Advanced Statistical Methods for Managers
Course Syllabus

Information

Course
MGT 70100, Module 2, Fall Semester 2012.
• Web Page: http://www.nd.edu/~mbastats (Requires an ND log-in when off campus.)
• When: 3:00 to 4:50 PM Mondays and Wednesdays.
• Prerequisite: MGT 60100 Statistics (or an equivalent MBA statistics course).

Professor
Ken Kelley, Ph.D.
• Email Address: KKelley@ND.Edu
• Office Hours: Mondays & Wednesdays 11:00–12:00 & 2:00–3:00, by appointment, and anytime my office door is open.
• Office Location: 363B 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 collection, description, analysis, interpretation, and presentation of data. In Advanced Statistical Methods for Managers, students learn to apply more advanced statistical methods than are covered in MBA statistics, yet that are useful for many complicated managerial questions. These methods are important when business decisions relate to multiple variables and/or complicated data structures. Learning from data in order to make evidence based business decisions will be the overarching goal of the course.

Statistical analyses will be performed primarily using SPSS, with some analyses and preprocessing of data using Microsoft Excel. Microsoft Word is required for all written assignments (output from SPSS and Excel should be copy/pasted into Word).

Topics Will Include Some of the Following
• Multiple regression techniques;
• One-way analysis of variance and its extensions;
• Analysis of covariance and its extensions;
• Multivariate analysis of variance and covariance;
• Discriminate analysis;
• Inference for proportions and comparison of proportions;
• Chi-square goodness of fit and tests of independence;
• Exploratory factor analysis.
Objectives
The course objectives for each of the statistical methods you will learn are as follows:

1. Understand the business problem that the statistical method addresses;
2. Apply the method to other examples and situations;
3. Implement the method with SPSS or Microsoft Excel;
4. Interpret the results in a way that addresses the business problem;
5. Use data to make evidence based business decisions that are technically sound.
6. Communicate the purposes of the analyses, the findings, and the managerial implications of the results in a report format.

Attendance
Attendance is required.

Course Notes
I will provide a note packet for each of the topics. However, the course is 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.

Readings
In addition to course notes, I will provide a reading for each of the topics via PDF file on the web site. However, the course is much more than a set of readings. Correspondingly, they should not be regarded as all that is necessary to understand the course material and implement the methods.

Topical Cases
Assignments for each topic will largely be case-based. The cases will ask specific questions as well as provide the student the opportunity to convey information about the statistical method and the results, especially the meaning of the results and how they relate to the question of interest. See below for collaboration rules. Each topical case will be graded using a letter grade (A, B+, B, B–, C+, C, C–, F) and the letter grades will be averaged based on the university assigned point values (i.e., A=4, B+=3.33, B=3.0, B–=2.67, C+=2.33, C=2, C–=1.67, F=0), out of a possible 4. The topical cases will account for 65% of the course grade.

Participation
Attendance and participation are required. Active participation is an important part of the class, which requires attendance. Participation will account for 10% of the course grade. Most topics will include an in-class exercise for students to complete. Participation thus requires attendance.

Examination
There will be a final exam that does not allow collaboration. That is, the exam will be done by each student individually. Attendance is absolutely required for this exam, which will occur on the last day scheduled day of class. The final exam will be worth 25%. You may use any course notes, in-class exercises, readings, and topical cases.

**Collaboration**

Students are encouraged to discuss readings, lectures, handouts, and assignments outside of class. Collaborating with other students generally leads to better success for all who take part in the discussion, provided that all students take part equally. For each topical assignment, two, or three students may work together. However, students may work with the same students only once or twice (i.e., students cannot work with one another on 3 or more assignments). A single assignment will represent the score for each group member.

**Grading**

The course grade consists of (from above) topical cases (65%), participation (10%), and the final exam (25%). The goal for the class grade point average is no higher than 3.60, consistent with the MBA grading policies.

**Academic Honesty**

Students in *Statistics in Business* are expected to abide by the University of Notre Dame Mendoza College of Business Graduate Academic Code of Honor.

**Syllabus Disclaimer**

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