

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 2009
Online Section

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Office Hours: Monday & Wednesday: 9:00 AM – 11:45 AM

Tuesday & Thursday: 9:00 AM – 11:15 AM

Also by appointment.

Required Texts:

An Introduction to Management Science - Quantitative Approaches to Decision Making, 12th edition, by Anderson, Sweeney, Williams, & Martin, Thomson/Southwestern, 2008.

ISBN: 9780324399806.

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:

Source	Points
Exams (3 @ 100 each) =	300
Case Analyses (8 @ 12.5 each) =	100
Total =	400

Grading Scale

(%)	Grade
(93-100%)	A
(90-92.99%)	A-
(87-89.99%)	B+
(83-86.99%)	B
(80-82.99%)	B-
(77-79.99%)	C+
(73-76.99%)	C
(70-72.99%)	C-
(67-69.99%)	D+
(63-66.99%)	D
(60-62.99%)	D-
(< 60%)	F (Failure)

Course Policies

1. All exams are **individual** exams. I will give you at least 6 days to work on the exam.
2. Case analyses may be completed within a group of 5 maximum. **Note:** You are not required to work in a group. It is up to you whether you work in a group.
3. You must submit all exams and case analyses to the dropbox by the due date provided. The only time that I **may** consider accepting an exam or a case analysis late is if you have an illness or are dealing with a serious family issue for which you provide me documentation.
4. Cheating will result in the maximum penalties allowed by the UW Oshkosh Student Discipline Code: <http://www.uwosh.edu/dean/studentdisciplinecode.html#Chapter%20UWS%2014>
Retrieved on August 21, 2009.
5. Asking Questions: There are several forums on D2L for you to ask questions. In addition, I will be available during office hours.

6. Format of exams and case analyses:

- (a) You must submit your exams and case analyses 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 case analyses 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 a case analysis.
- (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 your Word document, e. g., $5 \times 2 = 10$. Alternatively, you could include an Excel spreadsheet as described above.

FALL 2009 SCHEDULE*

Week	Topics Covered	Due Dates for Exams & Cases
Wed (9/9)– Sat (9/12)	Chapter 1: Introduction. Chapter 2: Introduction to Linear Programming. Appendix 2.3: Solving Linear Programs with Excel.	
Sun (9/13)– Sat (9/19)	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.	Ch. 2 Case: Workload Balancing (pp. 84-85). Solve using Excel Solver. Do not solve using the graphical method. Due in dropbox by 11:59 PM on Sat, 9/19 .
Sun (9/20)– Sat (9/26)	Chapter 3 continued. Appendix 3.1: Sensitivity Analysis with Excel.	Ch. 3 Case: Product Mix (pp. 151-152). Due in dropbox by 11:59 PM on Sat, 9/26 .
Sun (9/27)– Sat (10/3)		Exam 1 (Chapters 1-3) due in dropbox by 11:59 PM on Fri, 10/2 .
Sun (10/4)– Sat (10/10)	Chapter 4: Linear Programming Applications (Operations Management Applications only).	
Sun (10/11)– Sat (10/17)	Chapter 6: Distribution and Network Models.	Ch. 4 Case: Workforce Scheduling (pp. 210-211). Due in dropbox by 11:59 PM on Sat, 10/17 .
Sun (10/18)– Sat (10/24)	Chapter 6 continued. Appendix 6.1: Excel Solution of Transportation, Assignment, and Transshipment Problems.	Ch. 6 Case: Distribution System Design (pp. 309-311). Due in dropbox by 11:59 PM on Sat, 10/24 .
Sun (10/25)– Sat (10/31)	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.	Ch. 7 Case: Production Scheduling with Changeover Costs (pp. 361-362). Due in dropbox by 11:59 PM on Sat, 10/31 .
Sun (11/1)– Sat (11/7)		Exam 2 (Chapters 4, 6, & 7) due in dropbox by 11:59 PM on Fri, 11/6 .
Sun (11/8)– Sat (11/14)	Chapter 9: Project Scheduling: PERT/CPM. Note: You do not need to know Linear Programming Model for Crashing (Skip pp. 432-434).	
Sun (11/15)– Sat (11/21)	Chapter 11: Waiting Line Models (Read pp. 496-517 only).	Ch. 11 Case: Regional Airlines (pp. 533-534). Due in dropbox by 11:59 PM on Sat, 11/21 .
Sun (11/22)– Tue (11/24)	Chapter 12: Simulation.	
Mon (11/30)– Sat (12/5)	Chapter 12 continued. Appendix 12.1: Simulation with Excel.	Ch. 12 Case: County Beverage Drive-Thru (pp. 582-584). Due in dropbox by 11:59 PM on Sat, 12/5 .
Sun (12/6)– Sat (12/12)	Chapter 13: Decision Analysis (Read pp. 595-604 only). Chapter 14: Multicriteria Decisions. Note: You do not need to know the Graphical Solution Procedure (Skip pp. 655-657).	Ch. 14 Case: EZ Trailers, Inc. (pp. 692-693). Due in dropbox by 11:59 PM on Sat, 12/12 .

Week	Topics Covered	Due Dates for Exams & Cases
Sun (12/13)– Fri (12/18)		Exam 3 (Chapters 9, 11, 12, 13, 14) due in dropbox by 11:59 pm on Fri, 12/18.

* The university is closed on Wednesday, 11/25 – Sunday, 11/29.