Course Objectives

This course covers statistical analysis of data using techniques ranging from the basic (qualitative summary of data) to the sophisticated (quantified hypothesis testing and multivariate analyses). My area is Finance and I will likely draw many examples from that field, but the framework that we develop is applicable to virtually any subject, business or otherwise. Hence, you will see examples from many additional areas. The scope and depth of coverage is best categorized as introductory, meaning the aim is for you to leave with a solid base in statistical analysis. I try to emphasize the intuition & logic, leaving the formulas and number crunching to excel. However, you may see a more formulaic emphasis in later classes, so some discussion on that dimension should be expected.

Course materials

Text: Statistics for Management & Economics, Keller, 8ed.

Other: Class notes/overheads will be available on Smartsite (everything under ‘Resources’), but I will bring hardcopies of overheads to class when we first encounter a new section. I will also post homework answers, a variety of supplemental spreadsheets, etc. throughout the quarter.

Data analysis is all about crunching numbers and drawing inferences from the crunch. Software plays a dominant role. There are numerous packages out there, but I will focus on Microsoft Excel for Windows. Warning: the Macintosh version can be problematic…

Questions

Before and after lecture; by appointment; email. Questions are also welcome and encouraged during class.

Grading

Your course grade is made up of two midterms and a final (80%/3 each), and class participation (20%). The midterms are in class, on the 3rd and 8th week of the quarter (SAC) (2nd and 4th, San Ramon). Tests are LAPTOP and not ‘comprehensive’ except (to some degree) the final.

Class participation refers to: asking questions when you don’t understand the material, engaging when I pose questions to the class, paying attention, etc. Surfing the internet is a bad idea if you want
to capture CP points (yes, it is obvious to the instructor) – the average CP points from a previous class was: for chronic webservers 5.1; for occasional surfers, 12.4; and for non-surfers, 17.5. Surfing is also highly correlated with cold-call questions.

I will also use “pop” quizzes, worth 5% of your overall grade each, on occasion. The typical occasion is when I ask the class if there are no questions and there are no questions. That is a good time for a pop quiz as everyone is evidently on top of the material. Pop quiz grades eat into the 80% allocated to the three formal tests. For example, with 3 pop quizzes each test will be worth 65%/3.

Homework & Cases

There is a substantial volume of homework. Not turned in or graded (it’s for your practice – consume as you wish but recognize that you will get out of this class only what you put in.

Approximate Schedule

Session 1–2: Introduction to Statistics (Ch. 1; Ch. 2.2-2.6; Ch. 3 (you read); Ch. 4.1-4.3)
Session 3: Midterm 1 (~2 hr case; 45 minute post mortem)

Part I. The Probability Framework

Session 2–4: Probability & Random Variables (Ch. 6; Ch. 7.1, 7.4, 7.5; Ch. 8, Ch. 9)

Part II. Statistical Inference using the Probability Framework

Session 5–7: Estimation & Hypothesis Testing (Ch. 10, 11, 12, 13)
Session 8: Mid-Term 2
Session 8–10: Correlation, ANOVA(?) and Regression (Ch. 4.4-4.6; Ch. 7.2; Ch. 14 (?), Ch. 16, Ch. 17)

Final Exam …as scheduled