FIT2017
Computer models for business decision making

Unit Guide

Semester 1, 2014

Last updated: 13 Feb 2014

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FIT2017 Computer models for business decision making - Semester 1, 2014

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)

Workload Requirements

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- One 2-hour lecture
- One 2-hour laboratory

(b.) Additional requirements (all students):

- A minimum of 8 hours of independent 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

Mark Carman

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

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-centred 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.	
7	Decision making under uncertainty.	Assignment 1 due 17th April 2014.
8	Decision Trees. Decision making using sample information.	Test during lecture 2.
9	Queuing Theory.	
10	Simulation.	Assignment 2 due 16th May 2014.
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.

Teaching Approach

Lecture and tutorials or problem classes

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

Assessment Summary

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

Assessment Task	Value	Due Date
Assignment 1	15%	17th April 2014
Assignment 2	5%	16th May 2014
Tests during class	10% in total	Weeks 4, 8, 11 and 12 during

Unit Schedule

		lecture
Tutorial Participation	10%	All tutorials
Examination 1	60%	To be advised

		lecture
Tutorial Participation	10%	All tutorials
Examination 1	60%	To be advised

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles
(http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurd

Academic Integrity - Please see resources and tutorials at
http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/

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:
  >17th April 2014

- **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:
  >16th May 2014

- **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 (if applicable to the unit)
http://readinglists.lib.monash.edu/index.html

Faculty of Information Technology Style Guide

Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see
http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html

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.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/student-academic-integrity-managing-pla
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.

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:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures ; http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.h
- 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

Faculty resources and policies

Important student resources including Faculty policies are located at http://intranet.monash.edu.au/infotech/resources/students/

Graduate Attributes Policy

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

Student Charter

www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.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 Malaysia 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 Malaysia, 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 Commuity Services at 03 55146018 at Malaysia
- 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, Malaysia Campus