TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

QUAN111
MATHEMATICS FOR ECONOMICS AND FINANCE

Trimester Two 2008

COURSE OUTLINE

Contact Details

Lecturer/Course Coordinator	Mohammed Khaled
Email:	Mohammed.Khaled@vuw.ac.nz
Office:	RH 322, Phone 463-5787
Office Hours:	Thursdays 3-4 pm EA128 (accessed through EA 005)
	Wednesdays 2-3 pm RH 322

Lecturer:	Cushla Thomson
Email:	Cushla.Thomson@vuw.ac.nz
Office:	RH 402, Phone 463-6855
Office Hours:	Monday 12-1 pm, Tuesday 12-1 pm in
	EA128 (accessed through EA 005)
	By appointment in RH 402

Administration:	Francine McGee, RH 319, Phone: 463-5818
Email:	Francine.McGee@vuw.ac.nz

Lecture Times and Room Numbers
(CRN 6469) Mon, Tue, Thu   11:00am – 11:50am   COLT122
(CRN 6107) Mon, Tue, Thu   4:10pm – 5:00pm   KKLT303

Tutorials
Besides the lectures, you will need to attend a 1-hour tutorial per week beginning from the *second* week of the trimester. The available tutorial times and the signing in procedure will be notified through our course pages in the VUW website called 'Blackboard':
http://www.blackboard.vuw.ac.nz

Final Examination
The final examination will be in the period 13 October – 8 November 2007

Course Objectives
Students are expected to master differentiation of functions of one and two variables and to apply related techniques to a variety of situations in economics and finance; to become familiar with some mathematical options in *EXCEL*; to understand basic concepts of financial mathematics

and use them to calculate interest payments and evaluate investment projects; to recognise linear dependence between vectors, be able to find determinants and inverses of square matrices (up to 4 x 4), to solve linear equations and to model input-output relations in terms of linear systems.

Course Content
A provisional lecture schedule with contents appears at the end of this course outline.

Expected Workload
You should expect to spend 4 hours in class per week (3 lectures and 1 tutorial) and to spend 10 – 11 hours per week reading, studying and completing assignments.

Readings
All students should have a copy of the textbook:

Penelope de Boer and Mohammed Khaled, *Mathematics for Business and Economics*, Pearson Prentice Hall, 2007, 2nd edition.

This book contains detailed notes on all of the topics covered in the course; no other textbook is necessary. The Lecture Schedule gives references to the textbook.

Here are some optional alternative texts that you could consult. The books are ordered in increasing levels of advancement.

Ian Jacques, *Mathematics for Economics and Business*, 5th ed., FT-Prentice-Hall, 2006.

Michael Hoy et al., *Mathematics for Economics*, 2nd ed., The MIT Press, 2001.

Knut Sydsaeter and Peter Hammond, *Essential Mathematics for Economic Analysis*, 2nd ed., FT-Prentice-Hall, 2006.

If you need to revise basic algebra and calculus, then you could consult the following book:

Penelope Proffitt, *Maths Made Easy*, Pearson Prentice Hall, 2002.

Materials and Equipment
You must have a calculator that evaluates powers and logs. The recommended model is a modern Casio fx-82. Calculators will be essential for the test and final exam, however they must be silent in operation and have their own power source. Graphics calculators and programmable calculators are permitted, but the advanced features of these models will not be necessary or useful in this course.

Assessment Requirements
Your performance will be evaluated on the basis of:
- 30% - Test, Thursday 14 August 6.30 pm (multichoice) and 70% final exam, OR
- 100% - final exam, OR
- 10% assignments, 20% test and 70% final exam

whichever is the higher. To pass the course your final mark must be at least 50%. If you are not able to sit the test, the final examination will be weighted 100% towards your final mark. We reserve the right to scale results if necessary to preserve comparability with other years.

There are also weekly assignments (due by 3pm on a Monday) – these may contribute to your final grade and as such should be completed each week. You should use them as an indicator of your progress and performance.

Assignments should be placed in the appropriate box (by tutor's name), located on Level 2 of Murphy. Do not give them to lecturers or tutors. Assignments will be graded either 0, 1 or 2. A zero grade is given for unsatisfactory work, a one is given for satisfactory work and a two is given for exceptional work. It is expected that most students will score a one for each assignment. Since the marks are indicative rather than quantitative, there is no need for a provision for remarking. Marks will be displayed weekly on Blackboard.

Students who enrol in courses with examinations should be able to attend an examination at the University at any time during the formal examination period. **Examination dates for trimester two: Friday 17 October to Saturday 8 November 2008.**

Penalties
Since each assignment only potentially contributes 1% to your final mark, there are no penalties nor extensions.

Mandatory Course Requirements
To meet the mandatory course requirements you must:
- Complete the two computer exercises (the material will be made available on Blackboard, and are to be submitted into the designated folder on blackboard, #1 due on 15 August, and #2 on 3 October), and
- Sit the final exam.

Communication of Additional Information
Additional information will be conveyed to students via Blackboard.   Sometimes you will also be sent emails. These will be sent to the address that you supplied with your enrolment unless you advise otherwise.

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 Facultics of Commerce and Administration, Education and Law is situated in the Easterfield Building on the ground floor (EA005). This counter is the first point of contact for:
- 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.

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine http://www.turnitin.com.   Turnitin is an on-line plagiarism

prevention tool which identifies material that may have been copied from other sources including the Internet, books, journals, periodicals or the work of other students. Turnitin is used to assist academic staff in detecting misreferencing, misquotation, and the inclusion of unattributed material, which may be forms of cheating of plagiarism. *At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin.* You are strongly advised to check with your tutor or the course coordinator if you are uncertain about how to use and cite material from other sources. Turinitin will retain a copy of submitted materials on behalf of the University for detection of future plagiarism, but access to full text of submissions will not be made available to any other party.

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.victoria.ac.nz/home/about/policy/students.aspx.

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

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

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. The University defines plagiarism as follows:

> *The presentation of the work of another person or other persons as if it were one's own, whether intended or not. This includes published or unpublished work, material on the Internet and the work of other students or staff.*

It is still plagiarism even if you re-structure the material or present it in your own style or words.

> *Note: including the work of others will not be considered plagiarism as long as the work is acknowledged by appropriate referencing.*

Plagiarism is prohibited at Victoria and is not worth the risk. Any enrolled student found guilty of plagiarism will be subject to disciplinary procedures under the Statute on Student Conduct and may be penalised severely. Consequences of being found guilty of plagiarism can include:

- An oral or written warning
- Cancellation of your mark for an assessment or a fail grade for the course
- Suspension from the course or the University.

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

Manaaki Pihipihinga Programme

Manaaki Pihipihinga is an academic mentoring programme for undergraduate Maori 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 6015. To contact the Pacific Support Coordinator, email *pacific-support-coord@vuw.ac.nz* or phone (04) 462 5842.

*****

LECTURE SCHEDULE

(Page numbers refer to the text, "Mathematics for Business and Economics" 2nd edn.)

Week 1 - Enrol in a Tutorial this week   **Pages**

Mon	L.1	Real Numbers, Operations and Inequalities.		(1-16)
Tue	L.2	Absolute Values. Powers.		(16-22)
Thu	L.3	Solving Equations and Inequalities. Sums. Products.		(22-33)

Week 2 - Tutorial 1

Mon	L.4	Set Theory: Basic Ideas, Operations, Venn Diagrams.		(49-57)
Tue	L.5	Functions and Relations		(63-66)
Thu	L.6	Graphing Functions		(68-76)

Week 3 - Tutorial 2

Mon	L.7	Inverse Functions. Linear Interpolation.	**Ass. 1 due**	(76-81)
Tue	L.8	Logarithmic and Exponential Functions.		(81-86)
Thu	L.9	*Revision of Basic Algebra.*		(Chapters 1-4)

Week 4 - Tutorial 3

Mon	L.10	Derivatives. Differentiation using Rules.	**Ass. 2 due**	(101-107)
Tue	L.11	Further Differentation Methods.		(107-111)
Thu	L.12	Application of derivatives: Elasticities. Higher Derivatives.		(111-115)

Week 5 - Tutorial 4

Mon	L.13	Maxima and Minima: Local and Global.	**Ass. 3 due**	(120-126)
Tue	L.14	Graphing Functions. Maxima and Minima Applications.		(126-127, 128-129)
Thu	L.15	*Revision of Calculus of One Variable*.		(101-129)

Week 6 - Tutorial 5

Mon	L.16	Integration.	**Ass. 4 due**	(130-135)
Tue	L.17	Partial Differentiation.		(165-170)
Thu	L.18	Total Derivatives. Implicit Differentiation.		(170-174)

MID-TRIMESTER TEST

THURSDAY 14 AUGUST, 6.30 pm – 7.20pm

Covers the course materials for the first 15 lectures

Week 7 - Tutorial 6

Mon	L.19	Optimizing Functions of Two Variables.	**Ass. 5 due**	(176-181)
Tue	L.20	Constrained Optimisation.		(181-185)
Thu	L.21	*Revision of Integration and Calculus of Two Variables*.		(130-185)

Week 8 - Tutorial 7

Mon	L.22	Geometric Progressions. Interest.	**Ass. 6 due**	(196-203)
Tue	L.23	Non-Annual Compounding. Discounting.		(203-206)
Thu	L.24	Investment Appraisal.		(209-215)

Week 9 - Tutorial 8

Mon	L.25	Annuities.	**Ass. 7 due**	(215-219)
Tue	L.26	Amortization: Home Loans. Real Interest Rates.		(219-223)
Thu	L.27	*Revision of Financial Mathematics*.		(Chapter 7)

Week 10 - Tutorial 9

Mon	L.28	Vectors. Inner Products.	**Ass. 8 due**	(235-238)
Tue	L.29	Geometric Interpretation of Vectors.		(238-240)
Thu	L.30	Linear Dependence.		(240-244)

Week 11 - Tutorial 10

Mon	L.31	Matrices.	**Ass. 9 due**	(244-247)
Tue	L.32	Matrice Multiplication and Determinants.		(247-255)
Thu	L.33	More on Determinants.		(255-257)

Week 12 - Tutorial 11

Mon	L.34	Inverting Matrices.	**Ass 10 due**	(257-261)
Tue	L.35	Solving Linear Equation Systems.		(261-267)
Thu	L.36	*Revision of Linear Algebra*.		(235-267)

*****