FIT5159
IT for financial decisions

Unit Guide

Semester 2, 2010

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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Lecturer(s) / Leader(s):

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Introduction

Welcome to FIT5159 IT for financial decisions. This 6 point unit is a core unit in the Business Systems professional track of the MBIS degree, and an elective unit for the MBIS and other postgraduate courses within the Faculty of IT. The unit has been designed to provide students a broad understanding of IT tools and related techniques that can aid in the analysis and interpretation of real financial problems. This Unit will look at 6 real business related financial issues set in the context of specific case studies. You will gain an understanding of organizational environments, the contexts within which information technologies are used to aid financial decision making. This unit explores many aspects of IT with emphasis on the relationship between theoretical knowledge and its practical application using cases and real examples in Financial markets.

Unit synopsis

This unit provides students with an understanding of the development and use of IT tools and techniques for modelling and decision support in the field of finance. The unit is designed to give students a broad understanding of the financial subsystems confronting business enterprises. The main focus, besides the traditional modelling of finance decision making process using spreadsheet tools, will be IT tools and related techniques that can aid in the analysis and interpretation of real financial problems confronting an enterprise. This unit will look at business related financial issues in the context of specific case studies.

Learning outcomes

At the completion of this unit students will:

- understand the core foundations of finance, as appropriate to key financial analysis and decision making;
- understand the core technologies that support financial analysis and decision making;
- understand quantitative techniques supporting financial analysis and decision making;
- be able to apply the technologies and techniques studied to solving financial issues;
- be able to analyse financial solution requirements and select appropriate technical and quantitative decision aids;
- be able to interpret outputs from quantitative and technology based finance tools to aid in decision making.

Contact hours

2 hrs lectures/wk, 2 hrs laboratory/wk

Workload

This on-campus unit requires

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial (or laboratory) (requiring advance preparation)
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.
- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.
Unit relationships

Prerequisites

FIT9004 or FIT9017 or CSE9000 or BUS9520

Prohibitions

BUS5030
Teaching and learning method

Teaching approach

Lectures and hands on practical finance decision making problem solving (modelling), analysis of financial statements, and trend pattern predictions.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, http://mutts.monash.edu.au/MUTTS/

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: http://allocate.its.monash.edu.au/

Unit Schedule

<table>
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<tr>
<th>Week</th>
<th>Date*</th>
<th>Topic</th>
<th>Key dates</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>19/07/10</td>
<td>Introduction and Financial Statement Analysis</td>
<td></td>
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<tr>
<td>2</td>
<td>26/07/10</td>
<td>Capital Budgetting (spreadsheet modelling)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>02/08/10</td>
<td>Financial Processes (overview of System Dynamics Fundamentals)</td>
<td></td>
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<tr>
<td>4</td>
<td>09/08/10</td>
<td>System Dynamics Modelling Examples</td>
<td>Assignment task1 due 4:00 pm Wednesday 11 August 2010</td>
</tr>
<tr>
<td>5</td>
<td>16/08/10</td>
<td>Financial Benchmarking Techniques and tools</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>23/08/10</td>
<td>Uncertainties management with Real Options and Project valuations</td>
<td></td>
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<tr>
<td>7</td>
<td>30/08/10</td>
<td>Financial clustering/classifications methods (ANN-SOM)</td>
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<tr>
<td>8</td>
<td>06/09/10</td>
<td>Financial Clustering/classification problems and solution with hybrid tools</td>
<td>Assignment Task 2 due- 4:00 pm Wednesday 08 Sep 10</td>
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<tr>
<td>9</td>
<td>13/09/10</td>
<td>Financial forecasting (statistical and machine learning approach)</td>
<td></td>
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<td>10</td>
<td>20/09/10</td>
<td>Hybrid machine learning techniques for credit risk evaluation</td>
<td>Mid semester break</td>
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<tr>
<td>11</td>
<td>04/10/10</td>
<td>Capital Structure Decision Basic</td>
<td>Assignment task 3 due - 4:00 pm Wednesday 13 Oct 10</td>
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<tr>
<td>12</td>
<td>11/10/10</td>
<td>Capital structure Decision extension</td>
<td></td>
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<td>13</td>
<td>18/10/10</td>
<td>Self Revision</td>
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*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.

**Improvements to this unit**

Changes in three assignment task details, in accordance with the students’ progress, to avoid replication of previous offering will be introduced.
Unit Resources

Prescribed text(s) and readings


Copies of the above recommended Text/reference 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. There are also copies in Monash University Main and Caulfield libraries.

Recommended text(s) and readings


Required software and/or hardware

The following softwares are useful tools to carry out laboratory tasks

Excel Spreadsheet and Crystal Ball

i-think or System Dynamic (PowerSim)

Neuroshell version 2

Viscovery SOMINE

Matlab financial toolbox (optional)

Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations 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 and requirements;
- A sample examination (different from actual examination) and suggested solution;
- Access to past examination papers;
- Discussion groups;
• This Unit Guide outlining the administrative information for the unit:
• The unit web site on MUSO (moodle), where resources outlined above will be made available.
Assessment

Overview

Examination (2 hours): 60%; In-semester assessment: 40%

Faculty 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.

Assignment tasks

Assignment coversheets

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.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

Assignment submission and preparation requirements will be detailed in each assignment specification. 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.

Assignment task 1

Title: Capital Budgetting Spreadsheet modelling

Description: This assignment task is about how to use the information reported in a complete set of three financial statements to analyse four selected firms in a specific industry. Given a capital budget for investment, the task is to work out a portfolio weight for each firm based on capital budgetting requirements.

Weighting: 10%

Criteria for assessment:
Laboratory demonstration with oral presentation (inclusive of Q & A) during laboratory classes (continuous assessment). Students are expected to have at least 6 hours of prior preparation for each task. The assignment weights to be used include:

demonstration the working of the spreadsheet/mathematical model (30%);

Interpretation of the numerical results and sensitivity analysis (40%).

software system and financial model flexibility (ease of use, etc) (30%).

Note that

1. Students may choose any programming language to implement their financial model.
2. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
3. Completeness - that you have answered all parts of each question.
4. Presentation - that you have presented your answers in a suitably formatted report style.
5. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

Due date:
4:00 pm Wednesday 11 August 2010

• Assignment task 2

Title:
Visualization for clustering of firms using Self-organising feature Map

Description:
This assignment task is to test students on the use of Self-organisation feature map tool based on artificial neural network platform. Students will use a public domain SOMINE tool with defined clustering criteria and visualization aids to develop clusters of company price data for:

1) investment portfolio selection
2) prediction of failed and nonfailed firms
3) portfolio risk management for the selected set of portfolio from (1)

Weighting:
15%

Criteria for assessment:
Laboratory demonstration with oral presentation (inclusive of Q & A) during laboratory classes (continuous assessment). Students are expected to have at least 6 hours of prior preparation for each task. The assignment weights to be used include:

demonstration the working of the spreadsheet/mathematical model (30%);

Interpretation of the numerical results and sensitivity analysis (40%).

software system and financial model flexibility (ease of use, etc) (30%).

Note that
1. Students may choose any programming language to implement their financial model.
2. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
3. Completeness - that you have answered all parts of each question.
4. Presentation - that you have presented your answers in a suitably formatted report style.
5. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

**Due date:**
4:00 pm Wednesday 08 Sep 2010

### Assignment task 3

**Title:**
Modelling credit risk for business loan evaluation using neuro-fuzzy inference system

**Description:**
This assignment applies multi-criteria decision making to evaluate credit risk for commercial loans application by financial institutions. Students will learn how to use neurofuzzy inference tool to carryout loan application assessments. Students may opt to use Matlab Neurofuzzy toolbox or write own programming codes using software language of their choice.

**Weighting:**
15%

**Criteria for assessment:**
Laboratory demonstration with oral presentation (inclusive of Q & A) during laboratory classes (continuous assessment). Students are expected to have at least 6 hours of prior preparation for each task. The assignment weights to be used include:

- demonstration the working of the spreadsheet/mathematical model (30%);
- Interpretation of the numerical results and sensitivity analysis (40%);
- software system and financial model flexibilility (ease of use, etc) (30%).

Note that

1. Students may choose any programming language to implement their financial model.
2. Correctness and understanding - there may be more than one "right" answer in many cases. We will look for answers that reflect understanding of the underlying principles and theories.
3. Completeness - that you have answered all parts of each question.
4. Presentation - that you have presented your answers in a suitably formatted report style.
5. Use of evidence and argument - you are able to explain your position by using logical argument drawing on the theory presented in the unit.

**Due date:**
4:00 pm Wednesday 13 October 2010
Examination

- **Weighting:** 60 %
- **Length:** 2 hours
- **Type (open/closed book):** Closed book
- **Electronic devices allowed in the exam:** Scientific and/or Financial calculators without prior programming.
- **Remarks:** Multiple choice questions plus computation and discussion questions

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

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 not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html

Late assignment

Return dates

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

Feedback

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Interviews
Appendix

Please visit the following URL: http://www.infotech.monash.edu.au/units/appendix.html for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams