Course Number: OIM 351  
Instructor: Dr. N. Tamimi  
Semester: Fall 2009  
Credits: 3  
Office: 437 Brennan Hall  
Phone: 941-4288  
Office Hours: MWF: 1:45 pm-2:45 pm  
Email: tamimin1@scranton.edu  
Phone: 941-4209 (Secretary)  
Homepage: http://ec.scranton.edu/tamimi/index.htm

**CATALOG DESCRIPTION**

A survey of the quantitative techniques that are used by modern managers. Topic coverage will focus on model building, linear programming methods, queuing models, project management, and simulation. Emphasis is placed on the use and limits of these quantitative methods. Model analysis will be done using appropriate software.

**REQUIRED TEXT**


**COURSE OBJECTIVES & METHODOLOGY**

1. Each student will be familiar with basic quantitative techniques which are useful in analyzing and solving decision problems.
2. Each student will understand the role and scope of management science as a tool in the managerial decision making process.
3. Each student will be skilled in formulating decision problems as mathematical models, identifying and applying the appropriate solution procedure for a given problem, and interpreting the model solution.
4. Each student will understand the advantages and limitations of each quantitative technique.
5. Each student will be able to use electronic spreadsheets to assist decision makers in applying management science to real-world problems.

The above objectives will be attained through a combination of lectures, hands-on assignments and problem solving sessions. **Also, please note that PowerPoint slides, solutions to practice problems /Excel assignments, and Camtasia instruction videos may be accessed directly from my homepage.**

**ATTENDANCE, GRADING, AND OTHER POLICIES**

Students are expected to attend all scheduled class meetings. Every student is responsible for all materials presented and announcements made during any class. Late assignments will receive no points. **There will be no make-up exams or quizzes! Make-up exams will be given only at the discretion of the instructor in cases of serious medical emergencies as evidenced by a documented report.**

The final grade will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>10%</td>
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<tr>
<td>Quiz 1</td>
<td>5% (Wednesday, September 16, 2009)</td>
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<tr>
<td>EXAM 1</td>
<td>20% (Wednesday, September 30, 2009)</td>
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<tr>
<td>Quiz 2</td>
<td>5% (Wednesday, October 28, 2009)</td>
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<tr>
<td>EXAM 2</td>
<td>20% (Wednesday, November 11, 2009)</td>
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<tr>
<td>Excel Assignments</td>
<td>15% (Due dates to be announced)</td>
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<td>Final (comprehensive)</td>
<td>25% (As scheduled by the registrar)</td>
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**Grading scale:**

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<tr>
<td>90 - 100 A</td>
<td>74 - 70 C</td>
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<tr>
<td>89 - 87 A-</td>
<td>69 - 65 C-</td>
</tr>
<tr>
<td>86 - 84 B+</td>
<td>64 - 60 D+</td>
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<tr>
<td>83 - 81 B</td>
<td>59 - 55 D</td>
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<tr>
<td>80 - 78 B-</td>
<td>&lt; 55 F</td>
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<td>77 - 75 C+</td>
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<tr>
<td>Week</td>
<td>Topic</td>
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| 1    | Introduction to Modeling and Decision Analysis  
Review of Graphing Straight Lines, Inequalities, and  
Solving Simultaneous Equations | 1       |
| 1-3  | Introduction to Optimization & Linear Programming  
Formulating Simple LP models  
Graphical Solution Approach  
Corner Point Solutions & Level Curves  
Special Cases  
Alternative Optimal Solutions  
Infeasibility  
Unboundedness | 2       |
| 4-6  | Modeling and Solving LP Problems in a Spreadsheet  
Marketing Applications  
Make or Buy Problems  
Financial Applications  
Production & Inventory Planning Applications  
Blending Problems  
Transportation Problems  
Integer Linear Programming  
An Employee Scheduling Problem  
A Knapsack Example Problem | 3, 6    |
| 7    | Sensitivity Analysis  
Objective Function Coefficients Changes  
Right-Hand Side Value Changes  
Shadow Prices | 4       |
| 8-9  | Network Modeling  
The Transshipment Problem  
The Shortest Path Problem  
The Assignment Problem  
Maximal Flow Problems  
Minimal Spanning Tree Problems | 5       |
| 10-11| Project Management  
PERT/CPM Networks  
The Critical Path Method  
Uncertain Activity Times  
Time-Cost tradeoffs | 14      |
| 12-13| Simulation  
Advantages/Disadvantages of simulation  
Business Applications Using Crystal Ball | 12      |

*Please note that the instructor has the right to modify the above schedule as deemed appropriate.*