

MASTER SYLLABUS
OR 380: INTRODUCTION TO MANAGEMENT SCIENCE
Revised 3-19-02

I. Catalog Description

OR 380: Introduction To Management Science (3) Fall, Spring, Summer. Introduces various quantitative approaches for modeling and solving business problems. Topics include linear programming models and solution methods, problem formulations via integer and goal programming, decision analysis under uncertainty, and simulation. Prerequisites: MIS 200 and STAT 211.

II. Course Goals

1. Help students develop analytical skills.
2. Help students develop skill in formulating mathematical models for business problems.
3. Show how quantitative techniques can be used to assist decision-making within and across functional business areas.
4. To develop students' skill in using spreadsheets (in particular, Microsoft EXCEL) to implement appropriate quantitative techniques for business decision-making.

III. Student Learning Outcomes

Upon successful completion of OR 380, students will be expected to

1. Demonstrate a basic knowledge of OR/MS techniques.
2. Demonstrate the ability to recognize when these techniques are applicable (in a variety of business situations).
3. Demonstrate the ability to identify data requirements for successful implementation of OR/MS methods.
4. Demonstrate the ability to use the results from quantitative analysis to support business decision making and problem solving.

IV. Course Content

Linear Programming	3-6 weeks
Models	
Graphical solution	
Spreadsheet solvers	
Sensitivity Analysis	1-2 weeks
Integer Programming	2-3 weeks
Use of 0/1 variables	
Capital budgeting	

Covering problems
Location/allocation problems
Other integer programming models and techniques

Goal Programming 0-1 week

Simulation 2-4 weeks

Random variable generation using EXCEL
Examples
Analyzing simulation output

Decision Theory 2-3 weeks

Expected monetary value
Use of additional information
Value of information
Decision trees

V. Course Format and Methodologies

Each section of this course meets in the CBA computer lab at least once per week to gain hands-on experience developing and solving problems introduced during lectures. Case studies are usually assigned as group projects during the semester. Individual instructors use a variety of teaching methodologies such as small group discussion/modeling sessions, journal article reading assignments, and student presentations.

VI. Grading Evaluations

Student grades are determined by the individual instructor. The final grade is based on student performance on homework, in-class tests, case studies, and a comprehensive final exam. Typically test questions involve problem modeling, solving and interpretation of results.

VII. Learning Assessment

Assessment of students' achievement of learning outcomes is done primarily through a comprehensive final examination for the course. Other methods of assessing student learning are written reports for case studies and summaries of outside reading assignments. Course instructors meet several times each year to discuss assessment issues and potential adjustments in course content or delivery.