Quantitative Analysis
Course Syllabus

Information

Course
MBAC 60502, Chicago EMBA Program, Spring 2014.
•Web Page: `http://www.nd.edu/~embastat`

Professor
Ken Kelley, Ph.D.
•Email Address: `KKelley@ND.Edu`
•Location: 363, Mendoza College of Business
•Office Phone Number: (574) 631-1459.
•Mobile Phone Number: (574) 607-5478 (text messages are fine).

Description

Statistics is the science that deals with the (a) collection, (b) description, (c) analysis, (d) interpretation, and (e) presentation of data. Statistics can be used to describe a particular data set (termed descriptive statistics) as well as to draw conclusions about the population from a particular data set (termed inferential statistics). *Quantitative Analysis* applies statistical methods in business contexts in order to address business related questions and help make evidence based decisions. In *Quantitative Analysis* you will learn to apply commonly used statistical methods in business contexts and how to interpret analyses performed by others.

Objectives

The overarching objective of *Quantitative Analysis* is for students to describe data and make inferences based on well-reasoned statistical arguments. The specific course objectives are to:

- describe data with descriptive statistics;
- perform statistical analyses;
- interpret the results of statistical analyses;
- make inferences about the population from sample data.

Required Textbook & Software

Textbook
Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2012). *Essentials of Modern Business Statistics with Microsoft Excel* (5th Edition). South-Western: Mason, OH.

This textbook presents the numerous processes involved in making evidence based, real-world business decisions. The book is written from a conceptual point of view and focuses on the meaning of the numbers, not derivations or mathematical proofs. This approach to statistical education

is endorsed by the American Statistical Association and their Guidelines for Assessment and Instruction in Statistics Education (i.e., the GAISE Report: `http://www.amstat.org/education/gaise/GaiseCollege_Full.pdf`). This Anderson, Sweeney, and Williams book is part of the most widely used business statistics series and is highly regarded in the field.

Software
We will use Microsoft Excel to implement many of the statistical methods and Microsoft Word is used for many of the homework assignments. Correspondingly, access to Excel and Word is required.

Course Notes

I will provide a note packet for each of the topics. However, the course is much more than simply a set of note packets. Correspondingly, they should *not* be regarded as all that is necessary to understand the course material and implement the methods.

Attendance

Attendance is required.

Participation

Your time in class will be more enjoyable and productive if you participate fully in activities, discussions, and ask as well as answer questions.

Assignments

There will be an assignment based on each of the five classes, with the assignments are due electronically via email the second Tuesday following the class. For example, on Friday classes the assignment will be due 11 days later. For a Saturday class the assignment will be due 10 days later. These assignments need to be in Word, with any Excel pasted into the Word document. Late assignments will receive a 10% penalty for every 24 hour period in which they are late, starting immediately after assignments are due. The assignment component will count 45% toward the course grade. Completed assignments need to be uploaded to Sakai.

Quizzes

There will be a quiz based on each of the first four classes (there is no quiz for the last topic). The quiz grade that most negatively affects your grade the most will be dropped. The quiz component will count 20% toward the course grade.

Special Needs

Please let me know if you have any special needs that should be addressed at the beginning of the semester. We can work together so that any special needs you have are met.

Examination

There is a final exam that covers all of the course topics. The examination is based on the in-class exercises, assignments, relevant readings, class discussions, and quizzes. The format of the examinations is varied with multiple choice, fill-in, short answer, and calculation based questions.Students are encouraged to make and use a help sheet that is one standard ($8\frac{1}{2} \times 11$)

piece of paper with *handwritten* notes on each side for the examination. The help sheet may contain notes, equations, definitional terms, worked examples, et cetera, but no material may be printed or attached to the help sheet. Each help sheet will be handed in with the exams. Standard calculators are required. The exam will account for 35% of the final grade.

Getting Help

Help is available! Email or call me so that I can help you or so that we can make arrangements to talk about the material.

Collaboration

Students are encouraged to discuss classroom topics, course notes, handouts, readings, previous quizzes, and assignments. Experience has shown that discussing course materials generally leads to better success for all who take part in the discussion, provided that all parties are actively engaged in the conversation. However, each student is responsible for turning in his or her own separate assignments. Quizzes and the exam must be done individually.

Grading

Grading for *Quantitative Analysis* will be based on quizzes (20%), assignments (45%), and an examination (35%). The equation that governs the numeric course grade is

$$Grade = .20Quizes + .45Assignments + .35Exam.$$

Course Schedule

Date	**Topic(s)**	**Topical Reading(s)**
•2/14	•Course Expectations and Objectives •Data & Statistics: An Overview •Visualizing Data •Probability	•Sections 1.1–1.5 •Sections 2.1–2.2, & 2.4 •Sections 4.1–4.4
•3/1	•Describing Distributions with Numbers •Normal Distributions •Sampling Distributions	•Sections 3.1–3.6 •Sections 6.1–6.2 •Sections 7.1–7.5
•3/14	•Interval Estimation for a Population Mean •Hypothesis Testing for a Population Mean (σ known) •Hypothesis Testing for a Population Mean (σ unknown)	•Section 8.1 •Section 8.2 •Sections 9.1–9.4
•3/29	•Inference for Two Paired Means •Inference for Two Independent Means	•Section 10.3 •Sections 10.1–10.2

•4/11	•Multiple Regression	•Sections 13.1–13.7
•5/2	•Final Exam Over All Course Material	

Academic Honesty

Students in *Quantitative Analysis* are expected to abide by the University of Notre Dame Honor Code for all matters relating to the course. Recall that the University's Honor Code states "as a member of the Notre Dame community, I will not participate in or tolerate academic dishonesty."

Syllabus Disclaimer

The information provided on this syllabus is tentative and may be modified. Modifications to the syllabus will be announced during class.