University of California, Davis  
Graduate School of Management

MGB 203A: Data Analysis for Managers  
Prof. Roger M. Edelen  
Fall 2012  
Room: BR 1502

SYLLABUS

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, 9ed.

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. I do not use a dedicated statistical package because it simply is not necessary and I aim for a broad audience (this is a core class).

Questions

Before and after lecture; by appointment; email. Questions are welcome and encouraged during class, but if they are highly specific I might say “later” during class time. (Don’t be offended :-)

Grading

Your course grade is made up of a group project (25%), a midterm (30%), a final (25%), and class participation (20%). Tests are LAPTOP and not comprehensive, except to the extent that math is innately comprehensive (this class has math).

Class participation has two components. The first component (10%) refers mostly to keeping the class alive. When you don’t understand the material, speak up. When I pose a question; respond… or
tell me you don’t get it. The more we ‘talk’ this stuff, the more you (and those around you) learn. Talking doesn’t require having the right answer. Usually, the class benefits much more when you have the wrong answer (giving me a chance to dig deeply into misunderstanding).¹

The second component of class participation is the easiest 10% credit you’ll ever see. It pertains to surfing the ‘net during class. If history is an indicator, a few of you haven’t yet realized that browsing ESPN; reading email; or perusing Facebook - while someone is talking to you - is offensive to the speaker and disturbing to those around you. (Yes, your ‘multitasking’ is obvious to the person you are ignoring.) If you cannot resist the urge to entertain yourself with such idle pleasures, please do so outside of class (i.e., don’t come); during breaks; during the time you are supposed to be working with your group on a problem… any time other than when someone is talking to you.

Note: If you need to excuse yourself from class to attend to a critical communication, I’m fine with that. I’m also fine with using your computer/phone to explore real-time content (say, Googling a statistics term or technique, etc.), or for other such substantive reasons.

I operate the class under an honor code. Over half of your grade pertains to take-home material, and most of what remains is done via computer. Technology offers many opportunities to cheat in this (and just about any other) class. I harbor no illusion that I can effectively monitor your integrity, and that very notion (monitoring integrity) strikes me as contradictory. Thus, I take an alternative approach: I applaud the vast majority of you who value your integrity over a grade in Statistics. When you peer inside yourself, you have reason to be proud, and that pride is yours.² Only a fool would value Statistics over that. I pity the tiny minority of you who cheat yet convince yourselves that you too have honor. When you peer inside, all you see is your true nature, and that knowledge is yours.

Therefore, all I ask is that you sign a pledge that you abided by the rules of the tests and respect your fellow classmates by upholding your honor. If you sign yet cheat, then there you have it: unambiguous knowledge of who you are. Enjoy it, it’s your life.

(Of course, you will also receive zero credit if caught cheating.)

Homework

A substantial volume of homework is provided, though none of it is turned in or graded. It’s there for you to consume as you wish. I provide answers to every question.

Approximate Schedule

There are 10 classes. While I try to make each somewhat self-contained, the reality (for me) is that pace is hard to nail precisely and subjects have varying time requirements. Hence, I structure the class more around sections (of material) than days. I generally do not require advance reading pre-lecture (though that can obviously help if you are struggling to keep up). The target schedule follows.

¹ However, if you don’t understand because you have not put any effort into the material, then yeah, your questions may waste class time and your ‘talking’ may not be regarded as valuable class participation. Likewise, talking just to show everybody what you know is not valuable class participation.

² I applaud not because you didn’t cheat in Statistics (!), but because you value honor even if it means sacrifice.
Part I. Descriptive Statistics

Day 1: Intro; Descriptive Statistics (Ch. 1; Ch. 2; Ch. 3; Ch. 4.1-4.3)
Day 2: Descriptive Statistics; Sample Project (Ch. 1; Ch. 2; Ch. 3; Ch. 4.1-4.3)

At Home: Group Midterm 1

The group component of midterm one is 15% of your course grade. There will also be an individual component – 1 hour at the beginning of Day 3 class – worth 10%. The latter will echo the work you did as a group; so make sure you know the excel gymnastics!

Part II. The Probability Framework

Day 3: Test; Probability (Ch. 6; Ch. 7.1)
Day 4: Random variables; Distributions (Ch. 7.1, 7.4, 7.5; Ch. 8)

Part III. Statistical Inference using the Probability Framework

Day 5: Sampling Distributions; Estimation & Hypothesis Testing (Ch. 9; Ch. 10, 11, 12.1)
Day 6: ...continued

At Home: Group Mid-Term 2

The group component of midterm two is 15% of your course grade. There will also be an individual component – 1.5 hour at the beginning of Day 7 class – worth 15%. The latter will echo the work you did as a group; so make sure you know the logic & procedures!

Day 7: Test; Variance; Comparing populations (Ch. 12.2, 13)

Part IV. Regression

Day 8: Correlation and Basic Regression (Ch. 4.4-4.6; Ch. 7.2; Ch. 16)

Day 9: Regression (Ch. 16, 17, 18)
Day 10: ...continued

At Home: Group Final

The group component of the final is 10% of your course grade. There will also be an individual component – 1.5 hour during the final period (12/15/12; 9a) – worth 15%. The latter will echo the work you did as a group; so make sure you know the logic & procedures!