



**MONASH** University  
Information Technology

**FIT2017**  
**Computer models for business decision making**

**Unit Guide**

**Semester 1, 2011**

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.

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# **FIT2017 Computer models for business decision making - Semester 1, 2011**

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**

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

- 1 two-hour lecture
- 1 two-hour laboratory
- 6 - 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**

**John Betts**

## **Campus Lecturer**

### **Clayton**

**John Betts**

## **Tutors**

### **Clayton**

**Poh Lim**

**Kevin Liao**

## **Learning Objectives**

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.

## 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): 60%; In-semester assessment: 40%

<b>Assessment Task</b>	<b>Value</b>	<b>Due Date</b>
Assignment 1	15%	15 April 2011
Assignment 2	5%	13 May 2011
Tests during class	10% in total	During Lecture, Weeks 4, 8, 10 and 12.
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.

## 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
- Interviews
- Test results and feedback
- Quiz results
- 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>

## Required Resources

Microsoft Office 2007.

## Examination material or equipment

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

## Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11		No formal assessment or activities are undertaken in week 0
1	28/02/11	Introduction to the course, The role of Management Science in business decision making, Introduction to modelling.	
2	07/03/11	Linear Programming - Modelling and solving problems by hand.	
3	14/03/11	Linear Programming - Solving problems using Excel.	
4	21/03/11	Linear programming - Sensitivity analysis and the interpretation of solutions.	Test during lecture 1.
5	28/03/11	Integer Linear Programming.	
6	04/04/11	Inventory Modelling	
7	11/04/11	Decision making under uncertainty.	Assignment 1 due 15 April 2011
8	18/04/11	Decision Trees. Decision making using sample information.	Test during lecture 2.
Mid semester break			
9	02/05/11	Queuing Theory.	
10	09/05/11	Simulation.	

			Assignment 2 due 13 May 2011. Test during lecture 3.
11	16/05/11	Time Series Analysis and Forecasting.	
12	23/05/11	Review and revision.	Test during lecture 4.
	30/05/11	SWOT VAC	No formal assessment is undertaken SWOT VAC

\*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

## 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:**

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:**

15 April 2011

• **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:**

13 May 2011

• **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 3, 8, 10 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:**

During Lecture, Weeks 4, 8, 10 and 12.

• **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 etc.

**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.

## Assignment submission

Assignment coversheets are available via "Student Forms" on the Faculty website:

<http://www.infotech.monash.edu.au/resources/student/forms/>

You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

## 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

## 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-p>)
- 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>)

## 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](http://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](mailto: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.

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