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 programming, 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.

TEXTS:

• (Optional): Levine “*Statistics for Managers Using Microsoft Excel*”, ed5 or ed6;


The following cases can be ordered from the Harvard Business School ([http://hbsp.harvard.edu](http://hbsp.harvard.edu)) or the Darden Business Publishing ([https://store.darden.virginia.edu](https://store.darden.virginia.edu)):

• Marriott Rooms Forecasting – UV0353-PDF-ENG
• Lac Leman Festival de la Musique (A) - UV0840-PDF-ENG
• Lac Leman Festival de la Musique (B) - UV0841-PDF-ENG
• Compass Maritime Services, LLC: Valuing Ships – 9-211-014

**MS/OR RELATED WEBSITES:**

- Institute for Management Science & Operations Research (INFORMS)  
  [http://www.informs.org](http://www.informs.org)
- WWW for Operations Research & Management Science (Encyclopedia)  
- Management Science page:  
  [http://www.mansci.strath.ac.uk/links.html](http://www.mansci.strath.ac.uk/links.html)
- OR/MS: The most current articles  

**EXAMS:**

Two exams will be administered during the course of the semester.

The final exam for this class will be scheduled according to the [Registrar’s academic calendar website](http://www.informs.org).

**PERFROMANCE EVALUATION:**
Case Analyses, Presentations and Reports: 34%
Midterm exam: 33%
Final Exam: 33%

We will vote on using “+” and “-” grading system.

SELECTION AND COVERAGE OF TOPICS:
Approximately a two-week period is dedicated to each selected strategic decision. The first period covers the characteristics of the strategic decision and the relevant applied approaches, tools, and technologies. The second period entirely is designated to a relevant case study, presented and discussed by the student groups. In-between covering the selected topics, there will be periods designated to additional general lectures on decision making approaches and technologies, relevant to the course coverage.

The class will be divided into teams each of which will analyze, present (using PowerPoint), and critique on 3 or 4 unique cases for each team (depending on the size of the class). Two or three cases will come from the textbook and one from the Harvard Business School of cases or the London School of Economics case study located on the UMdrive (umdrive.memphis.edu/mcervtt1/public).

READINGS:
In addition to the textbook, The Case Study Handbook (optional noted above), papers and articles are assigned to provide further understanding of the concepts discussed in the class. Completions of these reading assignments are essential to our class discussions, exercises, and case presentation and discussions.

STUDENT GROUP CASES: PRESENTATIONS, DISCUSSIONS AND REPORTS
For each case, student-groups are expected to prepare and conduct a PowerPoint presentation and develop a case report. Hard and electronic copies of these case analyses should be submitted to the instructor at the beginning of the class session.

STRATEGIC DECISION SUPPORT TOOLS AND TECHNOLOGIES:
Applying the case-study method, the course covers a number of strategic decision support tools and approaches including statistical methods, decision analysis, optimization approaches, and simulation tools. To facilitate learning, a variety of software including Excel, Solver, queuing templates and others are utilized.

PARTICIPATION & ATTENDANCE:
Class attendance and participation are expected. The technical nature and organization of the course require your maximum participation in class discussions and activities. Active participation of students in all class discussions, case analysis, case critics, case jury, semester group project and exercises are expected and encouraged by the above grading method. Topics may be presented that are not within the textbook. A substantial portion of this class is intended to foster learning through cases analyses and discussion. Also, one of the main inputs considered for individual student final grades
are end-of-semester teammates’ evaluations. A poor evaluation by your teammates results in a poor grade for the course.

**COURSE OUTLINE:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Decision Topic</th>
<th>Quantitative Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Topic: Lecture</td>
<td>ABCs of Statistical Analyses – Simple Regression</td>
</tr>
<tr>
<td>2</td>
<td>Topic: Lecture</td>
<td>Multiple Regression – Forecasting</td>
</tr>
<tr>
<td>3</td>
<td>Topic: Case Studies</td>
<td>North – South Airline, Forecasting Football Game Attendance at Southwestern University</td>
</tr>
<tr>
<td>4</td>
<td>Topic: Lecture</td>
<td>Linear Programming (LP)</td>
</tr>
<tr>
<td>5</td>
<td>Topic: Lecture – Case Studies</td>
<td>LP (cont.) - Golding Landscaping &amp; Plants -</td>
</tr>
<tr>
<td>6</td>
<td>Topic: Case Studies</td>
<td>Coastal States Chemicals and Fertilizers – Exam 1</td>
</tr>
<tr>
<td>7</td>
<td>Topic: Lecture</td>
<td>Transportation, Assignment, &amp; Network Models</td>
</tr>
<tr>
<td>8</td>
<td>Topic: Lecture – Case Study</td>
<td>Network Flow Models (cont.) – Binder’s Beverage</td>
</tr>
<tr>
<td>9</td>
<td>Topic: Lecture</td>
<td>Queuing Models - Simulation</td>
</tr>
<tr>
<td>10</td>
<td>Topic: Lecture</td>
<td>Queuing Models – Simulation (cont.)</td>
</tr>
<tr>
<td>11</td>
<td>Topic: Case Studies</td>
<td>Ski Right – Blake Electronics – New England Foundry – Winter Park Hotel</td>
</tr>
<tr>
<td>12</td>
<td>Topic: Case Studies</td>
<td>Harvard Business Publishing – 1. - 2. Lac Leman Festival De La Musique (A) &amp; (B) – 3. Marriott Rooms Forecasting</td>
</tr>
<tr>
<td>13</td>
<td>Topic: Case Studies</td>
<td>4. Compass Maritime Services, LLC: Valuing Ships. 5. XYZ Pharma Case study, London School of Economics</td>
</tr>
<tr>
<td>14</td>
<td>Topic: Case Studies (cont.) - Review for Exam</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Final Exam</td>
<td></td>
</tr>
</tbody>
</table>

(Note: the instructor reserves the right to make changes to the schedule when necessary. Notice will be given in advance.)

**MBA 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/MBADegreeLearningOutcomes.pdf](http://www.fcbeassessment.net/LearningOutcomes/MBADegreeLearningOutcomes.pdf)
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. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College’s Website on Academic Integrity.

Student Services:

Please access the FCBE Student Services page for information about:

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

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

Balakrishnan

Homework Multiple Regression, Forecasting – chapter 11: 1-12, 13, 19, 31
Homework LP Modeling - chapter 2: 13, 22
Homework Sensitivity Analysis – chapter 4: 1 – 4, 10
Homework Transportation, Assignment & Network Models – chapter 5: 12, 27
Homework Decision Analysis – chapter 8: 1 - 5, 13, 16, 29
Homework Queuing Models – chapter 9: 11, 33
Homework Simulation Models – chapter 10: 15, 20

Levine (recommended homework problems)

Homework Chapter 13: 1, 2, 4, 12, 16, 26, 32, 34, 40, 56
Homework Chapter 14: 2, 4 a-d, 10 a-d, 24
Homework Chapter 15: 1, 2, 12, 13, 14, 19
Homework Chapter 16: 1, 2, 6, 10, 24, 25, 32