Math 11, Calculus-Based Introductory Probability and Statistics

**Instructor:** Jason Schweinsberg (jschwein@math.ucsd.edu)

**Office:** 6157 Applied Physics and Mathematics

**Office Hours:** 2:30 – 3:30 PM on Tuesdays

9:00 – 9:50 AM and 2:30 – 4:00 PM on Thursdays

other times by appointment

**Math 11 Web Page:** http://www.math.ucsd.edu/~jschwein/11.html

(or go to http://www.math.ucsd.edu and click on “Course Web Sites”)

**Lab Web Page:** http://www.math.ucsd.edu/~math11/F17.html

**Prerequisites:** Math 10AB or 20AB

**Course Content:** Probability theory is the mathematical study of randomness. Statistics is the science of obtaining information from data. Because data are frequently modeled as arising from a random process, probability is central to the mathematical theory of statistics. This course will provide an introduction to both probability and statistics, focusing on applications. We will cover most of chapters 1-25 of the textbook. Because Math 11 students have seen calculus, we will also discuss some material on continuous probability that is not in the textbook. A list of what topics will be covered each day is on the course web page.

**Lectures and Sections:** Lectures will be held every Monday, Wednesday, and Friday. Discussion sections, which will be run by your TA, are held every Thursday and are intended to help you with problem solving. You may only attend the discussion section in which you are enrolled.

**Textbook:** The required textbook is *Stats: Data and Models* by De Veaux, Velleman, and Bock. You must have the 4th edition of the textbook. If you purchase the textbook from the bookstore, it will include access to MyStatLab. However, MyStatLab will not be necessary for this course. Instructions for purchasing an electronic copy of the textbook for $69 are available in TritonEd. If you choose this option, you will have access to the textbook only until the end of the quarter. The international edition of the textbook has different numbers in a few of the problems and is not suitable for this course.

**Homework:** Homework assignments will be due approximately weekly, usually on Fridays. You may either turn in your homework at the beginning of class, or place it in the designated in the basement of the Applied Physics and Mathematics building by 12:30 PM on the due date. Please work carefully and show the steps in your calculations, not just the final answer.

**Computer Labs:** In addition to the weekly homework assignments, there will be eight computer lab assignments due on Wednesdays. These assignments must be submitted by 9:00 PM on the due date. You will submit your assignments online using TritonEd.

**Statistical Software:** You will use the statistical software Minitab for the computer lab assignments. This software has been installed in the computer labs in rooms B325, B349, and B432 in the basement Applied Physics and Mathematics. You also have the option of downloading a copy of Minitab to your personal computer. Instructions for doing this are provided in TritonEd. If you want to use a Macintosh, you will have to use Minitab Express instead of Minitab. The labs can be completed using Minitab Express, though this is inconvenient in a couple of places.

**Graphing Calculators:** Although a graphing calculator is not required for the course, it is likely to be helpful. Having a graphing calculator avoids the need to use tables for statistical inference. Graphing calculators will be permitted on exams.
Exams: There will be two midterm exams and a final exam. The midterm exams will be held during class on Friday, October 27, and Monday, November 20. The final exam will be held from 11:30 AM – 2:30 PM on Monday, December 11. You will be permitted to use a calculator during the exams. You will not be permitted to use notes or your book, but you will be provided with a list of formulas. Please bring your student ID to the exams.

Grading: Homework will count for 15 percent of your grade, and the computer labs will count for 20 percent. Each midterm counts for 15 percent, and the final exam counts for 35 percent. No homework or lab scores are dropped when computing your averages. After your average is calculated, letter grades will be assigned based on your performance relative to the class. The numerical averages that correspond to particular letter grades are not determined in advance.

Make-up Exams: Make-up midterm exams will not be given. If you miss a midterm exam because of extraordinary circumstances, such as a serious illness or family emergency, and document the circumstances, then you may substitute your final exam score for the missed exam. In such cases, you must notify the instructor as soon as possible.

Late Homework: Late homework assignments will not be accepted. Computer lab assignments will be accepted up to one hour late for a 1-point penalty (to allow for computer glitches at the time of the deadline), but labs completed more than one hour after the deadline will not be accepted. The only exception is Lab 1, which will be accepted up to one week late for a 1-point penalty. Other accommodations will be made only under extraordinary circumstances. Please understand that accepting late work in less extreme cases is unfair to other students.

Regrade Requests: If you wish to request that a homework assignment be regraded, you must notify the TA from whom you collected the graded work before leaving the room. If you wish to request that a computer lab be regraded, you must notify the head lab TA within one week of the time when your lab is graded. Regrade requests on exams will be handled through Gradescope. Please understand that while we will correct errors in the grading, we will not modify the grading rubric or negotiate over partial credit after graded papers are returned to students.

Office Hours: The instructor and TAs will hold regular office hours, which will be posted in TritonEd and on the course web page. You may attend the office hours of any of the TAs, not just the TA who runs your discussion section. The head lab TA will hold some office hours in the computer lab to help students with computer lab assignments. You are encouraged to attend office hours if you have questions about the course material. You may ask about homework problems or the computer lab assignments during office hours, in which case the instructor or TA will try to determine the source of your difficulties and guide you on the right path. However, because the purpose of homework is to provide you with practice at solving problems yourself, please do not expect the instructor or TA to provide answers or solutions to homework problems.

Time Commitment: Because hard work is the only way to learn material well, it is extremely important to be prepared to devote a sufficient amount of time to Math 11. According to the policy of UC San Diego’s Academic Senate, “The value of a course in units ... shall be reckoned at the rate of one unit for three hours’ work per week per quarter on the part of the student.” Note that Math 11 is a 5-unit course because of the additional work involved in completing the computer lab assignments. Therefore, you should expect to spend a total of 15 hours per week on the course, or three hours per week more than you would spend on a standard 4-unit course.
Academic Integrity Policy for Math 11

It is essential that all Math 11 students adhere to the UCSD Policy on Integrity of Scholarship. Cases of academic dishonesty will be reported to the Academic Integrity Office. Penalties for violating the policy vary depending on the circumstances but can include failure in the course or suspension from the university. Students are required to complete an Academic Integrity quiz in TritonEd before Wednesday, October 4, to ensure that they are familiar with this policy.

Exams: On exams, you will be allowed to use a calculator, but will not be permitted to use any books or notes. All devices that can be used for communication or internet access must be put away and out of view during the exam. You may not share calculators with other students during the exam. Also, you must stop working on the exam immediately when time is called.

Homework: You may consult other students, the instructor, or TAs while formulating your ideas on homework problems. However, you must write your final homework solutions by yourself, based on your own understanding. You may not copy or paraphrase solutions from another student or from any other source. If you consult any sources other than your textbook or discuss the problems with anyone other than the instructor or TA, you must acknowledge this on your homework.

Computer Labs: The rules that apply to homework also apply to computer labs. Also, because one of the goals of the labs is to give students experience in working with statistical software, your lab write-ups must be based on calculations that you carried out in Minitab yourself. You may never send your Minitab graphs, or the text of your lab solutions, to another student.

Other Resources: You may look up general course topics on the internet, but you may not look for solutions to homework problems on the internet. You may not look at the Instructor’s Edition of the textbook, or any other source containing answers to even-numbered problems in the textbook. You may not look at materials (such as homework or computer lab solutions) from previous Math 11 classes. Likewise, you may never show your homework or computer lab solutions to future Math 11 students.

Posting of Course Materials: You may not post your homework or lab solutions online where they could be found by future Math 11 students. If your instructor posts homework solutions, you may not show those solutions to future Math 11 students, or post them online.

Plagiarism Detection: To ensure that students will not copy portions of their labs from other current or past Math 11 students, the software Turnitin.com will be used to detect plagiarism. Therefore, the following policy, quoted from UCSD’s Academic Integrity web site, applies to Math 11: “Students agree that by taking this course all required papers will be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the terms of use agreement posted on the Turnitin.com site.”
Examples

Students sometimes have misconceptions about what is acceptable, especially with regard to obtaining help on homework problems. The scenarios below are intended to clarify some of the issues that can arise. You are encouraged to ask your instructor if you have any questions concerning the academic integrity policy.

**Scenario:** You forget how to find a regression line in Minitab. You ask a classmate, who reminds you where the regression menu is. You go back to your computer and do the regression.

**Analysis:** This is acceptable. It is fine to ask for help with Minitab as long as you do the actual calculations yourself.

**Scenario:** You solve most of the homework problems yourself but get stuck on two of them. You explain your difficulties to your classmate, who points out your mistakes. You go home and write up correct solutions, including a note acknowledging your classmate’s help.

**Analysis:** This is acceptable because you wrote up your solutions independently and made an appropriate acknowledgment.

**Scenario:** Your classmate forgot to make one of the graphs in Minitab that he needed, so you send him yours by email.

**Analysis:** This is cheating. You are violating the academic integrity policy by sending your graph to another student. Your classmate is violating the academic integrity policy by using a graph made by someone else.

**Scenario:** A friend who took Math 11 last year shows you her computer lab solutions to help you with a few questions on which you are stuck.

**Analysis:** This is cheating. You may never look at anyone else’s homework or computer lab solutions, and you may never obtain materials from previous Math 11 students. Note that because the lab assignments change slightly from quarter to quarter, this sort of cheating is likely to be detected by the lab graders.

**Scenario:** Your classmate has finished her homework and shows you her solutions. You base your solutions on hers, making changes to the wording throughout.

**Analysis:** This is cheating. Even though you are not using your classmate’s exact wording, it is never acceptable to be looking at another student’s homework solutions.

**Scenario:** Three people work on a homework assignment together. They all contribute and acknowledge one another’s help. Because they wrote their solutions together at the same time, their solutions are nearly identical.

**Analysis:** This is cheating. You must write your final solutions independently, in which case two or more people will never have homework or lab solutions that look essentially the same.

**Scenario:** To help future Math 11 students, you decide to post your lab solutions to a popular website that accepts submissions of course materials.

**Analysis:** This is a violation of the academic integrity policy. While it is admirable to want to help other students learn, posting course materials online, where other students could find them with a Google search, primarily facilitates cheating rather than learning. It is important for all current and future Math 11 students to have the benefit of working through the homework and lab assignments on their own, without access to others’ solutions.