

VICTORIA MANAGEMENT SCHOOL

MMBA 508
PROBLEM SOLVING AND DECISION ANALYSIS

Trimester 1 2006

COURSE OUTLINE

CONTACT DETAILS

Lecturing Staff

Associate Professor Vicky Mabin (Course Coordinator)

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If you have any queries, you are welcome to contact me. If I'm not in my office, I suggest you send me an email. Or you may email or phone to arrange a time.

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MBA Programme Administrator

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CLASS TIMES AND ROOM NUMBERS

The class will meet weekly in on **Mondays** from **5.40 – 7.30 pm** in **RH LT3**. You are expected to attend all classes as the formal presentation component of the classes is just a small part and will be supplemented with a mix of discussions, case analyses, videos, exercises and games.

There will be an end-of-course examination in the Trimester 1 examination period which runs from 9 June to 24 June inclusive.

COURSE OBJECTIVES

Purpose

“Decision making is arguably the most important job of the senior executive and one of the easiest to get wrong. It doesn’t have to be that way - if you look at the process in a whole new light” (Garvin and Roberto, 2001). The purpose of this course is to present new ways of viewing decision situations, which foster an inquiry process so that problem situations are dealt with in a constructive and considered way to enable more robust and balanced decisions to be made.

While making decisions is a fundamental managerial task which has been the subject of much study, actually becoming a good decision maker is rather like becoming a good athlete: you need to examine the process of decision-making systematically, decide on better processes, and practise those improved methods. We will present a range of models, coupled with assignments and exercises to help you start practising their use, to help you better understand and improve your own decision-making processes.

Course Objectives

The course has several objectives:

- Understand the roles of intuition and analysis in decision making
- Developing analytical skills for problem solving and decision making
- Exploring ways of approaching a range of typical business decision problems
- Applying systems thinking concepts to managerial decision making
- Improving your competence in structuring decision problems using models
- Understand the role and impact of risk, uncertainty, ambiguity, preferences, judgement
- Developing familiarity with typical decision trade-off situations and ways of handling them
- Developing your own ability to devise robust strategies and make balanced decisions.

COURSE CONTENT

Session content will vary, including discussion of problematic situations and how they may be approached, using lectures, class discussions, exercises, games and computer demonstrations. A schedule of topics considered in the course is attached and includes the dates on which they will be covered in class. Session outlines will be provided at least one week in advance.

This course will require approximately 8 hours per week, in addition to class time to complete the readings and assignments. However this is only a guide: the readings and assignments usually take much longer than expected, and unexpected problems may occur, so you are strongly advised to start applying the methods early, and work to a plan, to facilitate the on-time completion of assignments.

A schedule of topics to be covered on the course is appended at the end of this outline.

READINGS

Readings and cases will be made available at least a week in advance. All sessions will draw on published literature as well as real cases, where possible New Zealand examples. Several books are drawn on, and where possible excerpts from these are provided as handouts. However there are two books that you will draw on substantially, and it would be preferable for you to have access to these books from the start of the course. These books are available at cost from VMS

The Goal (2nd Rev Edn) **EM Goldratt and J Cox** North River Press 1992

It's Not Luck **E M Goldratt** North River Press 1994

Copies of selected chapters and published articles, as well as lecture notes and other class materials, will be handed out at the start of the course and in class.

MATERIALS AND EQUIPMENT

Access to a computer is expected, as all assignments should be typed, printed and bound/stapled, and some set work will need you to use spreadsheet or specialist computer software. Electronic calculators will be allowed in the examination room, but computers and communication devices are not allowed.

ASSESSMENT REQUIREMENTS

The course will be assessed as follows:

In-term work:

Assignment 1: TOC assignment	
(a) Individual Evaporating Cloud	10%
(b) Group report	20%
Assignment 2: Systems thinking project	
(a) Group report	15%
(b) Individual reflective essay	5%
Mid Year Examination (3 hours Open Book)	<u>50%</u>
Total	100%

Course Contributions and Assignments

1. TOC Assignment

The objective of this assignment is to analyse a problematic issue identified within an organisation you (or your one of your group members) are familiar with. This will involve applying a range of TOC tools to analyse the situation and develop a solution.

This assignment will be in two parts:

- (a) an **individual exercise** (10 marks) due **27 March 2006**
each participant will interview a manager in a different functional area of the chosen organisation, construct an Evaporating Cloud, based on this interview.
Length: approximately 5 pages.
- (b) a **group project** (15 marks) due **28 April 2006**
This will build on the individual clouds from part a, develop a common core problem, and build a solution for this core problem, and be written up in a project report.
Length guide: 10-15 pages, excluding appendices. (see below on length guidelines)
More information will be provided in class.

2 Systems thinking project – due 29 May 2006

This assignment will be in two parts:

- (a) a **group** systems thinking project. (15 marks)
You will be required to undertake a 'systems thinking' study to analyse an issue identified within an organisation you (or your one of your group members) are familiar with. This will involve applying a range of systems thinking tools to analyse the situation and presenting the analysis as a management report (3,000 words max, not including appendices).
- (b) an **individual essay** (5 marks)
each participant will be required to write a reflective essay discussing their learning, contributions and insights from the group systems thinking project (1,000 words max).

[Further details will be handed out in class]

3. Examination

There will be an examination in the mid-year examination period which runs from 9 June to 24 June inclusive. Electronic calculators will be allowed in the examination room, but computers and communication devices are not allowed.

4. Contributions to Class Discussion

As is the case with most post-graduate courses, course members will have plenty to learn from each other as well as the staff, and thoughtful contributions are welcomed in class. Please read materials/case studies prior to the class, and attempt to analyse the problem situation, the method being explored, and integrate those with your own experiences, so that you can make a valuable contribution to the discussion.

The assignments are carefully designed to allow you to develop your understanding of the methods explored in class, by applying them to real life problems. In each case, you will need to demonstrate a thorough understanding of the theoretical underpinnings of the method(s), as well as demonstrating its/their application to a real problem. You will need to draw on your own experience or contacts when choosing a problem to use to demonstrate the application of the techniques.

The mid year examination will require you to demonstrate a sound knowledge of the material and an ability to apply the methods taught on the course.

MANDATORY COURSE REQUIREMENTS

To meet Mandatory Course Requirements, you must

- a. Submit all assignments by their due dates or within approved extensions;
- b. Obtain at least 30% on each of the two assignments;
- c. Obtain at least 40% for in-term work; and
- d. Obtain at least 40% in the final exam.

The overall pass mark is 50% of the total marks available.

- Students who fail to satisfy the mandatory requirements for this course but who obtain 50% or more overall, will be awarded a "K" grade.
- Standard fail grades (D or E) will be awarded when the student's overall course mark falls below the minimum pass mark, whether or not the mandatory course requirements have been satisfied.
For example, a student who obtains an overall course mark of 35 and does not fulfil one or more of the mandatory course requirements will be given an E grade. A student who fails to sit an examination will have their course mark calculated with an entry of Zero for the exam and their grade determined in the usual way.
- Notice of Failure to meet Mandatory Requirements (a) – (c) will be posted on Blackboard or on the Mezzanine Floor Notice-board. Students will be expected to check both places for notification.

Victoria MBA Grading Standards are as follows:

Excellent Category

A- (75 – 79%) to A (80 – 85%) to A+ (above 85%): The quality is performed to a very high level of proficiency, i.e. it is at a standard that makes it exceptional at Master's level.

Very Good Category

B+ (70 – 74%): The quality is performed at a high standard. Students have reached a level that clearly exceeds "competency".

Good Category

B (65 – 69%): The quality is clearly demonstrated without being exceptional in any way. Students can be thought of as competent in respect of this quality.

Satisfactory Category

B- (60 – 64%): The quality is clearly demonstrated without being exceptional in any way. Students can be thought of as competent in respect of this quality.

Marginal Category

C (50 – 54%) to C+ (55 – 59%): The quality is demonstrated to a minimally acceptable level. There may be flaws but these are not serious enough to “fail” the student on this quality.

Unsatisfactory / Failure Category

E (0 – 39%) to D (40 – 49%): The quality is absent or performed to a very low level, or the performance is seriously flawed in this respect.

K Failure to achieve mandatory course requirements and have achieved at least an average ‘C’ grade over all the assessment.

Individual Work

While the Victoria MBA programme has a tradition of study group collaboration, there are important elements in the assessment process that are strictly individual. Collaboration on individual assignments is not allowed beyond general discussion as to how one might interpret the nature of the assignment question. Please do not work together to formulate a response and do not loan out your completed assignments.

Handing in Assignments

Assignments should be submitted, in hard copy form in class by the due time on the due date. Assignments received after that time will be deemed to be late, and must be handed to the lecturer concerned or to Jacqui Fitzgerald, the MBA Programme Administrator, RH 1004.

All Hand-Ins should have: a Cover Sheet stating your name, the course name, assignment name and number, a word count and due date. You should also put page numbers on each page, and use in-text referencing and include a list of references at the end.

Students must prepare two copies of each hand-in and keep the second copy for their own reference. Students must also keep an electronic copy of their work.

Referencing

There are many different styles of referencing and the Faculty of Commerce & Administration at VUW has decided to make APA (American Psychological Association) referencing style the common standard across the Faculty. The Commerce and Central Libraries hold the APA Style Guide. You can also access the information from the online VUW library site (<http://www.vuw.ac.nz/library/resources/virtualref.shtml#style>).

PENALTIES

Penalties for lateness

In keeping with standards of professionalism appropriate to an MBA degree, it is expected that deadlines will be honoured. In fairness to students who complete work on time, work submitted after the deadline will be subject to a penalty of 5% of the total marks available per day of lateness. Assignments more than 7 days late will not be accepted. A “zero” mark will be applied. In the event of unusual, unforeseen circumstances (e.g., serious illness, family bereavement), students should discuss waiver of the penalty with the course co-ordinator as soon as possible, prior to the deadline date. When calculating the late penalty, Saturdays, Sundays and public holidays are included when counting the number of days that an assignment is late.

Length Guidelines

Word limits or length guidelines are given for each assignment. The length or word guides suggested are designed to incorporate a succinct statement of the problem situation; a brief description of the method(s) being applied; the demonstration of the application, including diagrams or tables; discussion of the findings, conclusion and recommendations; reflections/critique of the usefulness of the approach; and a full list of references and source material. You may allow additional pages for title pages, and appendices as appropriate. A style of writing suitable for business reports is normally required, though for the first assignment, you may wish to adopt a more personal style. Significant departures from an economical style, word limits, or inattention to spelling, grammar, punctuation, formatting, ... will reduce the marks awarded to the report by up to 10% of the original mark.

COMMUNICATION OF ADDITIONAL INFORMATION

The MBA 508 email distribution list and Blackboard will be used for additional information, and students are advised to ensure that the MBA Programme Administrator and the MMBA Course Coordinator have an up-to-date student email address. Important notices and exam timetables are posted on Blackboard. Students must ensure they check Blackboard and their student email accounts regularly for important notices.

Faculty of Commerce and Administration Offices

Railway West Wing (RWW) - FCA Student Administration Office

The Student Administration Office is located on the ground and first floors of the Railway West Wing. The ground floor counter is the first point of contact for general enquiries and FCA forms. Student Administration Advisers are available to discuss course status and give further advice about FCA qualifications. To check for opening hours call the office on (04) 463 5376.

Easterfield (EA) - FCA/Law Kelburn Office

The Kelburn Campus Office for the Faculties of Commerce & Administration and Law is situated in the Easterfield Building - it includes the ground floor reception desk (EA005) and offices 125a to 131 (Level 1). The office is available for the following:

- Duty tutors for student contact and advice.
- Information concerning administrative and academic matters.
- FCA Student Administration forms (e.g. application for academic transcripts, requests for degree audit, COP requests).
- Examinations-related information during the examination period.

Check with the Student Administration Office for opening times (04) 463 5376.

GENERAL UNIVERSITY POLICIES AND STATUTES

Students should familiarise themselves with the University's policies and statutes, particularly those regarding assessment and course of study requirements, and formal academic grievance procedures.

Student Conduct and Staff Conduct

The Statute on Student Conduct together with the Policy on Staff Conduct ensure that members of the University community are able to work, learn, study and participate in the academic and social aspects of the University's life in an atmosphere of safety and respect. The Statute on Student Conduct contains information on what conduct is prohibited and what steps can be taken if there is a complaint. For queries about complaint procedures under the Statute on Student Conduct, contact the Facilitator and Disputes Advisor. This Statute is available in the Faculty Student Administration Office or on the website at: www.vuw.ac.nz/policy/StudentConduct.

The policy on Staff Conduct can be found on the VUW website at:

www.vuw.ac.nz/policy/StaffConduct.

Academic Grievances

If you have any academic problems with your course you should talk to the tutor or lecturer concerned or, if you are not satisfied with the result of that meeting, see the Head of School or the Associate Dean (Students) of your Faculty. Class representatives are available to assist you with this process. If, after trying the above channels, you are still unsatisfied, formal grievance procedures can be invoked. These are set out in the Academic Grievances Policy which is published on the VUW website:

www.vuw.ac.nz/policy/AcademicGrievances.

Academic Integrity and Plagiarism

Academic integrity is about honesty – put simply it means **no cheating**. All members of the University community are responsible for upholding academic integrity, which means staff and students are expected to behave honestly, fairly and with respect for others at all times.

Plagiarism is a form of cheating which undermines academic integrity. Plagiarism is **prohibited** at Victoria.

The University defines plagiarism as follows:

Plagiarism is presenting someone else's work as if it were your own, whether you mean to or not.

'Someone else's work' means anything that is not your own idea, even if it is presented in your own style. It includes material from books, journals or any other printed source, the work of other students or staff, information from the Internet, software programmes and other electronic material, designs and ideas. It also includes the organization or structuring of any such material.

Plagiarism is not worth the risk.

Any enrolled student found guilty of plagiarism will be subject to disciplinary procedures under the Statute on Student Conduct (www.vuw.ac.nz/policy/studentconduct) and may be penalized severely.

Consequences of being found guilty of plagiarism can include:

- an oral or written warning
- suspension from class or university
- cancellation of your mark for an assessment or a fail grade for the course.

Find out more about plagiarism and how to avoid it, on the University's website at:

www.vuw.ac.nz/home/studying/plagiarism.html.

Students with Disabilities

The University has a policy of reasonable accommodation of the needs of students with disabilities. The policy aims to give students with disabilities an equal opportunity with all other students to demonstrate their abilities. If you have a disability, impairment or chronic medical condition (temporary, permanent or recurring) that may impact on your ability to participate, learn and/or achieve in lectures and tutorials or in meeting the course requirements, then please contact the Course Coordinator as early in the course as possible. Alternatively you may wish to approach a Student Adviser from Disability Support Services to confidentially discuss your individual needs and the options and support that are available. Disability Support Services are located on Level 1, Robert Stout Building, or phoning 463-6070, email: disability@vuw.ac.nz. The name of your School's Disability Liaison Person can be obtained from the Administrative Assistant or the School Prospectus.

Student Support

Staff at Victoria want students' learning experiences at the University to be positive. If your academic progress is causing you concern, please contact the relevant Course Co-ordinator, or Associate Dean who will either help you directly or put you in contact with someone who can.

The Student Services Group is also available to provide a variety of support and services. Find out more at www.vuw.ac.nz/st_services/ or email student-services@vuw.ac.nz.

VUWSA employs two Education Coordinators who deal with academic problems and provide support, advice and advocacy services, as well as organising class representatives and faculty delegates. The Education Office is located on the ground floor, Student Union Building, phone 463 6983 or 463 6984, email education@vuwsa.org.nz.

Manaaki Pihipihinga Maori and Pacific Mentoring programme (Faculties of Humanities and Social sciences and Commerce and Administration).

What:

- ⊖ Academic Mentoring for Maori and Pacific students studying at all levels in the above faculties. Weekly sessions for an hour with a mentor to go over assignments and any questions from tutorials or lectures. Registered students can use the faculty's study rooms and computer suite at any time at Kelburn and Pipitea.
- ⊖ Mature student and Post grad network

If you would like to register as a mentor or mentee please contact the coordinator.

Melissa Dunlop
Programme Coordinator
Room 109 D
14 Kelburn Parade: back courtyard
Ph: (04) 463 6015
Email: Maori-Pacific-Mentoring@vuw.ac.nz

Please Note: A mentoring room will also be running at Pipitea Campus starting January. Please contact the Programme Coordinator for details.

LECTURE SCHEDULE – MMBA 508

Week 1 • Introduction to Problem Solving and Decision Analysis

This session introduces the course, its purposes and learning objectives, structure and assignments.

Week 2 • A Process of On-going Improvement

Goldratt's book, *The Goal*, describes a common problematic situation, and how the hero, Alex Rogo, resolves the mess with guidance from Jonah. We will start looking at the Theory of Constraints: starting with Goldratt's 'process of ongoing improvement'.

Pre-reading: *The Goal*.

Week 3 • TOC Thinking Processes Part I

Goldratt's Thinking Processes framework provides a useful analytical approach to problem structuring, solution and implementation that uses the decision maker(s)'s intuition in developing a systems view with appropriate levels of detail at each stage of the decision making process. In this session we will start our study of the TP tools with those that use 'necessary condition' thinking. We will use the Evaporating Cloud method to explore in a constructive fashion – and hence resolve – conflicts, dilemmas and tradeoffs .

Pre-Reading: *It's Not Luck: Chapters 2, 3*

Week 4 • Taking a Systems View - TOC Thinking Processes Part II

Decision making in an organisational setting demands that we explore problems from more than one person's view. Today we start to explore how a systems view may be obtained, building on the EC framework from Week 3. In this session we will explore the tools that use cause-effect thinking.

Week 5 • Developing fundamental solutions

This week we start building fundamental (long-term) solutions by combining the two different types of logic: the necessary condition logic as in the Evaporating Cloud and the cause effect logic. We will explore how TOC tools can be used to deal with so-called 'resistance to change'.

Week 6 • Dealing with variability and scheduling in lines and projects

Few activities we undertake are isolated events, and variability is an unavoidable part of our live. The combined effects of these two factors are often underestimated, which presents managers with special challenges. In this session we will explore the effects of variability and dependencies and present some ways of managing the effects of variability in a range of situations, including production lines and projects.

Week 7 • Systems thinking and group model building – Dr Bob Cavana

This session will focus on introducing systems thinking concepts using the qualitative tools of system dynamics. The group model building will involve using hexagons as a facilitation technique to surface factors relevant to addressing problem situations, and then organising these factors to enable further systemic analysis with causal loop models

Week 8 • Causal Loop Modelling

This session will concentrate on developing causal loop models. This involves identifying the relevant variables to a problem situation (or opportunity), developing a causal loop diagram, analysing the main feedback loops, preparing a behaviour over time chart for the main variables, identifying leverage points within the system, and recommending intervention strategies where appropriate

Week 9 • Systems Archetypes

Peter Senge introduced a range of systems archetypes in his internationally famous book '*The Fifth Discipline: The Art & Practice of the Learning Organization*' (Random House, Australia, 1990). In this session we will explore a range of these archetypes, and discussing their application to a variety of problem solving and decision making situations.

Week 10 • Decision Analysis (Assoc. Prof. Vicky Mabin)

Sometimes choices between alternative actions are made problematic by the uncertainty surrounding the outcomes that may result from each action. Prospect Theory provides an explanation of how we often deal with such situations, while 'Decision Analysis' provides an analytical framework for structuring and resolving such problems. Decision Analysis can also be used to structure and analyse sequences of decisions that commonly occur in real life problems.

Week 11 • Incorporating Multiple Criteria when making Choices

Sometimes choices are problematic because many criteria are considered to be important in making the choice, but no one alternative performs well on all criteria. Multi-criteria decision analysis provides a framework that helps managers decide between alternatives in such complex situations.

Week 12 • Review and Integration

In reviewing the course, we will explore linkages and synergies between the methods described, and the benefits of taking a multi-perspective approach in order to arrive at robust strategies and well-balanced decisions. We'll wrap up with course evaluations and a detailed exam brief – not to be missed!