SCMS 3711
Analytical Tools for Business

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Fall 2015 semester, 3 credit hours
Last updated – August 2015
Off. Hours: T-Th 1-3, 6-7 and by appointment


COURSE DESCRIPTION AND OBJECTIVES: Analytical concepts and tools useful in understanding, assessing, and controlling operations of business. The major objectives are both an understanding of the statistical techniques and analytical methods introduced in the course and comprehension of a framework for the application of these tools to business problems and business research activities.

Sustainable competitive advantage requires making the right strategic decisions and decisions that are informed and guided by evidence. The major objective of this course is to provide executives with a broad theoretical as well as practical knowledge of various quantitative tools that are used to support and improve strategic decision making process. The focus is on how to utilize various decision support tools for making better decisions as opposed to learning the tools for their sake.

The course provides basic knowledge and skills for model-assisted decision making based on hands-on experience with relevant tools and technologies adopted from the fields of statistics, optimization, and simulation. The course introduces and examines the critical role of model-assisted decision making processes in approaching a host of strategic issues and problems, both stochastic and deterministic. The emphasis will be on problem framing and decision technologies. Applying case study-based approach and utilizing value-chain processes, we focus on problem framing, model building, and decision-making approaches and technologies for a host of strategic decisions in the areas that include, but are not limited to: linear programing, both graphical and computer methods, transportation, assignment, and network models, decision analysis, queuing models, simulation modeling, multiple regression, and forecasting models. Extensive use is made of MS Excel and a
variety of software tools provided by the textbook to support a host of topics.

**Evaluation:** The final grade in the course is determined by three regular semester exams, homework assignments, and quizzes. Failure to turn in all homework assignments could result in a drop of one letter grade. The following scale is used:

- A = 92 percent of total points possible
- B = 82 - 91
- C = 72 - 81
- D = 68 - 71
- F = 67 and less

**Class participation and attendance:** No make-up work is provided for assignments or tests. All work must be turned in ON TIME to receive credit. Because of the difficult nature of this material, attendance is required. Class time will be divided between lectures, problem solving, class discussions/presentations, pop quizzes, and examinations. Missing classes may cause a drop in grades.

**Content:** A brief review of basic statistics and probability on day one. Various sections of chapters 1, 2, 4 - 9, 11, and 12 will conclude the course. Topics to be covered will include: simple linear regression, multiple regression, model building, time-series forecasting, linear modeling: graphical and computer methods, queuing models, transportation/assignment/network models, decision analysis, and simulation models. See table of contents in book for full detail of coverage. Also attached to the syllabus are detailed lists of reading and homework assignments. Homework assignments to be turned in are TBA. Certain topics may be stressed more or less than other topics.

**Grading**

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hmwk., Quizzes, &amp; presentations</td>
<td>25%</td>
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<tr>
<td>Exam I</td>
<td>25%</td>
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<td>Exam II</td>
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<td>Exam III</td>
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**BBA Degree Program Learning Outcomes**

The learning outcomes for this degree program are located on the following URL. Notice that Goals indicate Learning Outcomes for the degree program. The objectives under each learning outcome indicate what must be done to reach the learning outcome. Faculty members in the Fogelman College developed these learning outcomes and periodically assess students to determine the level that the learning outcomes are being met. URL: [http://www.fcbeassessment.net/LearningOutcomes/BBADegreeLearningOutcomes.pdf](http://www.fcbeassessment.net/LearningOutcomes/BBADegreeLearningOutcomes.pdf)

**WARNING:** A prerequisite and/or upper division check may be done once the first class roll has been issued. If you do not have the appropriate upper division approval designated on your advisor form and/or prerequisite for this course, you may be administratively dropped. This check will not be completed until after the "add" period. If you do not have the required upper division approval or prerequisites, it is your responsibility to correct the situation during the official "add"
period. In this regard, please make sure you contact your advisor and/or student handbook to fully understand the policies regarding drops, incompletes and other university policies that might affect academic progress. Please don’t wait until the last day of class to get problems resolved.

Statistics Scheduled Reading Assignments

The following schedules are strictly tentative. The instructor may adapt the pace and the order of presentation to fit the needs of the class.

Week 1
Introduction and Review of Basic Statistical Concepts: Chapters 1 and 2

Week 2
Simple and Multiple Regression: Chapter 4

Week 3
Simple and Multiple Regression: Chapter 4

Week 4
Simple and Multiple Regression: Chapter 4
Test 1 (Chapters 1, 2, & 4)

Week 5
Time Series Analysis and Forecasting: Chapter 5

Week 6
Time Series Analysis and Forecasting: Chapter 5

Week 7
Data Mining: Chapter 6
Test 2 (Chapters 5 and 6)

Week 8
Spreadsheet Models: Chapter 7

Week 9
Linear Optimization Models: Chapter 8

Week 10
Integer Linear Optimization Models: Chapter 9

Week 11
Network Flow Models Chapter 8

Week 12
Monte Carlo Simulation: Chapter 11
Week 13
Queuing: Chapter 11

Week 14
Decision Analysis: Chapter 12

Week 15
Presentations, Test 3 (Chapters 7-9, 11-12)
**Final Exam**
The final exam for this class will be scheduled according to the [Registrar’s academic calendar website](https://umdrive.memphis.edu/mcervtt1/public).

**Business Statistics Homework Assignments**
(Note: HW data and PPT’s can be found on the public directory on [https://umdrive.memphis.edu/mcervtt1/public](https://umdrive.memphis.edu/mcervtt1/public).)

Homework Chapter 4: 1, 2, 4, 9. Case study: Alumni Giving, page 197.

Homework Chapter 5: 4, 5, 7, 10, 17, 23. Case study: Forecasting Food and Beverage Sales, page 246.

Homework Chapter 7: 1, 2

Homework Chapter 8: 1, 2, 16,


Homework Chapter 11: 1, 5

Homework Chapter 12: 2, 4

**Academic Integrity:**
The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Should your professor have evidence that cheating has occurred, he/she may take steps as described on the campus’ [Office of Student Conduct website](https://umdrive.memphis.edu/mcervtt1/public). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the [Fogelman College’s Website on Academic Integrity](https://umdrive.memphis.edu/mcervtt1/public).

**Student Services:**

Please access the [FCBE Student Services](https://umdrive.memphis.edu/mcervtt1/public) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance