UNIVERSITY OF WISCONSIN OSHKOSH  
College of Business  
Business 342 Analytical Methods in Operations Management  
Dr. M. Godfrey, CFPIM, CIRM, C.P.M., CSCP, CPSM  
Fall 2010: September 8 – December 17, 2010  

Online Section

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Program Assistant: Ms. Donna Molus, Clow Faculty 127, (920) 424-3027  
Office Hours: I am online every day.

Required Texts:

ISBN: 9781439043271

Catalog Description

Advanced quantitative techniques as applied to systems management. Topics include statistical concepts, computer models, simulation, mathematical programming, and heuristic techniques for the design and control of production, inventory, and service facilities.

Course Description

This course in analytical methods basically involves mathematical modeling. The types of models studied are referred to by several different terms including operations research, management science, and quantitative methods. Specific techniques studied in this course include linear programming, distribution and network models, project scheduling, waiting line models (queuing analysis), simulation, decision analysis, and multicriteria decision making. These techniques are studied in the context of operations management applications. Formulation of models, interpretation of results, and applications are emphasized.

Course Objectives

1. To understand the role of analytical methods in operations management.  
2. To become familiar with the important analytical methods and their application in operations management, including assumptions in their formulation and other limitations.  
3. To understand concepts and terminology of analytical methods.  
4. To become familiar with mathematical programming techniques, especially linear programming.  
5. To understand the role that uncertainty plays in operations management decision making.  
6. To understand the role of modeling in management.  
7. To gain experience in developing realistic simulation models using Excel-based models.
Course Evaluation

Grades will be determined based on the following distribution of points:

<table>
<thead>
<tr>
<th>Source</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3 @ 100 each)</td>
<td>300</td>
</tr>
<tr>
<td>Exercises (8 @ 20 each)</td>
<td>160</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>460</strong></td>
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Grading Scale

<table>
<thead>
<tr>
<th>(%)</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>(93-100%)</td>
<td>A</td>
</tr>
<tr>
<td>(90-92.99%)</td>
<td>A-</td>
</tr>
<tr>
<td>(87-89.99%)</td>
<td>B+</td>
</tr>
<tr>
<td>(83-86.99%)</td>
<td>B</td>
</tr>
<tr>
<td>(80-82.99%)</td>
<td>B-</td>
</tr>
<tr>
<td>(77-79.99%)</td>
<td>C+</td>
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<tr>
<td>(73-76.99%)</td>
<td>C</td>
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<tr>
<td>(70-72.99%)</td>
<td>C-</td>
</tr>
<tr>
<td>(67-69.99%)</td>
<td>D+</td>
</tr>
<tr>
<td>(63-66.99%)</td>
<td>D</td>
</tr>
<tr>
<td>(60-62.99%)</td>
<td>D-</td>
</tr>
<tr>
<td>(&lt; 60%)</td>
<td>F (Failure)</td>
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</table>
6. Asking Questions: There are several forums on D2L for you to ask questions. When you do have specific questions, post those on the appropriate discussion forum. If you have a question about your grade, however, you should email or call me.

7. Course Files: I have posted many files under Content on D2L. I will be posting additional files with narration to enhance your learning experience.

8. Format of Exams and Exercises:

(a) You must submit your exams and exercises to the dropbox as Microsoft Word documents. All Word documents should have 1-inch margins. In addition, you will find that you will be using Microsoft Excel files to answer many of the problems on exercises and exams.

(b) You are required to have a title page with your name on it for an exam and all group member names on it for an exercise.

(c) After the title page, you must include a report answering the questions. Any spreadsheets that you use must be included in an appendix at the end of your Word document and submitted to the dropbox also.

(d) You must show your work on all problems to receive any points. One option would be to type your work within the appendix of your Word document, e.g., 5 * 2 = 10. Alternatively, you could include an Excel spreadsheet in the appendix as described above.

**Keys to Success in this Course**

1. Read the textbook and all materials posted on the web site thoroughly.

2. Turn in all exercises and exams on time: You must meet the deadlines.

3. Submit all exercises and exams in the required format: Title page, report, and appendix. Submit the correct Word and Excel files to the dropbox on time.

4. Avoid cheating and abide by the UW Oshkosh Student Discipline Code.

5. Ask questions when you have tried hard to understand a concept and still do not understand that concept.
## FALL 2010 SCHEDULE*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
<th>Due Dates for Exams &amp; Exercises</th>
</tr>
</thead>
</table>
Chapter 2: Introduction to Linear Programming.  
Appendix 2.2: Solving Linear Programs with Excel.  
Read all Chapter 1 & 2 files under Content on D2L. | Exercise 1: Chapter 2 Case - Production Strategy.  
Solve using Excel Solver.  
Do not solve using the graphical method.  
Due in dropbox by 11:59 PM on Sat, 9/18. |
| Sun (9/12) – Sat (9/18) | Chapter 3: Linear Programming: Sensitivity Analysis and Interpretation of Solution.  
Note: You do not need to know graphical sensitivity analysis. We will focus on Sensitivity Analysis: Computer Solution.  
Read all Chapter 3 files under Content on D2L. | Exercise 2: Chapter 3 Problems 17, 19, 27.  
Due in dropbox by 11:59 PM on Sat, 9/25. |
| Sun (9/19) – Sat (9/25) | Chapter 3 continued.  
Appendix 3.1: Sensitivity Analysis with Excel. | Exam 1 (Chapters 1-3).  
Due in dropbox by 11:59 PM on Sat, 10/2. |
| Sun (9/26) – Sat (10/2) | Chapter 4: Linear Programming Applications (Operations management applications only).  
Read all Chapter 4 files under Content on D2L. | Exercise 3: Chapter 4 Problems 13, 21, 25.  
Due in dropbox by 11:59 PM on Sat, 10/9. |
| Sun (10/3) – Sat (10/9) | Chapter 6: Distribution and Network Models.  
Read all Chapter 6 files under Content on D2L. | Exercise 4: Chapter 6 Problems 15, 19, 25.  
Due in dropbox by 11:59 PM on Sat, 10/23. |
| Sun (10/10) – Sat (10/16) | Chapter 6 continued.  
Due in dropbox by 11:59 PM on Sat, 10/30. |
| Sun (10/24) – Sat (10/30) | Chapter 7: Integer Linear Programming.  
Note: You do not need to know Graphical Solutions for an All-Integer Linear Program.  
Appendix 7.1: Excel Solution of Integer Linear Programs.  
Read all Chapter 7 files under Content on D2L. | Exam 2 (Chapter 4, 6, 7).  
Due in dropbox by 11:59 PM on Sat, 11/6. |
<p>| Sun (10/31) – Sat (11/6) | | |</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
<th>Due Dates for Exams &amp; Exercises</th>
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<tbody>
<tr>
<td>Sun (11/7)– Sat (11/13)</td>
<td>Chapter 9: Project Scheduling: PERT/CPM. Note: You do not need to know Linear Programming Model for Crashing (Skip pp. 432-434). Read all Chapter 9 files under Content on D2L.</td>
<td>Exercise 6: Chapter 9 Problem 19 &amp; Chapter 11 Problems 9, 17, &amp; 29. Due in dropbox by 11:59 PM on Sat, 11/20.</td>
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<td>Sun (11/14)– Sat (11/20)</td>
<td>Chapter 11: Waiting Line Models. Read all Chapter 11 files under Content on D2L.</td>
<td>Exercise 7: Chapter 12 Problems 19 &amp; 23. Due in dropbox by 11:59 PM on Sat, 12/4. Note: Modify the Butler and Hammondsport1 Excel files to answer these problems.</td>
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<tr>
<td>Sun (11/21)– Tue (11/23)</td>
<td>Chapter 12: Simulation. Read all Chapter 12 files under Content on D2L.</td>
<td>Exercise 8: Chapter 13 Problem 5 (Parts a &amp; b only) &amp; Chapter 14 Problem 5. Due in dropbox by 11:59 PM on Sat, 12/11.</td>
</tr>
<tr>
<td>Sun (12/5)– Sat (12/11)</td>
<td>Chapter 13: Decision Analysis (pp. 600-610 &amp; 619-626 only). Chapter 14: Multicriteria Decisions. Note: You do not need to know the Graphical Solution Procedure (Skip pp. 662-664). Read all Chapter 13 &amp; 14 files under Content on D2L.</td>
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* The university is closed on Wednesday, 11/24 – Sunday, 11/28.