



A POLYTECHNIC INSTITUTION

School of Business

Program: Integrated Management Systems & HR

Management

Option: All

**BUSA 3500
Management Science**

Start Date: September 2002

End Date: December 2002

Total Hours: 45 **Total Weeks:** 15

Term/Level: 1 **Course Credits:** 3

Hours/Week: 3 **Lecture:** 1 **Lab:** 2

Shop: **Seminar:** **Other:**

Prerequisites

Course No.	Course Name
OPMT 1110 and OPMT 1130	Business Math and Stats

BUSA 3500 is a Prerequisite for:

Course No.	Course Name
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■ **Course Description (required)**

Introduces Quantitative Methods. Students will be introduced to some of the more common techniques in the Management Science field, and will use microcomputer software to solve problems. Emphasis is placed on the formulation of problems and the interpretation of calculated results

■ **Detailed Course Description (optional)**

This course has four main objectives. First, it will help you **identify** business situations that can be tackled using “quantitative analysis”. Secondly, it will help you to **frame solutions** to these situations using standard methods for applying these techniques. Thirdly, you will **implement** solutions using standard business software (spreadsheets and/or calculators). Finally, the solutions will be **interpreted** and subjected to “what if” or **sensitivity** analysis whenever appropriate.

In addition, this course is part of a program. You may be called upon to use your spreadsheet skills to prepare material for other courses or assignments.

■ **Evaluation**

Final Examination	40%	Comments:
Midterm tests	30%	
Assignments and quizzes	30%	
TOTAL	100%	

■ **Course Learning Outcomes/Competencies**

Upon successful completion of the course the student;

- Will have been introduced to standard techniques including: Decision analysis, Forecasting methods including simple and multiple regression, time series, linear programming and basic inventory models.
- Will have created information from fields in a database, imported it into a spreadsheet and carried out a basic statistical analysis of the data.
- Be able to use a sensible methodology to build a spreadsheet model.
- Understand some of the basic spreadsheet functions (formulas, charts, logic operators etc), and the use of tools like Solver, Pivot Tables and Goal Seek.
- Will understand that the spreadsheet is just a tool to help with standard business problems but that a printout of a spreadsheet is just part of analyzing problems and implementing solutions.

■ **Verification**

I verify that the content of this course outline is current.

Authoring Instructor

Date

I verify that this course outline has been reviewed.

Program Head/Chief Instructor

Date

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean

Date

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

■ Instructor(s)

Gary Sagar

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■ Learning Resources

Required:

C.T. Ragsdale "Spreadsheet Modeling and Decision Analysis", Course technology, 3rd edition, 2000.

Suitable calculator (Sharp EL733-A required, but students may be given an exemption if they have an equivalent calculator. They must be able to operate the calculator).

Recommended:

Anderson, Sweeney, Williams "Statistics for Business and Economics" 2nd edition, West Publishing (this text was used in OPMT 1130 Statistics)

Students will require several 3.5" HD disks with labels and a couple of folders with disk pouches.

■ Information for Students

(Information below can be adapted and supplemented as necessary.)

Assignments: Late assignments, lab reports or projects will **not** be accepted for marking. Assignments must be done on an individual basis unless otherwise specified by the instructor.

Makeup Tests, Exams or Quizzes: There will be **no** makeup tests, exams or quizzes. If you miss a test, exam or quiz, you will receive zero marks. Exceptions may be made for **documented** medical reasons or extenuating circumstances. In such a case, it is the responsibility of the student to inform the instructor **immediately**.

Ethics: BCIT assumes that all students attending the Institute will follow a high standard of ethics. Incidents of cheating or plagiarism may, therefore, result in a grade of zero for the assignment, quiz, test, exam, or project for all parties involved and/or expulsion from the course.

Attendance: The attendance policy as outlined in the current BCIT Calendar will be enforced. Attendance will be taken at the beginning of each session. Students not present at that time will be recorded as absent.

Illness: A doctor's note is required for any illness causing you to miss assignments, quizzes, tests, projects, or exam. At the discretion of the instructor, you may complete the work missed or have the work prorated.

Attempts: Students must successfully complete a course within a maximum of three attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from the appropriate program.

Course Outline Changes: The material or schedule specified in this course outline may be changed by the instructor. If changes are required, they will be announced in class.

Labs: Lab attendance is mandatory.

■ Assignment Details

- Assignment details will be made available in lectures and labs;
- Assignments are graded primarily on "input" soliciting help from the Instructor is encouraged. The material is very "hands on". Examinations, on the other hand, will be graded on "output".

Schedule

Subject to change at the discretion of the instructor

Week of/ Number	Outcome/Material Covered	Reference/ Reading
Sep 4	Intro to Model Building	R Ch 1
Sep 9	Review of Statistics and probability	Ref text
Sep 16	Decision Analysis, tree diagrams, Bayes Theorem, Decision trees, Decision criterion, expected value of perfect information. Complex decision analysis	R Ch 15
Sep 23	Forecasting: moving average, exponential smoothing, scatter diagrams, review of simple regression.	Ch 11, 9
Sep 30	Multiple regression – extend theory from simple regression and correlation; interpret results Applications	
Oct 7	Multiple Regression multicollinearity and auto correlation. Applications	
Oct 13	Multiple regression concluded Mid term Examination 1	
Oct 21	Linear Programming – concepts; formulation of 2-variable problem; graphical solution; interpretation of graphical results including sensitivity analysis	
Oct 28	Linear programming – formulation of multi-variable LP application. Computer solutions. Interpretation of Business results from computer output. (sensitivity analysis)	
Nov 4	Linear Programming extensions. Transportation, assignment, network, integer models.	