VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

QUAN111: Mathematics for Economics and Finance

Trimester 2, 2015

COURSE OUTLINE

Name and Contact Details

Lecturer:	Yiğit Sağlam	Mohammed Khaled	Pinky Shah
	Coordinator/Lecturer	Lecturer	Course Administrator
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Office Hours: Yiğit will hold office hours in EA116 in Easterfield Building on Tuesdays and Fridays from 10am to 11am. Mohammed's office hours will be announced later.

Administrative problems (course registration, tutorial signups, access to Blackboard, assessment grades, test makeup, medical certificates, etc.): please contact Pinky Shah, who will refer you to the course coordinator if necessary.

Academic problems (questions about lectures, tutorial or assignment problems, etc.): please contact your tutor during your tutorial time, ask the lecturers during office hours, or use Blackboard Discussion Board.

Trimester Dates

Teaching Period:	Monday 13th July	- Friday 16th October
Study Period:	Monday 19th October	- Thursday 22nd October
Examination Period:	Friday 23rd October	- Saturday 14th November (inclusive)

Withdrawal from Course

1. Your fees will be refunded if you withdraw from this course on or before Friday 24th July 2015.

2. The standard last date for withdrawal from this course is Friday 25th September 2015. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on an *Application for Associate Dean's Permission to Withdraw Late* including supporting documentation. The application form is available from either of the Faculty's Student Customer Service Desks or online.

Class Times and Room Numbers

Lectures: There are two streams of lectures. The times and locations are provided below:

Stream	Date	Time	Room
Lectures - CRN6107:	Tuesday and Friday	09:00–09:50	HMLT205
Lectures - CRN6469:	Tuesday and Friday	11:00–11:50	KKLT303

Tutorials: Besides the lectures, a total of eight 50-minute tutorials will be offered throughout the trimester starting in week 2 (please refer to intended schedule at the end of this course outline). Each tutorial will cover material from the previous week's lectures. It is highly recommended that you sign up and attend one tutorial per week. You need to sign up for a tutorial group online: https://student-sa.victoria.ac.nz/. Tutorial signup will be available from 11am on Thursday 9 July 2015. Sign up as early as possible to get your first choice day/time.

Duty Tutoring: A duty tutor will be available in EA 119 just before the two tests:

- Test 1: Monday 10 August 10am–12pm and Tuesday 11 August 9:30am–11:30am

- Test 2: Monday 28 September 12pm–2pm and Tuesday 29 September 9:30am–11.30am

The duty tutor sessions are free, drop-in sessions (i.e. no appointment is necessary) where you can ask the duty tutor any questions relating to the course content.

Prescription

Mathematical methods appropriate for study of economics and finance: set theory, functions, calculus of functions of one or several variables, financial mathematics, vectors, matrices and systems of linear equations.

Course Learning Objectives

By the end of this course students should be able to:

1. Carry out mathematical operations on numbers, sets and functions,

2. Calculate rates of change using derivatives of functions,

3. Find derivatives of functions of a single variable,

4. Apply one-variable differentiation (derivatives, product and quotient rules, chain rule, second-order derivatives) to obtain local and global maxima and minima,

5. Integrate a rate of change function to recover the function in levels,

6. Employ partial differentiation to maximise or minimise functions of two or more variables,

7. Represent variables as vectors and assess their linear dependence,

8. Implement data operations using matrices,

9. Solve linear equation systems using matrices, their determinants and inverses.

Expected Workload

You are expected to spend approximately 150 hours completing this course. This includes revising lecture notes, attending lectures and tutorials, preparing for tutorials, and studying for assignments, test and exams. Overall, you are expected to spend about 6-8 hours per week completing this course.

Course Delivery

This course will be delivered by two lectures per week and a tutorial in 8 out of the 12 weeks. There will be four assignments, two tests, and one final examination.

Readings

We will use the following textbook throughout this course:

> Essential Mathematics for Economic Analysis with MyMathLab Global access card, 4/E, by Peter Hammond, Knut Sydsæter, Arne Strøm
> ISBN-10: 0273787624, ISBN-13: 9780273787624, 2012 Pearson

This textbook also includes access to MyMathLab, which is an online source designed to provide more practice questions and to develop a plan for self-study. The access to MyMathLab is valid for 12 months.

Assessment Requirements

The Assessment Handbook will apply to all VUW courses: see
http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf.

Type	CLOs	Due/Test date	Notes	Weight
Assignment 1:	1–2	August 3rd	due 5pm	2.5%
Assignment 2:	7–9	September 7th	due 5pm	2.5%
Assignment 3:	3–4	September 21st	due 5pm	2.5%
Assignment 4:	5–6	October 12th	due 5pm	2.5%
Test 1:	1–2, 7–9	August 12th	1 hour, at 6:30pm	20%
Test 2:	7–9, 3–4	September 30th	1 hour, at 6:30pm	20%
Final Exam:	1–9	TBA	2 hours	50%

All assessment marks (except for the exam) will be published on Blackboard via My Grades.

Assignments: Assignments should be placed in the appropriate box (by tutor's name), located on Level 2 of Murphy Building. Do not submit your assignments to lecturers or tutors. Each assignment will be graded out of 2.5 points. A zero grade is given for unsatisfactory work, a one is given for satisfactory work, a two is given for exceptional work. The full (2.5) grade will be given to perfect assignments. It is expected that most students will score between 1 and 2 for each assignment. Marked assignments will be returned at the tutorial in the week following the assignment deadline.

Tests: There are two tests in this course: the dates and times are given in the table above. The test rooms will be sent to you by email and posted on Blackboard approximately one week before each test.

If you are not able to sit the tests for any reason, you need to provide a form of documentation explaining why you cannot take the test. This documentation is to be given to the course administrator (Pinky Shah) as soon as possible. In such a case, the weight for the missed items may be added to that for the final exam.

Penalties

Late submission of assignments will <u>not</u> be accepted without prior approval.

Examinations

Students who enrol in courses with examinations are obliged to attend an examination at the University at any time during the formal examination period. The final examination for this course will be scheduled at some time during the following period:
Friday 23th October - Saturday 14th November (inclusive).

Mandatory Course Requirements

In addition to obtaining an overall course mark of 50 or better, students must attend both tests. Any student who is concerned that they have been (or might be) unable to meet any of the MCRs because of exceptional personal circumstances, should contact the course coordinator as soon as possible.

If you cannot complete an assignment or sit a test or examination, refer to:
www.victoria.ac.nz/home/study/exams-and-assessments/aegrotat

Aegrotat: You should use the assignments as an indicator of your progress and performance. Since aegrotat decisions must be based on internal assessment prior to the final exam, it is important to have this evidence available by completing all assignments and the tests as best you can. For your appeal to have any chance of success, you must present evidence of special circumstances that caused you to fail. If you are denied and sit the final exam, you will still fail the course.

Materials and Equipment

You must have a calculator that evaluates powers and logs. Graphics calculators and programmable calculators are permitted, but not necessary. All programmable calculators must be reset prior to the test and exam.

PASS - Peer Assisted Study Support: Research shows that studying with others can improve your grades. The PASS programme offers optional study sessions, led by students who have successfully passed the course. PASS leaders promote 'active' learning, and group members meet for one hour a week, working together to develop effective strategies for

success. PASS begins in Week 3. Using your student ID and password, you can sign-up online in Week 2 at http://www.victoria.ac.nz/st_services/slss/.

Course Signals: This course is using the Early Alerts (Course Signals) System which aims to help students to be successful in their study at VUW. The system is designed to help students assess their progress in their study, so that they can adjust their work effort or seek support early in the semester, to help them succeed. Students will receive a traffic light signal through the course Blackboard page:

- _Green tick_ means high likelihood of succeeding in the course (if your progress does not decline).

- _Yellow triangle_ means potential problem with succeeding in the course (if your progress does not improve); and

- _Red cross_ means high likelihood of failing the course (if your progress does not improve);

Students will also receive email messages from their Course Coordinator via their Blackboard email address, which by default is their @myVUW account. Information on resources and support services are available at http://www.victoria.ac.nz/students/support.

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 compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and submitted to Turnitin. A copy of submitted materials will be retained on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

Class representative

A class representative will be elected in the first class, and that person's name and contact details made available to VUWSA, the course coordinator, and the class. The class representative provides a communication channel to liaise with the course coordinator on behalf of students.

Communication of Additional Information

Additional information will be posted on Blackboard.

Student Feedback

Student feedback on University courses may be found at:
www.cad.vuw.ac.nz/feedback/feedback_display.php.

Link to General Information

For general information about course-related matters, go to:

Note to Students

Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and academic audit. The findings may be used to inform changes aimed at improving the quality of VBS programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

Course Content

A brief outline of the course content, including an indicative schedule for the order of coverage, appears at the end of this course outline.

Week	Date	Topic	Textbook	Tutorial
1	Jul 13–17	Introductory Topics I: Algebra	1.1–1.7	-
2	Jul 20–24	Introductory Topics II: Equations	2.1–2.5	Tut. 1
3	Jul 27–31	Functions of One Variable	3.1,3.2,3.4,3.6,4,5.3	Tut. 2
4	**Aug 3** Aug 3– 7	**ASSIGNMENT 1 is due 5pm** Matrix and Vector Algebra	**Coverage: Weeks 1–3** 15.1–15.5,15.7,15.8	Tut. 3
5	**Aug 12** Aug 10–14	**TEST 1, 1 hour, at 6:30pm** Determinants and Inverse Matrices	**Coverage: Weeks 1–4** 16.1,16.2,16.4,16.5	Duty Tutoring
6	Aug 17–21	Determinants and Inverse Matrices	16.6, 16.7	Tut. 4
		Mid-Semester Break (Aug 22–Sep 6)		
7	**Sep 7** Sep 7–11	**ASSIGNMENT 2 is due 5pm** Differentiation	**Coverage: Weeks 4–6** 6.1–6.8,6.10,6.11	-
8	Sep 14–18	Derivatives in Use	7.1,7.4,7.5,7.7	Tut. 5
9	**Sep 21** Sep 21–25	**ASSIGNMENT 3 is due 5pm** Univariate Optimization, Integration	**Coverage: Weeks 7–8** 8.1–8.5,8.7,9.1–9.4	Tut. 6
10	**Sep 30** Sep 28–Oct 2	**TEST 2, 1 hour, at 6:30pm** Functions of Many Variables	**Coverage: Weeks 5–9** 11.1,11.2,11.7,12.1,12.3,12.9	Duty Tutoring
11	Oct 5– 9	Multivariate Optimization	13.1–13.5	Tut. 7
12	**Oct 12** Oct 12–16	**ASSIGNMENT 4 is due 5pm** Constrained Optimization	**Coverage: Weeks 9–11** 14.1–14.7	Tut. 8
		Study Break (Oct 19–22) *Examinations (Oct 23–Nov 14), see http://www.victoria.ac.nz/timetables/*		

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