FIT5097
Business intelligence modelling

Unit Guide

Semester 2, 2012

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.

Last updated: 13 Jul 2012
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIT5097 Business intelligence modelling - Semester 2, 2012</td>
<td>1</td>
</tr>
<tr>
<td>Mode of Delivery</td>
<td>1</td>
</tr>
<tr>
<td>Contact Hours</td>
<td>1</td>
</tr>
<tr>
<td>Workload</td>
<td>1</td>
</tr>
<tr>
<td>Unit Relationships</td>
<td>1</td>
</tr>
<tr>
<td>Prohibitions</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>1</td>
</tr>
<tr>
<td>Chief Examiner</td>
<td>1</td>
</tr>
<tr>
<td>Campus Lecturer</td>
<td>1</td>
</tr>
<tr>
<td>Caulfield</td>
<td>1</td>
</tr>
<tr>
<td>Academic Overview</td>
<td>2</td>
</tr>
<tr>
<td>Outcomes</td>
<td>2</td>
</tr>
<tr>
<td>Graduate Attributes</td>
<td>2</td>
</tr>
<tr>
<td>Assessment Summary</td>
<td>2</td>
</tr>
<tr>
<td>Teaching Approach</td>
<td>3</td>
</tr>
<tr>
<td>Feedback</td>
<td>3</td>
</tr>
<tr>
<td>Our feedback to You</td>
<td>3</td>
</tr>
<tr>
<td>Your feedback to Us</td>
<td>3</td>
</tr>
<tr>
<td>Previous Student Evaluations of this unit</td>
<td>3</td>
</tr>
<tr>
<td>Recommended Resources</td>
<td>3</td>
</tr>
<tr>
<td>Unit Schedule</td>
<td>4</td>
</tr>
<tr>
<td>Assessment Requirements</td>
<td>5</td>
</tr>
<tr>
<td>Assessment Policy</td>
<td>5</td>
</tr>
<tr>
<td>Assessment Tasks</td>
<td>5</td>
</tr>
<tr>
<td>Participation</td>
<td>5</td>
</tr>
<tr>
<td>Examinations</td>
<td>6</td>
</tr>
<tr>
<td>Examination 1</td>
<td>6</td>
</tr>
<tr>
<td>Assignment submission</td>
<td>6</td>
</tr>
<tr>
<td>Online submission</td>
<td>6</td>
</tr>
<tr>
<td>Extensions and penalties</td>
<td>6</td>
</tr>
<tr>
<td>Returning assignments</td>
<td>6</td>
</tr>
<tr>
<td>Other Information</td>
<td>7</td>
</tr>
<tr>
<td>Policies</td>
<td>7</td>
</tr>
<tr>
<td>Student services</td>
<td>7</td>
</tr>
<tr>
<td>Reading list</td>
<td>8</td>
</tr>
</tbody>
</table>
FIT5097 Business intelligence modelling - Semester 2, 2012

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 (Day)

Contact Hours
2 hrs lectures/wk, 2 hrs laboratories/wk

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

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

Mark Carman
Academic Overview

Outcomes

At the completion of this 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 setting up models for solution in a spreadsheet or other application software;
- have skills in the validation of models and conducting a sensitivity analysis.
- 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.

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%

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Value</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spreadsheet modelling</td>
<td>30%</td>
<td>Friday 21st September 2012</td>
</tr>
<tr>
<td>Tutorial Work</td>
<td>10%</td>
<td>After each tutorial session.</td>
</tr>
<tr>
<td>Examination 1</td>
<td>60%</td>
<td>To be advised</td>
</tr>
</tbody>
</table>
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
- 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.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

Recommended Resources

Excel Solver is available for use in all University labs.
## Unit Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Please register for tutorials in Allocate Plus. There will be NO tutorials in Week 1. However, students are advised to attempt a &quot;Do-it-Yourself&quot; Tutorial in Week 1 to familiarise with EXCEL basics.</td>
<td>No formal assessment or activities are undertaken in week 0</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to Management Science and Operations Research; Introduction to Optimisation and Linear Programming</td>
<td>No tutorial in Week 1</td>
</tr>
<tr>
<td>2</td>
<td>Modelling and Solving LP Problems Graphically</td>
<td>Assessment Task 2: Tutorial Work is assessed weekly between weeks 2-12</td>
</tr>
<tr>
<td>3</td>
<td>Spreadsheet Modelling</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sensitivity analysis and the interpretation of solutions</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Integer Linear Programming &amp; Goal Programming</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Transportation and Assignment Problems; and Network Modelling</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Decision Analysis and Probability Theory</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Decision Trees</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Time Series Analysis and Forecasting</td>
<td>Assignment 1: Spreadsheet Modelling - due on 21st September</td>
</tr>
<tr>
<td>10</td>
<td>Inventory Modelling</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Queuing</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Simulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWOT VAC</td>
<td>No formal assessment is undertaken in SWOT VAC</td>
</tr>
</tbody>
</table>

*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.*
Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

Academic Integrity - Please see the Demystifying Citing and Referencing tutorial at http://lib.monash.edu/tutorials/citing/

Assessment Tasks

Participation

• Assessment task 1

  Title: Spreadsheet modelling

  Description: Solving business decision problems by linear programming and integer programming using the 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: Friday 21st September 2012

• Assessment task 2

  Title: Tutorial Work

  Description: Tutorial work will be assessed.

  Weighting: 10%

  Criteria for assessment:
  The criteria used to assess submissions are:

  1. Correctness and understanding - We will look for answers that reflect understanding of the underlying modelling techniques.
  2. Completeness - that you have answered all parts of each tutorial question.

  Due date: 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

Assignment submission

It is a University requirement [http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html](http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html) 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/](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).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the VLE site for this unit, which you can access via links in the my.monash portal.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.


Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.
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: 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)
- Special Consideration (http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.html)
- 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/)
- Codes of Practice for Teaching and Learning (http://www.policy.monash.edu/policy-bank/academic/education/conduct/suppdocs/code-of-practice-teaching-and-learning.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 www.monash.edu.au/students. For Sunway see http://www.monash.edu.my/Student-services, and for South Africa see http://www.monash.ac.za/current/

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. At Sunway, visit the Library and Learning Commons at http://www.lib.monash.edu.my/. At South Africa visit http://www.lib.monash.ac.za/.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: http://monash.edu/equity-diversity/disability/index.html
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway
Reading list


