MONASH University
Information Technology

FIT5097
Business intelligence modelling

Unit Guide

Semester 2, 2011

Last updated: 22 Aug 2011

Table of Contents

FIT5097 Business intelligence modelling - Semester 2, 2011

This unit introduces students to the principles, techniques and applications of computer-based decision support models for business and industry. Topics include: decision trees; linear programming and optimisation; other mathematical programming methods; waiting lines and queues; time series analysis and forecasting; inventory modelling and discrete-event simulation. Models will be built and solved using spreadsheets or other computer applications as appropriate.

Mode of Delivery

Caulfield (Evening)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Workload commitments are:

- One two-hour lecture per week,
- One two-hour tutorial per week,
- Approximately 8 hours per week are required for reading, tutorial exercises and assignment work.

Unit Relationships

Prohibitions

BUS5570

Prerequisites

At least one quantitative unit (such as Mathematics or Statistics) in an undergraduate degree.

Chief Examiner

Dr John Betts

Campus Lecturer

Caulfield

Poh Lim

Academic Overview

Learning Objectives

At the completion of this unit students will:

- have knowledge of a variety of techniques for modelling business decision problems;
- be able to choose the appropriate decision model for a particular problem;
- have skills in setting up simple models and solving with hand calculations;
- have skills in setting up mathematical models for solution in a spreadsheet or other application software;
- have skills in the validation of models and conducting a sensitivity analysis.
- have skills in analysing a real problem and reporting the results;
- understand the difficulty of applying models to real situations, which often requires that approximations, simplifications and generalisations be made;
- understand that the approximate nature of some types of business modelling means that a sensitivity analysis be conducted.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:

a. engage in an internationalised world
b. exhibit cross-cultural competence
c. demonstrate ethical values

critical and creative scholars who:

a. produce innovative solutions to problems
b. apply research skills to a range of challenges
c. communicate perceptively and effectively

Assessment Summary

Examination (2 hours): 70%; In-semester assessment: 30%

Assessment Task	Value	Due Date
Spreadsheet modelling	20%	Tuesday 20th September 2011
Tutorial Work	10%	After each tutorial session.
Examination 1	70%	To be advised

Teaching Approach

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Graded assignments without comments
- Solutions to tutes, labs and assignments

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
http://www.monash.edu.au/about/monash-directions/directions.html
http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this unit

If you wish to view how previous students rated this unit, please go to
https://emuapps.monash.edu.au/unitevaluations/index.jsp

Recommended Resources

Excel Solver is available for use in all University labs.

Unit Schedule

Week	Activities	Assessment
0	Please register for tutorials in Allocate Plus. There will be NO tutorials in Week 1. However, students are advised to attempt a "Do-it-Yourself" Tutorial in Week 1 to familiarise with EXCEL basics.	No formal assessment or activities are undertaken in week 0
1	Introduction to Mangement Science and Operations Research; Introduction to Optimisation and Linear Programming	No tutorial in Week 1
2	Modelling and Solving LP Problems Graphically	after Tutorial Session
3	Spreadsheet Modelling	after Tutorial Session
4	Sensitivity analysis and the interpretation of solutions	after Tutorial Session
5	Integer Linear Programming & Goal Programming	after Tutorial Session
6	Transportation and Assignment Problems; and Network Modelling	after Tutorial Session
7	Decision Analysis and Probability Theory	after Tutorial Session
8	Decision Tree	after Tutorial Session
9	Time Series Analysis and Forecasting	after Tutorial Session; Assignment 1: Spreadsheet Modelling - due on 20th September
10	Inventory Modelling	after Tutorial Session
11	Queuing	after Tutorial Session
12	Simulation	after Tutorial Session
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Spreadsheet modelling
  Description:
  Solving business decision problems by linear programming and integer programming using the Excel Solver
  Weighting:
  20%
  Criteria for assessment:
  The criteria used to assess the assignment are:

  1. Correctness and understanding - Correct answers are to be provided with explanations and justifications. We will look for answers that reflect understanding of the underlying modelling techniques.
  2. Completeness - that you have answered all parts of each question. Presentation - that you have presented your answers in a suitably formatted report style.

  Due date:
  Tuesday 20th September 2011

- **Assessment task 2**

  Title:
  Tutorial Work
  Description:
  Tutorial work will be assessed.
  Weighting:
  10%
  Criteria for assessment:
  The criteria used to assess submissions are:

  1. Correctness and understanding - We will look for answers that reflect understanding of the underlying modelling techniques.
  2. Completeness - that you have answered all parts of each tutorial question.

Due date:
After each tutorial session.

Examinations

- **Examination 1**

Weighting:
70%
Length:
2 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
Non-programmable calculators

Assignment submission

It is a University requirement (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at http://www.infotech.monash.edu.au/resources/student/forms/. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html.

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at: http://policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Plagiarism (http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html)
- Assessment (http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po
- Special Consideration (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h
- Grading Scale (http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html)
- Discipline: Student Policy (http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html)
- Academic Calendar and Semesters (http://www.monash.edu.au/students/key-dates/);
- Orientation and Transition (http://www.infotech.monash.edu.au/resources/student/orientation/); and
- Academic and Administrative Complaints and Grievances Policy (http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.
- Codes of Practice for Teaching and Learning (http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to http://www.lib.monash.edu.au or the library tab in my.monash portal for more information. Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis

- Website: http://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

READING LIST:

Ragsdale C.T. Spreadsheet Modeling & Decision Analysis, 6th edition, Thomson 2011, (Prescribed Textbook).

Anderson, D., Sweeney, D., Williams, T. Quantitative Methods for Business, 8th Edition (or latest edition), 2001, Thomson Learning.

Other Information

Lapin LL and Whisler WD, "Quantitative Decision Making with Spreadsheet Applications", Seventh Editions, Duxbury Press, 2002

Winston WL, "Operations Research: Applications & Algorithms", 3rd edition, Duxbury Press, 2004

Winston WL and Albright SC, "Practical Management Science: Spreadsheet Modelling and Applications" Third Edition, Duxbury Press, 1997