



VICTORIA MANAGEMENT SCHOOL

CMSP 801 PROBLEM SOLVING & DECISION MAKING

Trimester 1 2007

COURSE OUTLINE

Contact Details

Course Coordinator: Associate Professor John Davies

Office: Rutherford RH 1018 email: john.davies@vuw.ac.nz
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Lecturer:

Associate Professor Bob Cavana
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Programme Administrator:

Charlotte Deans
Office: Rutherford RH 1004 email: charlotte.deans@vuw.ac.nz
Telephone: 463-5367 Fax: 463-5084

Class Times and Room Numbers

Start Date: Thursday, 1 March 2007
Lecture Times: Thursday, 17:40 – 19:30 pm.
Location: Rutherford House LT 2
Format: One two-hour session each week .

Final Examination Period: 7th – 27th June 2007

Introduction

The purpose of the Certificate in Management Studies programme is to provide individuals, who already have the benefit of practical experience in the public and private sectors, with the knowledge and skill base that will allow them to build on those experiences in preparation for different, more demanding or senior managerial roles.

The essential focus of this course is to build an understanding of problem-solving and decision-making processes. The course provides a multiple perspective approach to the framing and solution of problems, and critically examines alternative approaches to managerial decision-making, allowing students to develop insights and understanding about the nature of problem-solving and decision-making. The aim of the course is to provide students with an introduction to a range of relevant ideas and issues that will allow for the development of competencies to improve their problem solving and decision-making processes.

Course Objectives & Related Content

The course has several objectives, some of which include:

- understanding the variety of ways in which decisions are and can be made
- understanding the role and impact of risk, uncertainty, ambiguity, preferences, judgement ...
... on decision-makers and decision-making
- understanding the roles of intuition and analysis in decision-making
- exploring ways of approaching a range of typical problems and decision situations
- improving your competence in structuring problems using formal and informal methods
- applying systems thinking concepts to managerial decision making
- developing your analytical skills in data handling and interpretation
- heightening your awareness of the problem-solving process inherent in decision-making
- exposing you to a range of problems and decision-making situations ...
... in different functional areas of management, at strategic and operational levels
- developing familiarity with typical decision trade-offs & evaluation techniques
- familiarising the student with the use of the computer-aided methods in decision making
- developing an ability to devise robust strategies and make balanced decisions.

General Learning Objectives

On successful completion of the course, you should be able to:

- demonstrate an understanding of the major frameworks and concepts ...
... under-pinning successful problem-solving and decision analysis
- use such frameworks to develop an understanding of managerial decision situations
- demonstrate competence in using a range of methods in problem solving & decision-making.

Specific Learning Objectives

On successful completion of the course, you should be able to:

- demonstrate an awareness of the frames you use in making a decision
- consciously change frames
- demonstrate an awareness of the common pitfalls in decision making
and the limitations of intuitive decision making
- demonstrate an informed decision making style
- structure a managerial decision problem in appropriate ways
- identify key factors and relationships in a decision and
... structure the problem to explore such relationships, and in doing so
... develop an enhanced understanding of a problem, the impact of possible actions &
... draw valid conclusions.

Approach

- 1 Course activities are structured so that you may **learn by 'doing and using.'**
- 2 **Case studies** and assignments will provide the opportunity to **develop skills**, knowledge and understanding.
- 3 Class contact will comprise an integrated mix of lecture, discussion and exercises.
Lectures will focus on bringing out the central issues and providing students with a range of illustrative situations and models, rather than covering materials found in the readings. You may therefore find it beneficial to 'go over' the week's readings in advance of class when advised to do so.

Problems

Students wishing to discuss any matters affecting or relating to the course should contact John Davies.

Assessment

A student's overall grade in the course will be determined in the following manner:

1 Terms Work

Assignments

There will be two (2) assignments, each worth a maximum of 25 marks (See 3 below).

Assignment 1: due Thursday, 29 March 2007 - at class - Framing Exercise

Assignment 2: due Thursday, 31 May 2007 - at class - Group systems thinking project

Mandatory Terms Requirements

- comprise: (i) submission of **all** assignments / reports **on the due dates**
- (ii) obtaining **at least 40%** of the marks available to assignments
- Students who fail to satisfy the mandatory requirements [(i) to (ii)] 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 i) to ii) will be posted on Blackboard or on the Mezzanine Floor Notice-board. Students will be expected to check both places for notification.

2 Exam

A Closed Book Test will be conducted in the June Exam period: June 7th – 27th 2007

The examination is worth 50% of the total marks available for this course.

- the pass mark for the test will be 40%.

Silent calculators may be used in the exam, but computers are **not** permitted.

3 Overall Grade

Your overall grade will be found by combining your terms mark and test/exam mark in a 50:50 ratio.

4 Overall Pass Mark

- will be 50% of the total marks available.

5 Individual & Group Work

While the CertMS programme has a tradition of study group collaboration, there are important elements in the assessment process that are strictly individual. Collaboration on assignment 1 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. You will be expected and encouraged to work in groups on in-term cases and assignment 2

6 Grading Guidelines

The following broad indicative characterisations of grade will apply in grading:

- Excellent Category A- (75 – 79%) to A (80 – 85%) to A+ (above 85%):
The learning is demonstrated 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 learning is demonstrated at a high standard. Students have reached a level that clearly exceeds "competency".
- Good Category B (65 – 69%):
The learning is clearly demonstrated without being exceptional in any way. Students can be thought of as fully competent.
- Satisfactory Category B- (60 – 64%):
The learning is demonstrated without being exceptional in any way. Students can be thought of as competent.
- Marginal Category C (50 – 54%) to C+ (55 – 59%):
The learning is demonstrated to a minimally acceptable level. There may be flaws but these are not serious enough to "fail" the student.
- Unsatisfactory / Failure Category E (0 – 39%) to D (40 – 49%):
The learning is absent or performed to a very low level, or the performance is seriously flawed.
- Ungraded Failure K
Failure to achieve mandatory course requirements and have achieved at least an average "C" over all the assessment.

7 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 Charlotte Deans (RH 1004), the Administration Assistant for this course.

All Hand-Ins should have: an Assignment Cover Sheet stating your name, the course name, tutor's name, tutorial number and day/time, 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. Preferred referencing style is APA system.

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

Word limits should be adhered to, especially so when they provide a guide to limiting the student's coverage of a topic.

8 Penalties - for Lateness & Excessive Length of Assignments

- (i) In fairness to other students, work submitted after any deadline will incur a penalty for lateness. **The penalty is 2 of the marks available** for an assignment submitted after the due time on the due date **for each part day or day late.**

When calculating the late penalty **Saturdays, Sundays and public holidays will be included** when counting the number of days that an assignment is late.

Assignments received more than 7 days after the deadline will not be accepted and the student will automatically fail terms.

- (ii) Course Outlines provide a signal to students of forthcoming workload, dates of submission etc, and thus student study plans should take account of course requirements across all courses. Consequently, workload issues related to other courses and employment will not be accepted as reason for dispensation from mandatory requirements or waiver of penalties.

Extensions to submission deadlines for any assigned work will only be granted in exceptional circumstances.

- (iii) Students who are unable to comply with any of the mandatory requirements should make a written application for an extension to the due date for submission of assigned work or for waiver of a penalty, **in advance**, to the Course Coordinator, providing documentary evidence of the reasons of their circumstances.

All such applications must be made **before** the deadline and be accompanied by documentary evidence, eg a medical certificate, or counsellor's report that indicates the degree of impairment, and for how long the student has been impaired. Please be sure to ask at the time of consultation for the degree of impairment to be stated in any certificate you provide to support your case.

- (iv) In the event of unusual or unforeseeable circumstances (e.g. serious illness, family bereavement), that precludes an application in advance, students should make contact with the Tutorial Coordinator as soon as possible, and make application for waiver of a penalty as soon as practicable.

- (v) Word limits should be adhered to, especially so when they provide a guide to limiting the student's coverage of a topic.

Expected Workload

Students can expect the workload to be approximately 10hrs per week including both scheduled contact time and outside class.

Communication

As you will learn from all papers or courses offered by VMS, good communication is crucial to the success of any organisation, programme or course. Communication in this course will be conducted in face-to-face mode in the lectures as well as through the **Blackboard** system.

Notices - Communication of Additional Information

Information on course-related matters will be announced at class and posted on the **Blackboard** website at <http://blackboard.vuw.ac.nz/>. It will be crucial for you to regularly check Blackboard for messages, announcements and materials.

Notice of Failure to meet Mandatory Terms Requirements, as specified above in the section on Assessment, will be posted on Blackboard or on the Mezzanine Floor Notice-board. Students will be expected to check both places for notification.

Email Contact

Students wishing to contact staff by email should adhere to the following instructions:

Include the **Course Code**, your **Name**, your **Student ID** and the **Topic** in the subject area of the email, eg
CMSP 801_Smith_Pauline_3000223344_Ass1 Query

All students must use their VUW SCS email account and ID. Otherwise, email will be classified as Spam and will be dumped without being read. All emails with attachments will be dumped, unless requested by staff.

Please do not hesitate to raise an issue, as it may be a common student concern. Staff will either respond immediately, or seek clarification and then respond. If concerns remain, then the programme director should be contacted.

Readings: This course will rely on selected materials from a variety of sources, including texts, practitioner and academic journals.
A set of readings will be distributed at class.

Texts

Texts suitable for segments of the course include:

- Bazerman, M. (1996). *Judgement in Managerial Decision-Making*, New York: Wiley
- Maani, K.E. and Cavana, R.Y. (2000). *Systems Thinking and Modelling: Understanding Change and Complexity*. Pearson Education NZ (Prentice Hall), Auckland.
- Nutt, PC. (2002). *Why Decisions Fail - Avoiding the blunders and traps that lead to debacles*, San Francisco: Berrett-Koehler Publishers.
- Russo, JE & Schoemaker, PJH. (1989). *Decision Traps*, New York: Fireside
- Russo, JE & Schoemaker, PJH. (1992). *Confident Decision Making*, London: Piatkus
- Targett, D. (1996). *Analytical Decision Making*, London: Pitman

Students may also wish to consult the following books, prescribed in previous years.

- Hicks, MJ (1991). *Problem Solving in Business & Management*, London: Chapman-Hall
- Targett, D. (1984). *Coping with Numbers*, London: Martin Robertson
- JR Eiser, JR & Van der Pligt, R (1988). *Attitudes & Decisions*, London: Routledge
- A S C Ehrenberg, ASC (1982). *A Primer in Data Reduction*, London: Wiley
- E Goldratt, E & Cox, J (1992). *The Goal*, 2nd Ed, Croton-on-Hudson: North River Press
- Goldratt, EM. (1994). *It's Not Luck*, Great Barrington: North River Press
- Dettmer, HW. (1997). *Goldratt's Theory of Constraints - A Systems Approach to Continuous Improvement*, ASQC Quality Press

Materials and Equipment

Readings, cases and other materials will be made available, as and when necessary.

There will be no need for students to use computers during the final course examination. Silent non-programmable electronic calculators may be used in the final examination.

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>).

CMSP 801 - Course Schedule - Trimester 1, 2007

Session 1: 1 March Introduction to the Course

Introduction to the course: course outline, learning objectives and assignments
What is Problem Solving and Decision Analysis? Art and Science?
The Practice of Decision Making: shortcuts, heuristics and decision traps
Models of the decision making process - descriptive vs prescriptive
Issues in problem identification, representation and description
Framing, perception and judgement: examples in data presentation, analysis and interpretation

References:

- Bazerman MH. (1998). *Judgement in Managerial Decision-Making*, New York: Wiley, Ch 1
Bazerman. (2001) The Study of Real Decision Making, *Journal of Behavioural Decision making*, **14** (5): 353-355
Russo JE and Schoemaker PJH. (1992). *Decision Traps*, London: Piatkus, Ch 1
Dunford, R. (1992). *Organisational Behaviour - An Organisational Analysis Perspective*, Sydney: Addison-Wesley, Ch 11
Ehrenberg, ASC. (1977). Some Rules of Data Presentation, *Statistical Reporter*, May 1977: 305-310
Targett, D. (1984). *Coping with Numbers*, London: Martin Robertson, Ch 1
Feldman & March. (1981) Information in Organisations as Signal and Symbol, *Admin Science Quarterly*, **26**(81): 171-186

Session 2: 8 March Decision Framing and the Framing of Problems

Structure, use and impact of alternative frames - boundaries, values, objectives, performance measures
Framing and common decision traps
Cognitive Biases and the use of Heuristics

References:

- Bazerman MH. (1988). *Judgement in Managerial Decision-Making*, New York: Wiley, 1998: Ch 2
Hammond, JS, Keeney, RL and Raiffa, H. (1998). The Hidden Traps in Decision Making. *Harvard Business Review*, Sept-October 1998: 47-58
Russo JE and Schoemaker PJH. (1992). *Decision Traps*, London: Piatkus, Chs 1, 2 & 3
Bonabeau, E. (1987). Don't Trust Your Gut. *Harvard Business Review*, May 2003: 116-123.
Targett, D. (1984). *Coping with Numbers*, London: Martin Robertson, Chs 1 & 2
Davies J & Mabin V. (1994). The Power of Framing, ANZAM Conference, Wellington, December 94

Session 3: 15 March The Role of Judgement in Decision Making

The impact of framing on judgement in decision making
More decision traps
Describing and understanding behaviour using Prospect Theory
Improving judgement and decision making behaviour

References:

- Bazerman MH. (1988). *Judgement in Managerial Decision-Making*, New York: Wiley, Chs 2 & 3
Russo JE & Schoemaker PJH. (1992). *Decision Traps*, London: Piatkus, Chs 2 & 3
Russo JE & Schoemaker PJH.(1992). Managing Overconfidence, *Sloan Mgt Review*, Winter **92**:7-17
Belsky, G, Money Mistakes Everyone Makes. (1996). *Readers Digest*, March 1996: 65-68
Willis, Clint. (1998). Getting Rich: are you taking enough risk? quoted in *More*, 56-58
Wolkomir R & J. (1996). How to make Smart Choices, *Readers Digest*, February 1996: 127-130
McCrone J (2006). Even the canny investor falls prey to emotions, *The Dominion Post*, January 17 2006: p.C2.
The Age (2006). The invisible elephants, in *The Dominion Post*, February 17 2006: p.C4.
Bazerman M & Chugh D. (2006). How did I miss that?, *Computerworld*,, 40, 2, January 9 2006: p.37.
Bazerman M. (2005). Vividness Bias?, *Leadership Excellence*,, March 2005, 22, 3, p.11.

CMSP 801 - Course Schedule - Trimester 1, 2007

Session 5 30 March Assignment 1 Due - Decision Framing Exercise Reminder

Session 4 & 5 22 & 29 March Dealing with Risk and Uncertainty - Decision Analysis

Making Decisions with uncertain or risky outcomes
Use of Prospect Theory
Single stage decisions using Decision Tables
Structured 'What if' Analyses using Excel Data Tables
Using Robustness and Stability Analysis
Decision & Policy Analysis - Sensitivity Analysis

Making Multi-stage decisions using Decision Trees
Approaches to multi-criteria decision analysis - MCDA
The use of visual interactive software

References:

- Targett D. (1996). *Analytical Decision Making*, London: Pitman, Chs 3, 4
Beach, L. (1993). *Making the Right Decision*, Englewood Cliffs, NJ: Prentice-Hall, Ch 9
Ragsdale, C.T. (2005). *Spreadsheet Modeling and Decision Analysis*, Cincinnati, Ohio: South-Western College Publishing, Ch 15

Software: Excel

Session 5 29 March Assignment 1 Due - Decision Framing Exercise Reminder

Session 6 5 April Managing Variability

The pervasiveness of variability and unpredictability
Dealing with unpredictability, randomness and random events - and their effects
Using simple models to aid decisions involving variability and random events
Managerial lessons from simulation - service provision, scheduling, project management, investment appraisal
The communality of managerial problems

References:

- Targett D. (1996). *Analytical Decision Making*, London: Pitman, Ch 5

Easter and Mid-Trimester Break

CMSP 801 - Course Schedule - Trimester 1, 2007

Sessions 7, 8, 9 & 10: 26 April, 3, 10 & 17 May

Systems Thinking – Dealing with complexity, stakeholders, shared mental models & strategy development

Introduction to systems thinking

Understanding stakeholders

Using group model building to build shared mental models

Constructing causal loop diagrams, identifying leverage points & developing intervention strategies

Exploring Peter Senge's systems archetypes and their application to problem solving & decision making situations

References:

Cavana RY, Boyd D, Taylor R (2004). A systems thinking study of the New Zealand Army electronic technician trade group. *Proceedings of the 22nd International Conference of the System Dynamics Society*, Oxford, England, July 25-29, 2004.

Elias, A.A, Cavana, R.Y. and Jackson, L.S. (2002). Stakeholder Analysis for R&D Project Management. *R & D Management* 32(4), pp301-310.

Cavana, R.Y., Davies, P.K., Robson, R.M. and Wilson, K.J. (1999). Drivers of quality in health services: different worldviews of clinicians and policy managers revealed. *System Dynamics Review*, 15(3), pp. 331-340.

Maani, K.E. and Cavana, R.Y. (2000). *Systems Thinking and Modelling: Understanding Change and Complexity*. Pearson Education NZ (Prentice Hall), Auckland., Ch 3.

Senge PM (1992). *The Fifth Discipline*, Sydney: Random House. Chs 1,2 & 7

Session 11 24 May Assignment 2 Due Group systems thinking project

Session 11 24 May

Systems Thinking – Resolving conflict - TOC evaporating clouds - change management-

The nature of conflict; assumptions, perceptions and misunderstandings

Goldratt's approach - the use of 'evaporating clouds' & conflict resolution diagrams

Analysing problems with causal loop diagrams and conflict resolution diagrams

Using the theory of constraints to assist change management

References:

Dettmer HW. (1997). Introduction to the Theory of Constraints, in *Goldratt's Theory of Constraints - A Systems Approach to Continuous Improvement*, Milwaukee: ASQC Quality Press, Ch 4

Davies, J., Mabin, V & Howell, B. (2006). Systems Approaches to Understanding the Plight of Telecommunications Regulators *The International Journal of Business Research*, 2006, Vol V, Number 1, pp. 100-114.

Session 12 31 May

Course Review

Multiple framing & multiple perspectives - synergies and benefits for decision-making.

Systems Thinking, Systems Approaches and Framing - Weaving it all together



Faculty of Commerce and Administration Offices

Railway West Wing (RWW) - FCA Student and Academic Services Office

The Faculty's Student and Academic Services 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 Student and Academic Services Office on (04) 463 5376.

Easterfield (EA) - FCA/Education/Law Kelburn Office

The Kelburn Campus Office for the Faculties of Commerce and Administration, Education 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.
- Forms for FCA Student and Academic Services (e.g. application for academic transcripts, requests for degree audit, COP requests).
- Examinations-related information during the examination period.

To check for opening hours call the Student and Academic Services Office on (04) 463 5376.

General University Policies and Statutes

Students should familiarise themselves with the University's policies and statutes, particularly the Assessment Statute, the Personal Courses of Study Statute, the Statute on Student Conduct and any statutes relating to the particular qualifications being studied; see the Victoria University Calendar or go to www.vuw.ac.nz/policy.

For information on the following topics, go to the Faculty's website www.vuw.ac.nz/fca under Important Information for Students:

- Academic Grievances
- Academic Integrity and Plagiarism
- Student and Staff Conduct
- Meeting the Needs of Students with Impairments
- Student Support

Manaaki Pihipihinga Programme

Manaaki Pihipihinga is an academic mentoring programme for undergraduate Māori and Pacific students in the Faculties of Commerce and Administration, and Humanities and Social Sciences. Sessions are held at the Kelburn and Pipitea Campuses in the Mentoring Rooms, 14 Kelburn Parade (back courtyard), Room 109D, and Room 210, Level 2, Railway West Wing. There is also a Pacific Support Coordinator who assists Pacific students by linking them to the services and support they need while studying at Victoria. Another feature of the programme is a support network for Postgraduate students with links to Postgraduate workshops and activities around Campus.

For further information, or to register with the programme, email manaaki-pihipihinga-programme@vuw.ac.nz or phone (04) 463 5233 ext. 8977. To contact the Pacific Support Coordinator, email pacific-support-coord@vuw.ac.nz or phone (04) 463 5842.



Victoria Management School

CMSP 801 PROBLEM SOLVING & DECISION MAKING

Trimester 1 2007

Assignment Cover Sheet

ASSIGNMENT NO. ____

TOPIC: _____

Due at class Monday ____ ____ 2007

Name: _____

Student ID: _____

Course Lecturer: _____