that requires academic accommodations, please present the letter to me so that we can discuss the accommodations you might need in this course.

E-Reserves: From MyUW go to UW Libraries. Select Course Reserves under Services. Under Electronic course reserves for select the link under Seattle campus (<https://eres.lib.washington.edu/>). Select the Course Reserves Pages by Department (middle tab). Select Statistics and look for Cardoso or Stat 311.

For Thursday, 26 June:

1. Go to <https://catalysttools.washington.edu/webq/survey/tamre/57680> and complete the background survey. Either print out or copy down the confirmation code and return it to me or Mark by Friday, 27 June for **3 participation points**. Include your name and quiz section on the sheet of paper.
2. Please bring a copy (no larger than 4 x 6) of a recent photo of yourself to your quiz section; it will help me to learn your names. An enlarged copy of your ASUW card or your driver's license is fine. "Mug shots" are okay, but the photo must be in good taste. **Make sure that your name and quiz section are somewhere on the picture (e.g., the back). This counts as 3 participation points.**

Tentative Outline for Lectures

The schedule below is a tentative plan for the course. It is subject to change without notice. At any point in the quarter, we might be somewhat ahead of or behind what's listed. In particular, the midterm date and assignment due dates may be changed; although, they will never be earlier than the dates listed below.

Date	Topic/Readings	Assignment Due Dates	Quizzes
23-Jun	Introduction/Definitions – 1-1, 1-2		
25-Jun	Nature of Data/Critical Thinking; Design of experiments – 1-3, 1-4		
27-Jun	Histograms; Statistical Graphics – 2-1 through 2-4	HW1 online only	
30-Jun	Overview of Group Projects		
2-Jul	Probability – 4-1 through 4-4		
3-Jul	Thursday Quiz section	HW2	
4-Jul	Holiday—no class		
7-Jul	Probability – 4-5 and 4-7		
9-Jul	Random variables – 5-1, 5-2		
10-Jul	Thursday Quiz section	HW3	Quiz (Chap. 1 – 3)
11-Jul	Random variables; Binomial Distribution – 5-3 through 5-4		
14-Jul	Continuous Distributions; Normal Distribution – 6-1 through 6-3		
16-Jul	Normal Distribution; Sampling Distributions – 6-4		
17-Jul	Thursday Quiz section	HW4	
18-Jul	Sampling distributions; Central Limit Theorem – 6-5		
21-Jul	Estimating Population Proportions – 7-1 through 7-2		
23-Jul	Estimating Population Means – 7-3, 7-4		
25-Jul	Midterm, Chapters 1 - 6		
28-Jul	Introduction to hypothesis testing – 8-1, 8-2		
30-Jul	Hypothesis testing about a proportion – 8-3		
31-Jul	Thursday Quiz section	HW5	
1-Aug	Hypothesis testing about a mean – 8-4, 8-5		
4-Aug	Hypothesis testing for two proportions – 9-1, 9-2		
6-Aug	Hypothesis testing about two means – 9-3; maybe 9-4		
7-Aug	Thursday Quiz section—correlation – 10-2	HW6	
8-Aug	Regression – 10-3 and 10-4		
11-Aug	Regression continued		
13-Aug	Regression continued		
14-Aug	Thursday Quiz section	HW7	Quiz (Chap. 7 – 9)
15-Aug	Multinomial Experiments – 11-2		
18-Aug	Contingency Tables – 11-3		
20-Aug			
22-Aug	Group Projects Due	HW8 online only	

NOTES:

- Chapter 3 will be covered in quiz sections during the first two weeks. Omit Chebyshev's Theorem, page 101 and CV, page 103.
- Online components for the homework assignments are due by midnight Sunday following the Thursday due date listed on the tentative schedule above, except online HW8 which is due by midnight Friday 8/22/08.