Data Analysis for Managers

MBA 6273
Fisher College of Business, The Ohio State University

Fall 2016
Gerlach Hall 305
Monday 8:30–10:00 AM and Wednesday 8:30–10:00 AM

Or

Monday 10:15–11:45 AM and Wednesday 10:15–11:45 AM

Instructor
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Teaching Assistants
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Office Hours: Wednesdays, 1–2 PM, 644 Fisher Hall and by appointment

Course Overview

This course develops the quantitative thinking and skills needed for managerial data analysis. Large quantities of data are routinely available in all disciplines of business. Direct marketers analyze databases to identify targets for promotional material. Investment firms analyze and forecast security prices to identify the optimal composition of portfolios. Human resources departments analyze internal and external data to identify promising talent. The analysis of data in accounting, finance, marketing, operations, and human resources is based on the same underlying principles and techniques. This course exposes students to these fundamental principles and to examples of applications from a variety of disciplines.

Effective learning in this course requires students to be both conceptual and concrete: conceptual in understanding the core concepts of data analysis, and concrete in being able to perform analyses and draw inferences that shed light on specific problems. The purpose of the core class in data analysis is to:

- Challenge students to develop their intuition, logic, and problem-solving skills with respect to data analysis.

- Expose students to the use of data analysis across business disciplines by providing hands-on experience with real problems.

- Emphasize practical and marketable skills by developing both data analytic and spreadsheet skills that will add value in other courses and in their careers.

Given these goals, students will get immediate exposure to graphing and describing data with summary measures, including measures of variability and association. Students will then study probability and distributions to formalize the story behind the data. Students will learn the concept of an estimator as a
means of making inferences from limited data. Confidence intervals and hypothesis tests follow, and the final sessions will cover regression analysis.

Class Structure

I am a firm believer in active learning and will structure the class accordingly. We are all learners in this environment, and we all contribute to the quality of the experience. Attendance is not required, but everyone in class is expected to be prepared.

Since classes will involve discussing concepts and working problems, it is important that you have reviewed any assigned material and attempted at least some of the suggested problems on Carmen so that you can participate in the solution process and contribute to our mutual learning. At times, I will seek volunteers from the class; at others, I will cold call to further the discussion.

Required Materials

Textbook


There are two versions available. Both have identical content.

- OSU edition: available from the publisher with free shipping for $182.00 at [http://services.cengagebrain.com/course/site.html?id=1337097](http://services.cengagebrain.com/course/site.html?id=1337097). The OSU bookstore also carries this edition but may charge more.

- Regular fifth edition hardcover (ISBN 978-1133629603): available elsewhere. This version is usually more expensive, but Amazon and others sometimes discount it to around the price of the OSU edition.

Software

The textbook includes a two-year license to the DecisionTools Suite from Palisade. This suite includes StatTools, an Excel add-in for statistics. We will use StatTools extensively in class. The suite also includes software that will be useful in later courses, such as @Risk and PrecisionTree. The software is provided as a download. Instructions for downloading and installing DecisionTools Suite are available on Carmen.

Computer

In keeping with the course objectives, we will use Microsoft Excel in nearly every class. We will also be using the Excel add-in StatTools (part of the DecisionTools Suite) that comes with our textbook. Both of these are installed in the Fisher labs. You can also install StatTools on your own computer, and the license is good for two years.

If at all possible, you should bring a laptop to class as we will often work through problems collectively. These hands-on exercises are an important part of learning the material and honing skills. If you do not have a laptop, then 1) befriend someone in class who does and see if they will let you work with them, and 2) be sure to do all of the in-class assignments as homework.
Getting Help
I realize that this material can be challenging at times, so there are several methods to seek help outside of class:

- I am available to discuss any issues of concern to you on an individual basis either after class or in my office (Fisher 644). I will be available in my office Wednesdays from 1 to 2 PM. If these times do not work for you, please email me (craig.186@osu.edu) to request an appointment. To help me better prepare for our meeting, please give me an idea of the subject matter you’d like to discuss.

- The TAs are also available to answer questions via email.

- I will respond promptly to questions sent to my email (craig.186@osu.edu).

- Since some questions are raised by multiple people and at multiple times during the term, we will post material related to frequently asked questions under “Resources” on the course website.

In the past, students have found these methods very effective in communicating with us. However, if you ever have difficulty reaching us, I want to know, so I can try to make it easier.

Course Requirements and Grading
There are two primary principles for grading in this course:

- The requirements of the course are identical for everyone. This means it is not possible to “make up” for poor performance through “extra credit” work.

- The exams cannot be retaken or taken at other than the scheduled time except under extreme circumstances.

There are three exams, each of which will use a computer. Computers will be provided for the exams. The exams are non-comprehensive in the sense that they focus on material discussed since the last exam. The subject matter, however, builds on prior material and thus requires an understanding of earlier material. Each exam is worth 100 points. Exams are closed book and closed notes. There is no need to memorize formulas: the formula sheet posted on Carmen will be provided with the exam.

There is also a written assignment that gives you the opportunity to think about applications of data analysis. To complete the assignment, first read one of the following books: 1) Super Crunchers by Ian Ayres or 2) Automate This by Christopher Steiner. The written assignment comprises two parts. First, write a brief summary (maximum of one page) that describes your takeaways from the book. Second, explain how the concepts and examples from the book as well as any covered in class change your perspective on an issue in your professional or private life. Describe how you might modify your approach to this issue based on the change you described. The maximum length of the essay overall should be three pages. The essay is worth 25 points, and all submissions that demonstrate reasonable thought and effort in response to both parts of the prompt will receive full credit.
Your overall grade will be determined by your performance on the exams and the written assignment. I reserve the right to deduct points for excessive absences or disruptive classroom behavior. The weight of each component is as follows:

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<tr>
<td>Exam 1</td>
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<td>Exam 3</td>
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<td>Written Assignment</td>
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**Grade Appeal Policy**

Grades on exams are intended to reflect the overall quality of performance of the student(s). If you think any of your exams were graded incorrectly, please submit a clear written explanation of your reasoning within one week after the return of your exam. The written document need not be long, but must clearly identify the problem or issue of concern. I will carefully consider all such appeals. There will be no grading appeals after the one-week deadline has passed.

**Academic Misconduct**

Material submitted for course grade credit must be your own work. Please be informed that I must follow Faculty Rule 3335-5-54, which requires that “all instances of what he or she believes may be academic misconduct” be reported to the University Academic Misconduct Committee. Academic misconduct is a serious threat to the integrity and value of your diploma.

**Disability Accommodation**

If you need an accommodation based on the impact of a disability, arrange an appointment with me as soon as possible. I rely on the Office for Disability Services for assistance in verifying need and developing accommodation strategies. You should start the verification process as soon as possible.