BUS 735: Business Decision Making and Research
Instructor: James Murray, Ph.D.
Fall 2012

Instructor Information

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Meeting Time / Location

Tuesdays 5:30pm - 9:15pm, Room 216 Carl Wimberly Hall.
No class on Tuesday, November 20 (UW-L special day - Thursday classes).
Last day of class: Tuesday, December 11.
Special class (dedicated final exam time): Tuesday, December 18 7:00pm-9:00pm.

Course Description (From Graduate Catalog)

This course introduces a variety of quantitative and qualitative methods that support business decision-making and research. These methods range from quantitative approaches like multivariate analysis, simulation and linear programming to qualitative approaches that use unstructured forms of data collection, both by interviewing and observation. Students will achieve conceptual understanding of the research methods covered in the course and acquire hands-on experience in applying these methods to practical business situations and business research while using computer-based tools. Prerequisite: successful completion of the foundation requirements.

Course Learning Objectives

For successful learning, it is important that you understand why we do the reading, lectures, assignments, etc, we do. Everything we do in this class is meant to achieve the learning objectives below. It would be useful for you to pay careful attention to what learning objectives the lectures and assignments are meant to achieve.

1. Construct and test hypotheses using a variety of bivariate statistical methods to compare characteristics between two populations.

2. Construct and use advanced multivariate models to identify complex relationships among multiple variables; including regression models, limited dependent variable models, and analysis of variance and covariance models.

3. Construct and solve linear programming models to answer business optimization problems.

4. Use stochastic operations research models to answer business questions that involve uncertainty.

5. Be able to use standard computer packages such as SPSS and Excel to conduct the quantitative analyses described in the learning objectives above.

MBA Learning Outcomes

The above learning objectives contribute to the larger learning goals for the entire MBA program, which are the following,

1. Comprehensive knowledge of the functional areas*: Graduates shall have a comprehensive knowledge of the functional areas. Comprehensive knowledge shall embody an understanding of the theoretical foundations and quantitative tools of each functional area, as well as the ability to apply this knowledge to actual problems.

2. Problem solving capabilities*: Graduates shall be able to think laterally, critically, innovatively, creatively, and to make connections among diverse fields of study in analyzing problems.

3. Global perspective: Graduates shall have a global perspective based on an understanding of both the domestic and global environments of the organizations.

4. Communication competency*: Graduates shall be able to communicate effectively in writing and orally in ways appropriate for a variety of objectives and audiences.

5. Ability to manage information*: Graduates shall have an understanding of the progress in information technology and be able to effectively integrate this change in their decision-making processes.

6. Social Responsibility: Graduates shall understand the ethical and environmental ramifications of their decisions.

7. Behavioral Skills: Graduates shall understand human behavior in organizations. They should have the ability to utilize leadership skills effectively, interact effectively in group situations, manage in culturally diverse environments, help others develop their skills, resolve conflict effectively and act independently in low feedback environments.

* The learning activities in this class are especially designed to further these MBA learning outcomes.

Course Resources

- Class website: http://www.murraylax.org/bus735/fall2012/. Most material handed out in class will be posted on the class website.

- Statistics Textbook: Abu-Bader, Soleman H. (SHAB) (2010) *Advanced & Multivariate Statistical Methods for Social Science Research (With a Complete SPSS Guide)*.

- Management Science Textbook: Taylor, Bernard W. (BWT) (2013) *Introduction to Management Science* 11th Edition.

- Computer Software: You will need to use SPSS (Statistical Package for the Social Sciences) and Microsoft Excel throughout the semester. SHAB describes how to conduct various statistical methods for SPSS Version 18, however, previous versions 17 and 16 and the latter versions 19 and 20 are all very similar. SPSS Version 20 is installed in all GCA (General Computing Access) computer labs across campus. UW-L Technology Services also sells SPSS Version 20 for a reduced price ($45) if you want to install it on your home computer.

Office Hours

Regular office hours are 10:00am-11:30am Monday/Wednesday and 2:00pm-3:30pm Tuesdays. These are times when you can drop by unannounced and expect me to be in my office. If you would like to make an appointment for a different time, please check my calendar and send me an e-mail. Office hours are not a

substitute for attending class. Except when missing class for very extreme circumstances that were promptly discussed with me, it is not acceptable to use office hours to ask questions about material you missed while not in attendance. Outside of my regularly scheduled classes and office hours, my availability changes all the time. You can visit my calendar at `http://www.murraylax.org/calendar.html`.

Assessment

Learning will be assessed with the following assignments.

1. Homework / Quizzes / In-class exercises

2. Take Home Exam 1

3. Take Home Exam 2

4. Final Project

The weights for each category will be chosen to maximize the average grade in the class, subject to restrictions that the each category cannot exceed 150% the weight of any other category. The weights are therefore determined by the linear programming problem below.

Optimal Grade Weights

Let $x_{i,j}$ denote individual i's score on category j (one of the four categories above), let n denote the number of people in the class, and let w_j denote the weight towards the final grade for category j. The weights will be chosen to solve:

$$\max_{w_j} \frac{1}{n} \sum_{i=1}^{n} (w_1 x_{i,1} + w_2 x_{i,2} + w_3 x_{i,3} + w_4 x_{i,4})$$

Subject to:

$$(1) \sum_{j=1}^{4} w_j = 1$$

$$(2) \ w_j \leq 1.5 w_k \quad \forall_{j \neq k}$$

Grade Breakdown

93-100	A	67-76	C
89-92	AB	57-66	D
81-88	B	0-56	F
77-80	BC		

I reserve the right to scale every person's grade up by the same amount on any graded item in the event that much of the class falls short of the scale above. However, even if the grades are significantly low, there is no guarantee that I will ever do this.

Homework Assignments / Quizzes / In-class Exercises

Homework assignments will be given almost every week to give you experience using the quantitative methods that we learn each week. Most of the homework assignments will involve problems in your textbooks and all of them will require you to use SPSS and/or Microsoft Excel. Homework assignments will be primarily graded on effort.

In-class exercises will involve problems similar to your homework assignments, and will most often be your first exposure to using the techniques we learn in the class. They will often, but perhaps not always, be done in groups. In most circumstances, you will be allowed to use your textbooks and notes for the in-class exercises, but there may be exceptions.

Exams

There will be two take home exams that will include quantitative analysis / problem solving questions questions similar to your homework assignments and in-class exercises. The exams will be more difficult however, because they will involve the often difficult problem of choosing what method is appropriate for answering a particular question. Plan to spend between 5 to 10 hours working on each exam (this should not be interpreted as a guaranteed time to completion). *All written answers for the exam must be word-processed. Handwritten answers or stand-alone Excel sheets will not be accepted.* Exams must be turned in electronically via the D2L dropbox for this class. The exams are due on the following dates:

- Take Home Exam 1 is due at or before 5:30pm on **Friday, October 26**.

- Take Home Exam 2 is due at or before 9:00pm on **Tuesday, December 18**.

Project

Projects must be done in groups of 3 or 4 students. The projects will involve identifying a business or research question to answer, finding or collecting data, and using the quantitative methods learned in this class to answer the question. The research question must be be motivated by a short literature review in the introduction. You do not have to write a paper, but your group will present the project to the class. Your project should include using a visual aid such as a power-point presentation and include a handout to your audience that includes a brief synopsis of your research project and highlights the most important results. The presentation should include (1) an introduction; (2) description of your methodology, including describing the data and statistical analysis; (3) discussion of results; and (4) conclusions based on your results. Presentations should include all group members and must be no more than 20 minutes.

Deadlines for the project:

- Tuesday, September 4 I will put you into randomly chosen groups (like the real world, you don't have a choice who have to work with).

- Tuesday, October 9, select one idea for your project (provide a title and one-sentence thesis statement) and turn in a description for where you can obtain the data necessary to answer your research question.

- Tuesday, October 23, turn in an annotated bibliography including at least 6 sources and turn in your dataset to confirm you have the data you need to go forward with your project.

- Tuesday, November 6, turn in a *short written description your methodology* and a *copy of your statistical analysis results* from SPSS or other statistical package.

- Tuesday, December 11, presentations.

- Tuesday, December 18 (class begins at 7:00pm), presentations.

Attendance

Attendance is required to receive credit for in-class exercises. However, if you need to miss a class day or exam day because of illness or emergency you can be excused and arrangements can be made for you to make up missed work. If you need to leave class early, as a courtesy please let me know before class.

E-mail Guidelines

I insist on the following e-mail etiquette rules (many of these are also recommended by the College of Business Administration). Failure to adhere to these guidelines will result in a reply with a friendly reminder to follow these e-mail guidelines.

- Allow one business day to elapse before getting a reply.

- Questions sent by e-mail should be able to be answered with only a few words, such as 'yes' or 'no' questions. Questions whose answers involve explaining class material are not appropriate over e-mail. For answers to these questions you should come to office hours, or send an e-mail requesting we meet at a different time.

- Always include a subject that is brief but still has sufficient detail, *including the class you are in (BUS 735)*.

- Look at your class notes and syllabus before sending an e-mail. Do not ask a question whose answer is on the syllabus or announced in class (unless you missed class for a legitimate reason).

- Always spell check, grammar check, and re-read your e-mail before sending it.

- When requesting to meet with me outside of regularly scheduled office hours, consult my calendar first (http://www.murraylax.org/calendar.html) and suggest a time we meet in your first e-mail correspondence.

Classroom Behavior

Please adhere to these behavior guidelines:

- No using mobile phones, smart phones, or other personal electronics during class (i.e. no text messaging, e-mailing, or surfing the web with mobile phones). If you are messaging during class, you agree to give me the right to take your phone for the remainder of the class, and write my own message from your phone to whomever you were communicating with.

- Please refrain from talking to those around you when I or one of your classmates is speaking to the whole class. Even if you have a quick question like, "What did he just say?" do not whisper the question to your neighbor. Instead ask me.

Disabilities

Any student with a documented disability (e.g., physical, learning, psychiatric, vision, or hearing, etc.) who needs to arrange reasonable accommodations must contact the instructor and the Disability Resource Services office (165 Murphy Library, 785-6900) at the beginning of the semester. Students who are currently using the Disability Resource Services office will have a copy of a contract that verifies they are qualified students with disabilities who have documentation on file in the Disability Resource Services office. It is the student's responsibility to communicate their needs with the instructor in a timely manner.

Academic Dishonesty

I follow the policy stated University Academic Handbook with regard to cheating and academic dishonesty. The student handbook can be found online at `http://www.uwlax.edu/studentlife/eagle_eye.htm`. In the event a student is caught cheating I will pursue the harshest penalty that the University will allow, regardless of how small the offense may appear.

Preliminary Topics Schedule

Below is a list of topics and readings for this class. This is a preliminary schedule; depending on time constraints and the topics the class finds most interesting, we may choose to not cover some of the items below, cover items that are not shown below, or re-arrange the schedule.

Module 1: Statistical Analysis using SPSS / Elementary Statistical Methods

1. Bivariate statistics. **Required reading:** SHAB, Chapter 1.
2. Linear Regression. **Required reading:** SHAB, Chapter 3.
3. Multiple Regression. **Required reading:** SHAB, Chapter 4.

Module 2: Multivariate Analysis

1. Logistic Regression **Required reading:** SHAB, Chapter 5.
2. Two-Way Analysis of Variance (ANOVA) **Required reading:** SHAB, Chapter 6.
3. Two-Way Analysis of Covariance **Required reading:** SHAB, Chapter 7.
4. Repeated Measures ANOVA **Required reading:** SHAB, Chapter 8.

Module 3: Decision Making with Uncertainty

1. Probability Distributions and Decision Analysis. **Required reading:** BWT, Chapters 11, 12.
2. Simulation **Required reading:** BWT, Chapter 14.
3. Elementary Forecasting **Required reading:** BWT, Chapter 15.

Module 4: Optimization Problems

1. Linear Programming, Sensitivity Analysis. **Required reading:** BWT, Chapters 2,3.
2. Transportation / Assignment models. **Required reading:** BWT, Chapter 6.
3. Network Models, Project Management **Required reading:** BWT, Chapters 7,8.