



**MONASH** University  
Information Technology

**FIT5097**  
**Business intelligence modelling**

**Unit Guide**

**Semester 2, 2015**

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# **FIT5097 Business intelligence modelling - Semester 2, 2015**

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)

## **Workload Requirements**

Minimum total expected workload equals 12 hours per week comprising:

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

- Two hours of lectures
- One 2-hour laboratory

(b.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

See also Unit timetable information

## **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**

**David Dowe**

Consultation hours: T.B.A.

## **Tutors**

### **Caulfield**

**T.B.A.**

Consultation hours: T.B.A.

## **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/](http://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](http://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>

# Academic Overview

## Learning Outcomes

On completion of this unit students should be able to:

- explain a variety of techniques for modelling business decision problems;
- choose the appropriate decision model for a particular problem;
- set up simple models and solve with hand calculations;
- set up mathematical models for solution in a spreadsheet or other application software;
- validate models and conduct a sensitivity analysis;
- analyse a real problem and report the results;
- explain the difficulty of applying models to real situations - which often requires that approximations, simplifications and generalisations be made;
- explain the approximate nature of some types of business modelling and why this usually means that a sensitivity analysis needs to 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 during and after each tutorial session
3	Spreadsheet Modelling	
4	Sensitivity analysis and the interpretation of solutions	
5	Transportation and Assignment Problems; and Network Modelling	
6	Integer Linear Programming & Goal Programming	
7	Inventory Modelling - Deterministic Demand	
8	Inventory Modelling - Stochastic Demand	
9	Decision Making under Risk and Uncertainty; Decision Trees	Assessment task 1: Spreadsheet Modelling due in Week 9
10	(Time Series Analysis and) Forecasting	
11	Queuing	
12	Simulation	
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: <a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a>

\*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
Spreadsheet modelling	30%	Week 9

## Unit Schedule

Tutorial Participation	10%	Weeks 2 to 12 after each tutorial session
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-hurdles>)

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:**

Spreadsheet modelling

**Description:**

Learning Outcomes: 1, 2, 4, 5, 6. Solving business decision problems by linear programming and integer programming using MicroSoft 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:**

Week 9

#### • Assessment task 2

**Title:**

Tutorial Participation

**Description:**

Learning Outcomes: 1, 2, 3, 4, 5, 7, 8. Tutorial exercises and participation will be assessed.

**Weighting:**

10%

**Criteria for assessment:**

The criteria used to assess are:

1. Degree of correctness and level of understanding of the underlying modelling techniques and any other relevant material.
2. Degree of completeness of your answers to tutorial questions and any other relevant material.

**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. (2001), Quantitative Methods for Business, 8th Edition (or latest Edition), 2001, Thomson Learning.

Lapin LL and Whisler WD (2002), "Quantitative Decision Making with Spreadsheet Applications", 7th Edition, Duxbury Press, 2002

Winston WL (2004), "Operations Research: Applications & Algorithms", 3rd Edition, Duxbury Press, 2004

Winston WL and Albright SC (2004), "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>

### 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
- 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 electronic submission). 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.

Excel Solver is available for use in all University labs.

## Prescribed text(s)

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

Ragsdale C.T. (2015). *Spreadsheet Modeling & Decision Analysis*. (7th Edition) Thomson.

## 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](http://www.policy.monash.edu.au/policy-bank/academic/education/index.html)

### 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.h>

### Student Charter

[www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html](http://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](http://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 Community Services at 03 55146018 at Malaysia
- Email: [dlu@monash.edu](mailto: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