MONASH University

FIT2017
Computer models for business decision making

Unit guide

Semester 1, 2009

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Table of Contents

FIT2017 Computer models for business decision making - Semester 1, 2009

Unit leader :

John Betts

Lecturer(s) :

Clayton

- John Betts

Tutors(s) :

Clayton

- TBA

Introduction

Welcome to FIT2017 Computer models for decision making Semester 1, 2009. This 6 point unit is a core unit in the Bachelor of Business Information Systems degree at Monash University. The unit has been designed to prodvide you with an understanding of computer modelling techniques, such as linear programming and decision tree analysis, that can be used to help the business decision maker understand, analyse and solve a wide range of business problems.

Unit synopsis

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 the advanced modelling tools available in Microsoft Excel.

Learning outcomes

(a) To acquire the **Knowledge and Understanding of:**

- 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

(b) To develop the following **Attitudes, Values and Beliefs:**

- 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

(c) To develop the following **Practical Skills:**

- Create interactive decision models
- Interpret the results produced at model solving stage
- Select an appropriate decision modelling technique
- Assess model's limitations
- Analyse appropriateness of modelling environments
- Use Popular and leading edge decision modelling tools

(d) In addition, it is expected that the following **Relationships, Communication and Team Work skills** will be developed and enhanced:

- Document and communicate a decision model
- Communicate and coordinate during the decision making life cycle

Workload

- 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

Prerequisites

Before attempting this unit you must have satisfactorily completed FIT1006 or BUS1100 or ETC1000, or equivalent. A sound knowledge of Microsoft Excel is assumed.

Relationships

FIT2017 is a core unit in the Bachelor of Business Information Systems.

You may not study this unit and ETC2480, ETC3480, ETC4348, ETF2480, ETF9480, GCO2802, MAT1097 or BUS1110 in your degree.

Continuous improvement

Monash is committed to ‘Excellence in education’ (Monash Directions 2025 - http://www.monash.edu.au/about/monash-directions/directions.html) and strives for the highest possible quality in teaching and learning.

To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through Unit

Evaluation Surveys. The University's Unit Evaluation policy (http://www.policy.monash.edu/policy-bank/academic/education/quality/unit-evaluation-policy.html) requires that every unit offered is evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

Faculties have the option of administering the Unit Evaluation survey online through the my.monash portal or in class. Lecturers will inform students of the method being used for this unit towards the end of the semester.

Student Evaluations

If you wish to view how previous students rated this unit, please go to
http://www.monash.edu.au/unit-evaluation-reports/

Unit staff - contact details

Unit leader

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Lecturer(s) :

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Phone +61 3 990 55804

Tutor(s) :

Teaching and learning method

This is an on-campus unit. Students are required to attend lectures and tutorials (compulsory and attendance will be taken). Each lecture topic will be supported by tutorial exercises. It is expected that students spend at least additional 3-4 hours per week to study the lecturing material and prepare for tutorial exercises. Solutions to the tutorial exercises will be available following the tutorial.

Tutorial allocation

On-campus students should register for tutorials using Allocate+

Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

Unit Schedule

Week	Topic	References/Readings	Key dates
1	Introduction to the course, The role of Management Science in business decision making, Introduction to modelling.	Ragsdale Chapter 1	
2	Linear Programming - Modelling and solving problems by hand.	Ragsdale Chapter 2	
3	Linear Programming - Solving problems using Excel.	Ragsdale Chapter 3	
4	Linear programming - Sensitivity analysis and the interpretation of solutions.	Ragsdale Chapter 4	
5	Integer Linear Programming.	Ragsdale Chapter 6	
6	Decision Making under uncertainty.	Ragsdale Chapter 15	Assignment 1 due this week
Mid semester break			
7	Decision Trees. Decision Making using sample information.	Ragsdale Chapter 15	
8	Inventory Modelling	Winston Chapter 11	
9	Simulation.	Ragsdale Chapter 12	
10	Test during lecture.	N/A	Assignment 2 due this week
11	Time Series Analysis and Forecasting.	Ragsdale Chapter 11	
12	Time Series Analysis and Forecasting.	Ragsdale Chapters 9 and 11	
13	Exam Preparation and revision	N/A	

Unit Resources

Prescribed text(s) and readings

Ragsdale CT (2005) *Spreadsheet Modeling & Decision Analysis, 5th edition*, Thomson 2007

Text books are available from the Monash University Book Shops. Availability from other suppliers cannot be assured. The Bookshop orders texts in specifically for this unit. You are advised to purchase your text book early.

Recommended text(s) and readings

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

Lapin LL and Whisler WD, "Quantitative Decision Making with Spreadsheet Applications", Seventh Editions, Duxbury Press, 2002

Savage S, "Insight Business Analysis Software", Thomson Learing, 2003

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

Albright SC, Winston WL, and Zappe C, "Data Analysis and Decision Making with Microsoft Excel" Duxbury Press, 1999

Required software and/or hardware

Microsoft Office 2003.

Equipment and consumables required or provided

Students may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **6** hours per week for use of a computer, including time for newsgroups/discussion groups.

Study resources

Study resources we will provide for your study are:

- Notes for each lecture in pdf format.
- Tutorial worksheet and solutions for each lecture.
- Excel spreadsheets, other files. Other applications as required.
- Selected solutions to exercises.

All downloadable from MUSO.

Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to http://www.lib.monash.edu.au.

The Educational Library and Media Resources (LMR) is also a very resourceful place to visit at http://www.education.monash.edu.au/library/

Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (http://moodle.monash.edu.au) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on the link for your unit.

You can access MUSO and Blackboard via the portal: http://my.monash.edu.au

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser

- Supported Java runtime environment

For more information, please visit: http://www.monash.edu.au/muso/support/students/downloadables-student.html

You can contact the MUSO Support by phone : (+61 3) 9903 1268

For further contact information including operational hours, please visit:
http://www.monash.edu.au/muso/support/students/contact.html

Further information can be obtained from the MUSO support site:
http://www.monash.edu.au/muso/support/index.html

Assessment

Unit assessment policy

Students must pass the examination and obtain a weighted average of all assessments greater than 50% to pass the unit.

Assignment tasks

- **Assignment Task**

  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 : TBA
- **Assignment Task**

  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 : TBA

- ### Assignment Task

Title : Test during class

Description :

This test will cover topics studied in Weeks 1 to 9.
Weighting : 10%

Criteria for assessment :

Solutions to questions asked.
Due date : During Lecture, Week 10.

- ### Assignment Task

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

Assignment submission

via MUSO

Assignment coversheets

The assignment cover sheet can be downloaded from the Faculty of IT website:
http://infotech.monash.edu.au/resources/student/assignments/

University and Faculty policy on assessment

Due dates and extensions

The due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission.

Late assignment

Assignments received after the due date will normally not be accepted unless an agreement has been reached with the lecturer prior to the due date.

Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at http://www.policy.monash.edu/policy-bank/academic/education/assessment/

We will aim to have assignment results made available to you within two weeks after assignment receipt.

Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with Student Rights and Responsibilities (http://www.infotech.monash.edu.au/about/committees-groups/facboard/policies/studrights.html) and the Faculty regulations that apply to students detected cheating as these will be applied in all detected cases.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of

any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

Register of counselling about plagiarism

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

Non-discriminatory language

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications are non-discriminatory in all respects.

Students with disabilities

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- Disabilities Liaison Unit

Deferred assessment and special consideration

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at http://www.monash.edu.au/exams/special-consideration.html. Contact the Faculty's Student Services staff at your campus for further information and advice.