



MONASH University
Information Technology

FIT5097
Business intelligence modelling

Unit Guide

Semester 2, 2013

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

Last updated: 25 Jul 2013

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FIT5097 Business intelligence modelling - Semester 2, 2013

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 requirements

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

Mark Carman

Academic Overview

Learning Outcomes

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.

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 Management Science and Operations Research; Introduction to Optimisation and Linear Programming	No tutorial in Week 1
2	Modelling and Solving LP Problems Graphically	Assessment task 2: Tutorial Work is assessed in Weeks 2 to 12 after each tutorial session
3	Spreadsheet Modelling	
4	Sensitivity analysis and the interpretation of solutions	
5	Integer Linear Programming & Goal Programming	
6	Transportation and Assignment Problems; and Network Modelling	
7	Decision Analysis and Probability Theory	
8	Decision Trees	
9	Time Series Analysis and Forecasting	Assessment task 1: Spreadsheet Modelling due on 27 September 2013
10	Inventory Modelling	
11	Queuing	
12	Simulation	
	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 learning system.

Assessment Summary

Examination (2 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Spreadsheet modelling	30%	Friday 27 September 2013
Tutorial Work	10%	Weeks 2 to 12 after each tutorial session
Examination 1	60%	To be advised

Unit Schedule

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu>)

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at

<http://lib.monash.edu/tutorials/citing/>

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:

30%

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:

Friday 27 September 2013

• 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:

Weeks 2 to 12 after each tutorial session

Examinations

• Examination 1

Weighting:

60%

Length:

2 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

Non-programmable calculators

Learning resources

Reading list

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

Lapin LL and Whisler WD, "Quantitative Decision Making with Spreadsheet Applications", 7th Edition, 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" 3rd Edition, Duxbury Press, 1997

Monash Library Unit Reading List

<http://readinglists.lib.monash.edu/index.html>

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
- Solutions to tutes, labs and assignments

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.monash.edu.au/exams/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.

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). Please note that it is your responsibility to retain copies of your assessments.

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.

Ragsdale C.T. (2011). *Spreadsheet Modeling & Decision Analysis*. (6th Edition) Thomson.

Recommended Resources

Excel Solver is available for use in all University labs.

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:

www.policy.monash.edu.au/policy-bank/academic/education/index.html

Key educational policies include:

- Academic integrity;
<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.html>
- Assessment in Coursework Programs;
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html>
- Special Consideration;
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html>
- 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/dates/>
- Orientation and Transition; <http://intranet.monash.edu.au/infotech/resources/students/orientation/>
- Academic and Administrative Complaints and Grievances Policy;
<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.html>
- Code of Practice for Teaching and Learning;
<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teaching-and-learning.html>

Graduate Attributes Policy

<http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.html>

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 <http://www.monash.edu.au/students>. For Sunway see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>.

Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to www.lib.monash.edu.au or the library tab in [my.monash](#) portal for more information. At Sunway, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Disability Liaison Unit

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://www.monash.edu/equity-diversity/disability/index.html> Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway Email: dlu@monash.edu Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus

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 the Student Evaluation of Teaching and Units (SETU) survey. 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, see:

www.monash.edu.au/about/monash-directions and on student evaluations, see:
www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html

Previous Student Evaluations of this Unit

Previous student feedback for the course was highly positive and thus no changes have needed to be made this year.

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