MONASH University
Information Technology

FIT2017
Computer models for business decision making

Unit Guide

Semester 1, 2013

Last updated: 04 Mar 2013

Table of Contents

FIT2017 Computer models for business decision making - Semester 1, 2013

The objective of this unit is to introduce students to the quantitative modelling techniques commonly used by executives in decision making and the application of IT tools to real-world decision making situations. Techniques covered typically include decision making under uncertainty, linear and nonlinear programming, sequential decision making, forecasting, and simulation. Upon the completion of this unit, the students are expected to recognise a complex decision making situation and to build a corresponding quantitative model. They are also expected to solve the model by applying techniques covered in this unit, to interpret results and finally, to provide analyst-type recommendations. The unit includes extensive use of advanced modelling tools available in Microsoft Excel as well as some VBA programming.

Mode of Delivery

Clayton (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload requirements

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

- 2 hour lecture
- 2 hour laboratory
- and up to 8 hours of personal study per week in order to satisfy the reading and assignment expectations.

Unit Relationships

Prohibitions

ETC2480, ETC3480, ETC4348, ETF2480, ETF9480, GCO2802, MAT1097, BUS1110

Prerequisites

FIT1006 or BUS1100 or ETC1000 or STA1010

Basic knowledge of MS Excel is assumed.

Chief Examiner

Dr John Betts

Campus Lecturer

Clayton

Ariel Liebman

Academic Overview

Learning Outcomes

At the completion of this unit students will have:A knowledge and understanding of:

- the role of business decision making in organisations;
- the decision making lifecycle;
- model building techniques;
- model solving techniques;
- model results presentation and interpretation;
- the role of interactivity in decision modelling;
- popular and leading edge decision modelling tools.

Developed attitudes that enable them to:

- recognise the value of effective decision making within an organisation;
- adopt a critical approach to decision models and their use in a business context;
- appreciate the value of modelling and simulation as effective decision making tools;
- appreciate the limitations of formal decision models and the necessity of post-solution interpretation stage;
- appreciate the risks and benefits of interactive computer-centered decision making.

Developed the skills to:

- create interactive decision models;
- interpret the results produced at model solving stage;
- select an appropriate decision modelling technique;
- assess models limitations;
- analyse appropriateness of modelling environments;
- use Popular and leading edge decision modelling tools.

Demonstrated the communication skills necessary to:

- document and communicate a decision model;
- work in a team during model design and results interpretation stages;
- communicate during, and coordinate the decision making life cycle.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to the course, The role of Management Science in business decision making, Introduction to modelling.	Weekly - Assessment Task 4: Tutorial Participation
2	Linear Programming - Modelling and solving problems by hand.	
3	Linear Programming - Solving problems using Excel.	
4	Linear programming - Sensitivity analysis and the interpretation of solutions.	Test during lecture 1.
5	Integer Linear Programming.	
6	Inventory Modelling.	Assignment 1 due 19th April 2013.
7	Decision making under uncertainty.	
8	Decision Trees. Decision making using sample information.	Test during lecture 2.
9	Queuing Theory.	
10	Simulation.	Assignment 2 due 10th May 2013.
11	Time Series Analysis and Forecasting.	Test during lecture 3.
12	Review and revision.	Test during lecture 4.
	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
Assignment 1	15%	19th April 2013
Assignment 2	5%	10th May 2013
Tests during class	10% in total	Weeks 4, 8, 11 and 12 during lecture
Tutorial Participation	10%	All tutorials
Examination 1	60%	To be advised

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:
  Assignment 1
  Description:
  Spreadsheet modelling using linear programming and integer linear programming.
  Weighting:
  15%
  Criteria for assessment:
  Criteria include:

  - Modelling and formulation
  - Interpretation
  - Presentation

  Due date:
  19th April 2013

- **Assessment task 2**

  Title:
  Assignment 2
  Description:
  Decision Tree analysis using Excel and TreePlan
  Weighting:
  5%
  Criteria for assessment:
  Criteria include:

  - Modelling and formulation
  - Interpretation
  - Presentation

  Due date:
  10th May 2013

- **Assessment task 3**

Title:
Tests during class
Description:
4 short tests will cover the material taught in weeks 1 - 12. These will be conducted during lectures 4, 8, 11 and 12, and will each be of approx 20 minutes duration.
Weighting:
10% in total
Criteria for assessment:

- Interpretation of question
- Formulation of solution
- Correctness of answer

Due date:
Weeks 4, 8, 11 and 12 during lecture

- **Assessment task 4**

Title:
Tutorial Participation
Description:
Students are assessed on their participation in tutorials.
Weighting:
10%
Criteria for assessment:

- Participation in tutorials
- Completion of class exercises
- Contribution to class discussions

Due date:
All tutorials

Examinations

- **Examination 1**

Weighting:
60%
Length:
2 hours
Type (open/closed book):
Closed book
Electronic devices allowed in the exam:
Calculators (including graphics calculators) may be used in tests and in the exam.

Learning resources

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.

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 without comments
- Test results and feedback
- 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.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.

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).

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.

Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Microsoft Office 2007.

Prescribed text(s)

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

Ragsdale. (2011). *Spreadsheet Modeling and Decision Analysis*. (6th Edition) Thomson Learning.

Examination material or equipment

Calculators (including graphics calculators) may be used in tests and in the exam.

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:

- Plagiarism; http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html
- Assessment in Coursework Programs; 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.ht
- 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.h
- Code of Practice for Teaching and Learning; http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teac

Graduate Attributes Policy

http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.ht

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.htmlTelephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Commuity Services at 03 55146018 at SunwayEmail: dlu@monash.eduDrop 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

Last year we trialled short, 15 minute, tests on a single topic during lectures. Students preferred this to a single, one hour test. We will retain the short tests this year. Students last year also indicated that they enjoyed more case-oriented problems. More of these will be incorporated into the course this year. We will also continue to develop the process of modelling as a pursuit in its own right.

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