Statistics 110 – Statistical Methods in Engineering and the Physical Sciences

Instructor: Jay Bartroff, 113 Sequoia Hall, phone x5-2236, email bartroff@stat

Office Hours: Thursday before lecture, 9-11 am, and by appointment.

The Course: This is an introduction to probability and statistics for engineers, science majors, and the like-minded. We will cover descriptive statistics, basic probability, hypothesis testing, confidence intervals, point estimation, simple linear regression, analysis of variance (ANOVA), and nonparametric methods. I will try to use interesting examples from engineering, science, medicine, finance, computer science, and gambling. The only prerequisite is one year of calculus.

The class meets four days each week, Monday through Thursday at 11 am in 300-300. Monday, Tuesday, and Thursday will be lectures and Wednesday will be a recitation section led by the head TA.

Course information, assignments, solutions, and grades will be posted on coursework.stanford.edu.

Textbook: Statistics for Engineering and the Sciences, 4th edition, by Mendenhall & Sincich is required. Two copies are on reserve in the Math/CS library. I will also cover some topics not in the book, so attendance in lecture is important!

Homework: There will be eight weekly homework assignments due on Fridays at 4 pm in the “Stats 110 HW” box on the second floor of Sequoia Hall. The first assignment will be due Friday, October 6. Graded homework will be available in section on Wednesday and available after that from the homework return box on the second floor of Sequoia. Solutions and scores will be posted on coursework. No late homework will be accepted, though your lowest homework score will be dropped.

Exams: The midterm exam will be Thursday November 3rd in lecture, and the final exam will be Wednesday, December 14, 8:30–11:30 am, location TBD. No alternate times are available for the exams so if you cannot make both of these times then you cannot take this class.

Grades: Grades will be computed from 1/5 midterm exam, 2/5 homework scores (dropping the lowest), and 2/5 final exam.

Schedule: The following is a tentative schedule with relevant chapters from Mendenhall & Sincich. I reserve the right to modify, revise, alter, shift, rework, and/or revamp it.

- Descriptive statistics: chapter 2; 2 lectures.
- Probability: chapters 3, 4, 5, parts of 6, 7; 4 weeks
- Point estimation: chapter 8.1-8.3; 3 lectures
- Confidence intervals: the rest of chapter 8; 4 lectures
- Hypothesis tests (including nonparametrics): chapters 9 and 15; 5 lectures
- Simple linear regression: chapter 11; 3 lectures
- ANOVA: chapter 14; 3 lectures