Stevens Institute of Technology
Howe School of Technology Management

Syllabus

BT223 Sections A and B; *Applied Models and Simulation*

Semester: **Fall 2011**	Day of Week/Time: **Section A; Tuesdays 10:00 AM – 11:50 AM and Thursdays 9:00 AM – 9:50 AM** **Section B; Tuesdays 1:00 PM – 2:50 PM and Thursdays 10:00 AM – 10:50 AM**
Instructor name and contact information **Dr. Kevin Ryan** **kryan@stevens.edu** **1-201-216-5565** **Babbio Center Room 415**	Office Hours: **Thursdays; 3:30 PM until 5:30 PM; in addition, you are very welcome to contact me to schedule an appointment** Class Website: **Access through Moodle**

Overview

This course covers contemporary decision support models of forecasting, optimization and simulation for business activity. Students learn how to identify the problem situation, choose the appropriate methods, collect the data and find the solution. Handling the information and generating of alternative decisions based on operations research optimization, statistical simulation and system forecasting. Computer simulations will be performed on PCs equipped by user-friendly graphical interface with multimedia reports generation for visualization and animation. This class requires that you bring a working laptop, network cable and power supply to each class capable or connecting to the Stevens network.
Prerequisites: Prerequisites: Ma 117 and BT 121

Introduction to Course

- Challenging and comprehensive course.
- Three exams, surprise quizzes, final exam, and homework assignments.
- All lecture notes, homework assignments, and this course syllabus are available on the Moodle course web site. It is your responsibility to download the required material from the course website.
- The course calendar, located at the end of this syllabus, is subject to change. Any changes that may be required will be announced in-class.
- Homeworks are assigned weekly and are due **at the start of each class**.
    - Note; 50% penalty for an assignment submitted late. No assignments will be accepted after the first class past the original due date

- Guidelines for an INC: Student has completed a significant portion of the course, is in good standing, and has an emergency (e.g. work or family). Student must request a grade of INC in writing.

Relationship of Course to Rest of Curriculum

This course is the fundamental management course in modeling and simulation.

Learning Goals

Upon successful completion of this course the student will:

- Develop competency in applying a variety of time-series forecasting techniques to business problems
- Learn single and multi-variable regression techniques and apply these regression techniques to the study of business applications.
- Understand the role and importance of simulation in the business environment and apply simulation techniques (using Risk Solver Platform) to business problems.

Pedagogy

The course will employ lectures, class discussion, and individual homework assignments.

Required Text and Computer Requirements

Required Text Books:

Spreadsheet Modeling & Decision Analysis: *A Practical Introduction to Management Science* Sixth Edition Author: Cliff T. Ragsdale. South-Western Cengage Learning. ISBN-10: 0538746319 ISBN-13: 9780538746311 (You can use either ISBN)

Computer Requirements:

1. Students are required to have a functional laptop computer in each class with software equivalent to the standard freshman software for the Business and Technology class of graduation.
2. Students are responsible for keeping their computers in good repair and loading software needed for this class including but not limited to Excel, Solver, and Risk Solver Platform.
3. Students are required to register for Risk Solver Platform

Required Readings

Chapters in the course text. (See course calendar at the end of this syllabus for the chapters covered in the text).

Additional Readings

None

Assignments

- Weekly comprehensive homework assignments

Grading	Grade Percent
Weekly Homework Assignments	**15**
Exam 1; Chapters 11 (Time Series Forecasting)	**15**
Exam 2; Chapter 9 and the last part of Chapter 11 (Regression)	**15**
Exam 3; Chapter 12 Simulation	**15**
Final Comprehensive Exam (During Final Exam Period)	**30**
Surprise Short Quizzes	**10**
Total Grade	**100%**

Proposed Grading Template

Letter Grade	Numerical Grade
A	**90 and above**
B+	**87 to 89.9**
B	**83 to 86.9**
B-	**80 to 82.9**
C+	**77 to 79.9**
C	**73 to 76.9**
C-	**70 to 72.9**
D+	**67 to 69.9**
D	**63 to 66.9**
F	**Below 63**

Course Schedule

Week	Date Month/Date	Topic Covered
1	8/30 & 9/1	8/30: Course Introduction 9/1: Chapter 11 (Ragsdale): *Time Series Forecasting*
2	9/6 & 9/8	Chapter 11 (Ragsdale): *Time Series Forecasting*
3	9/13 & 9/15	Chapter 11 (Ragsdale): *Time Series Forecasting* (cont.)
4	9/20 & 9/22	Chapter 11 (Ragsdale): *Time Series Forecasting* (cont.)
5	9/27 & 9/29	Chapter 9 (Ragsdale): *Regression Analysis*
6	10/4 & 10/6	10/4: Exam 1 covering Chapter 11 Chapter 9 (Ragsdale): *Regression Analysis* (cont.)
7	10/13	NOTE: NO CLASS ON TUESDAY OCTOBER 11TH UNIVERSITY IS FOLLOWING A MONDAY SCHEDULE Chapter 9 (Ragsdale): *Regression Analysis* (cont.)
8	10/18 & 10/20	10/18 : Chapter 9 (Ragsdale): *Regression Analysis* (cont.) 10/20: Chapter 11 (Ragsdale): *Time Series Forecasting* (cont.) With Regression
9	10/25 & 10/27	Chapter 12 (Ragsdale): *Introduction to Simulation*
10	11/1 & 11/3	11/1: Exam 2 covering Chapter 9 Chapter 12 (Ragsdale): *Introduction to Simulation* (cont.)
11	11/8 & 11/10	Chapter 12 (Ragsdale): *Introduction to Simulation* (cont.)
12	11/15 & 11/17	Chapter 12 (Ragsdale): *Introduction to Simulation* (cont.)
13	11/22	Chapter 12 (Ragsdale): *Introduction to Simulation* (cont.) NO CLASS ON THURSDAY NOVEMBER 24 HAPPY THANKSGIVING
14	11/29 & 12/1	Chapter 12 (Ragsdale): *Introduction to Simulation* (cont.)
15	12/6 & 12/8	12/6: Exam 3 covering Chapter 12 Bonus Topic and Course Review
Final Exam Period	December 10th through December 22nd	FINAL COMPREHENSIVE EXAM To Be Scheduled During Final Exam Period