FIT5097
Business intelligence modelling

Unit guide

Semester 1, 2009

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FIT5097 Business intelligence modelling - Semester 1, 2009

Unit leader :

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Lecturer(s) :

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Introduction

Unit synopsis

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.

Learning outcomes

At the conclusion of the unit students will:

- Have knowledge of a variety of techniques for modelling business decision problems.
- Be able to choose the appropriate decision model for a particular problem.
- Have skills in setting up simple models and solving with hand calculations.
- Have skills in setting up mathematical models for solution in a spreadsheet or other application software
- Have skills in the validation of models and conducting a sensitivity analysis.
- Have skills in analysing a real problem and reporting the results
- Understand the difficulty of applying models to real situations, which often requires that approximations, simplifications and generalisations be made.
- Understand that the approximate nature of some types of business modelling means that a sensitivity analysis be conducted.

Workload

Workload commitments are:

One two-hour lecture per week,

One two-hour tutorial per week,

Approximately 8 hours per week are required for reading, tutorial exercises and assignment work.

Unit relationships

Prerequisites

No formal prerequisites although it is advisable that students have taken one quantitative unit (mathematics, statistics) at undergraduate level.

Relationships

This unit is a Business intelligence track core unit and an elective in the Master of Business Information Systems, Master of Business Systems and Master of Information Management and Systems. It is also an elective in the Master of Applied IT and Master of IT.

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.adm.monash.edu.au/cheq/evaluations/unit-evaluations/

Unit staff - contact details

Unit leader

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Lecturer(s) :

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Ms Poh Lim

Teaching and learning method

Modelling concepts and techniques will be introduced during lectures. Tutorials will be used to reinforce practical skills, which include manual calculations and the use of computer software for modelling and analysis. Each lecture will be accompanied by designated reading which students are expected to have completed beforehand.

Tutorial allocation

On-campus students should register for tutorials/laboratories 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	Key dates
1	Optimisation & Linear Programming	4/03/2009
2	Modelling LP Problems	11/03/2009
3	Simplex Method & Sensitivity Analysis	18/03/2009
4	Integer and Goal Programming	25/03/2009
5	Transportation and Assignment Problems	1/04/2009
6	Network Modelling	8/04/2009
Mid semester break		
7	Inventory Modelling under Certainty	22/04/2009
8	Inventory Modelling under Uncertainty	29/04/2009
9	Probability Theory & Decision Tree	6/05/2009
10	Forecasting	13/05/2009
11	Queuing Theory	20/05/2009
12	Simulation	27/05/2009
13	Review Session	3/06/2009

Unit Resources

Prescribed text(s) and readings

Ragsdale, C. T., Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Management Science, 5th Ed, Thomson, 2008.

Recommended text(s) and readings

Lapin, L. and Whisler, W., Quantitative Decision Making with Spreadsheet Applications 7th Ed. (or latest), Wadsworth (Thomson Learning) Belmont, 2002. (Prescribed Additional Text)

Anderson, D., Sweeney, D., Williams, T. Quantitative Methods for Business, Thompson Learning, 11th Edition (or latest edition), 2008.

Winston, W. L. Operations Research: Applications and Algorithms, with cases by Jeffrey B. Goldberg, Thomson Brooks/Cole, Southbank, Vic., 4th edn, 2004.

Willis, R. J. Business Modelling, Eruditions (2000) or latest edition (Additional Reading)

Required software and/or hardware

Microsoft Office 2003 (or later)

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:

- Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
- Weekly tutorial or laboratory tasks and exercises with sample solutions provided one to two weeks later;
- Assignment specifications;
- A sample examination and suggested solution
- Excel spreadsheets, other files and other applications as required.
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on MUSO, where resources outlined above will be made available.

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

To pass this unit, a student must obtain :

- 40% or more in the unit's examination and
- 40% or more in the unit's 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 assessment then a mark of no greater than 44-N will be recorded for the unit.

Assignment tasks

- **Assignment Task**

   Title : A Transportation Problem

   Description :

This assignment will look into a case study (adapted) of an oil company facing some problems with transportation and resource allocation . Students will be required to suggest a viable solution using the Simplex Method and spreadsheet modelling.

Assignment details to be announced during term.

Weighting : 20%

Criteria for assessment :

TBA
Due date : Friday 5th June 2009

- **Assignment Task**

    Title : Tutorial Work

    Description :

    Tutorial work will be assessed.
    Weighting : 10%

    Criteria for assessment :

    TBA
    Due date : After each tutorial session.

Examinations

- **Examination 1**

    Weighting : 70%

    Length : 3 hours

    Type (open/closed book) : Closed book

Assignment submission

Online submission via MUSO

Assignment coversheets

As assignments are to be submitted electronically via MUSO, coversheets are provided within the system.

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 later than one week after the due date will not normally be accepted.

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.