

OM 506: Business Spreadsheet Analytics

Spring 2013

Instructor: Dr. Burcu B. Keskin

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(Best way to reach me outside the class and office hours)

Lectures: Tuesdays and Thursdays, BD 15; Sect 1: 9:30-10:45am; Sect 2: 11:00am-12:15pm

Office Hours: Keskin (TR 2-3:30pm);
Ashcraft (MW 10:00-12:00pm, BD 304);
Zhi (MW 1:00-3:00pm, BD 304).

TA Contact: Jianing (Jenny) Zhi (jzhi@crimson.ua.edu) ;
James Ashcraft (jwashcraft@crimson.ua.edu)

Pre-requisite: Enrollment in MBA Program

Course Description and Goals:

This course provides an introduction to some of the concepts and methods of business analytics with a focus on the application of mathematical modeling and analysis to management problems. This course also provides a foundation in mathematical modeling with spreadsheets which will be the primary platform for modeling and analysis throughout the course. The primary goal of this course is to help you become a more skilled builder and consumer of mathematical models and model-based analyses. Another important goal of this course is to develop a more disciplined and rational process in the way you approach management decisions. As a result of this course, you will become more confident in understanding and using spreadsheet models to support management decisions.

Objectives:

The objectives of this course are to

- Show you how to use spreadsheets effectively for business analysis, including how to effectively build, test, and use a spreadsheet model;
- Introduce you to some of the basic techniques of applied mathematical modeling for managerial decision-making, including basic data analysis, regression, forecasting, optimization, and simulation;
- Strengthen your ability to develop mathematical models of business problems and to develop appropriate, logical analyses using these models;
- Develop your ability to extract insights from such mathematical models and to use those insights to communicate and to justify management decisions.

Course Web Site: <https://ualearn.blackboard.com>

Logon using your Crimson username and password. This website will be used to distribute course materials and grades, so you should become familiar with using it.

Course Textbook:

Stephen G. Powell and Kenneth R. Baker. *Management Science: The Art of Modeling with Spreadsheets, 3rd edition*. Wiley, 2011.
ISBN 978-0-470-53067-2.

When reading the textbook in preparation for class it is essential that you take an active approach. This means that you open the spreadsheets that are being discussed in the book and work through them as you read (note: the spreadsheet examples are available on the textbook website under “Text Figures”). The best prepared student is the one who comes to class with questions about how the concepts and methods can be applied. Finally, you should expect to return to the book after class or while reviewing, in order to refine and consolidate your knowledge.

Optional Reference Textbook:

June Jamrich Parsons, Dan Oja, Roy Ageloff and Patrick Carey. *New Perspectives on Microsoft Office Excel 2007 - Brief*. Thomson, 2008.
ISBN 978-1-4239-0583-7.

Academic Conduct and Honor Code:

The Graduate School’s policies on Academic Misconduct can be found in the Graduate Catalog. Every student must read and be familiar with these policies. Academic misconduct is a serious offense and will not be tolerated. Any student found plagiarizing or otherwise cheating on assignments or exams will receive a grade of "F" for both the assignment or exam and the course and will be subject to disciplinary action under the University of Alabama regulations. Always check with the instructor to see if a particular resource or activity is authorized. Conversations with students who are not currently in the class about specific assignments before their due-dates are NOT authorized and are a violation of Academic Conduct. It is also a violation of Academic Conduct to use information or solutions from the homework assignments in previous courses to complete the assigned exercises or cases.

Grading:

Team Assignments	10%	A	≥ 90.0
Individual Assignments	15%	B	80.0 – 89.9
Exam 1 (Feb. 15, Friday)	25%	C	70.0 – 79.9
Exam 2 (Mar. 21, Thursday)	25%	D	60.0 – 69.9
Exam 3 (April 30, Tuesday)	25%	F	< 60.0

Each exam will concentrate on one-third of the course, but because of the integrated nature of the course material there will be some overlap in the content of each exam. Course grades are typically assigned based on a 10 point scale; however, the instructor reserves the right to curve the final grades.

Individual Assignments:

You must attempt each exercise on your own before discussing it with anyone else. All work submitted for grading must be your own. You may discuss your general approach and results with other classmates, but the organization, analysis, and presentation of the work must be your own. Each student is responsible for learning all the material on the assignment. Always provide a clear verbal explanation and interpretation of your analysis and recommended solution. Put all of your work in a single spreadsheet file and submit it in Blackboard prior to the assignment deadline.

Team Assignments:

Team assignments should be collaborative work among all the students on the team. Every team member is expected to contribute substantially to every team assignment. Each team member should spend time working individually on the team assignment before meeting and working with the group. The instructor may occasionally conduct team member assessments for a specific team or for all teams. The feedback from these assessments may be used to adjust individual grades on some or all of the team assignments. There should be no discussion about specific approaches or solutions for team assignments between the teams. Team assignments are based on cases that provide descriptions of practical situations where modeling and analysis can play an important role. The cases provide you with opportunities to practice translating situations into problem structures and to consider the implications of your analysis for a particular situation. For many of the cases you will also be expected to present your ideas to an audience interested in the implications of your analysis. Note that every member of your team should be prepared to present the case.

Make-up Policy:

Late team and individual assignments will NOT be accepted. However, students will be able to drop their lowest individual assignment grade. **Team assignment grades CANNOT be dropped.** A missed exam will automatically receive zero credit unless the student provides a documented excuse for missing the exam within 24 hours of the exam. If the instructor accepts the excuse as valid, then the exam will be made up or dropped, at the instructor's discretion. If a student has a valid excuse prior to the scheduled exam date, then the student should contact the instructor at least one week prior to the exam to coordinate a time for the make-up exam.

Attendance:

Students are expected to attend all classes unless they have an officially excused absence.

Disabilities:

If you need to request the accommodation of a disability, you must contact the Office of Disability Services at 348-4285 as soon as possible. You must then contact the instructor to schedule an appointment to discuss your request within the first two weeks of the semester.

Computer Usage:

Notebook computer usage will be an extremely important part of this course.

- **Students should bring their notebook computer to every class session** unless told otherwise by the instructor.
- **Students are responsible for insuring that the necessary software is installed** and working properly on their computer for every class.
- Students with Apple notebook computers must have a **Windows version of Excel** (2007 or 2010) installed on their computer. The best way to accomplish that is to purchase and install a package such as VM Fusion or Parallels that will run Windows-based software on an Apple computer.
- The only Excel add-in package that will be used this semester is Risk Solver Platform. Instructions on how to download and install this software are provided on Blackboard and in the lecture notes from the first class session.

Expectations:

1. Be in class on time, if not early. Be alert and attentive in class. Ask questions.
2. Complete the reading assignments. Unless you are informed otherwise, you are responsible for the material in the reading assignments even if it is not discussed in class.
3. Do the homework assignments and learn from them. You should especially learn from your mistakes. You should discuss any mistakes that you don't understand with the instructor or teaching assistant.
4. Exhibit professionalism and discipline in your work. Homework assignments should be neat, legible, and clearly organized. Answer all questions fully and in detail.
5. Cell phone and social media (Facebook, LinkedIn, Twitter, etc.) usage in class are strictly prohibited.

Severe Weather:

In the event of an emergency, we will adhere to the following actions in accordance with University policies.

FIRE/FIRE ALARM: Evacuate the building and stay out of the building at a safe distance until authorized to return.

TORNADO WARNING: Move to the Lower Level, inside classrooms, offices or corridors. Remain until the warning has expired. Classes are suspended/canceled until the warning expires.

OM506: Decision Modeling and Business Intelligence				
Spring 2013 (TR 9:30-10:45 and 11:00-12:15, BD15)				
Powell & Baker 3rd edition (Excel 2010)				
Class	Date	Topic	Reading	Homework
0	10-Jan	Introduction		HW1: 1/16 W
1	15-Jan	Spreadsheet modeling	pp. 1-15, 16-46	HW2T: 1/21 M
2	17-Jan	Spreadsheet Engineering	pp. 95-116	
3	22-Jan	Spreadsheet Engineering; HM1 Review	pp. 73-84	
4	24-Jan	Spreadsheet Analysis	pp. 119-134	HW3T:1/30 W
5	29-Jan	Spreadsheet Analysis; HM2 Review	pp. 119-134	
6	31-Jan	Spreadsheet Analysis; HM3 Review	pp. 137-155	HW4: 2/6 W
7	5-Feb	Data Analysis with Databases	pp. 137-155	
8	7-Feb	Data Analysis with Databases	pp. 137-156	HM5: 2/13 W
9	12-Feb	Regression	pp. 159-178	
10	14-Feb	Review for Exam 1		
	15-Feb	Exam 1: 2-4:30 pm		
11	19-Feb	Regression	pp. 176-186	HM6: 2/25 M
12	21-Feb	Data Analysis: Forecasting	pp. 186-202	
13	26-Feb	Intro to Optimization, Nonlinear Opt.	pp. 206-218	
14	28-Feb	Nonlinear Optimization	pp. 206-218	HM7: 3/6 W
15	5-Mar	Nonlinear Opt. Examples	pp. 218-227	
16	7-Mar	HM7 Review; Linear Optimization	pp. 240-254	HM8: 3/13 W
17	12-Mar	Linear Optimization, Sensitivity Analysis	pp. 255-260	
18	14-Mar	LP and Network Optimization	pp. 281-297	HM9T: 3/20 W
19	19-Mar	LP and Network Opt. Examples	pp. 281-297	
20	21-Mar	Tuxxon Case (HM9T) and Review for Exam 2		
	21-Mar	Exam 2: 6-8:30pm		
	26-Mar	Spring Break		
	28-Mar	Spring Break		
21	2-Apr	Review Key for Exam 2		
22	4-Apr	Integer Programming	pp. 314-335	HM10: 4/10 W
23	9-Apr	Integer Programming	pp. 314-335	
24	11-Apr	Simulation	pp. 392-401	HM11: 4/17 W, HM12T: 4/22 M
25	16-Apr	Simulation	pp. 401-421	
26	18-Apr	Simulation	pp. 421-437	
27	23-Apr	Sigma Risk Mngt., Simulation	pp. 448-461	
28	25-Apr	Sim Examples, Sim-Opt, Review for Exam 3		
29	30-Apr	Exam 3: 8:00-10:30am		