TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

QUAN 102 STATISTICS FOR BUSINESS

Trimester Three 2010

COURSE OUTLINE

Administrator: Francine McGee, RH319, phone 463-5818
email: francine.mcgee@vuw.ac.nz

Coordinator: John Randal, RH331, phone 463-5558
email: john.randal@vuw.ac.nz

Lecture times: Tue, Wed, Thur, 9:00-10:50, MCLT103

Tutorial time: Sign up online at https://signups.vuw.ac.nz/

Course website: http://www.blackboard.vuw.ac.nz/

The Course Coordinator and lecturer is John Randal. He has overall responsibility for the course. You should see him if you are having difficulties that you have been unable to resolve by first speaking to your lecturer or tutor (for academic problems), or to the course administrator (for administrative problems).

The Course Administrator will handle the recording of information such as assignment, test and exam marks. All administrative queries concerning assignments or tutorials should be directed to the course administrator via email. You must not send the same email separately to the course coordinator. If QUAN 102 does not appear on your Blackboard home page, please email the course administrator immediately with your SCS username. If you are unsure who to contact, try the course administrator first.

Trimester Dates
Teaching Period: Monday 15 November to Friday 23 December 2010 (inclusive) covers the period from the first lecture to the final examination.

Note: 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.

Withdrawal dates:
Withdrawal date with refund: 21 November 2010

The last date for withdrawal from this course is the three-quarter point of the teaching period, i.e. 9 December 2010.

After that date, students wishing to withdraw late must complete an *'Application for Associate Dean's Permission to Withdraw Late'* including supporting documentation. The application form is available from either of our Student Customer Service Desks.

Course Learning Objectives

The course is an introduction to techniques of probability and statistics which are useful in business research or practice. The emphasis is on applications, rather than proofs, but some understanding of the concepts and an ability to communicate the meaning of the results is vital. By the end of the course students should be able to:

- Process data, using simple graphical techniques.
- Evaluate a range of sample statistics for univariate data, including mean, standard deviation, and percentiles.
- Evaluate and interpret a linear relationship between two variables.
- Use basic rules of probability to solve problems with up to 3 conditional events.
- Obtain probabilities from the binomial and normal distributions.
- State the central limit theorem, and discuss its applicability.
- Implement a range of hypothesis tests, and use these to draw conclusions about population parameters from sample data.
- Form confidence intervals for a range of population parameters, and interpret these intervals.
- Interpret the output of statistical software for advanced hypothesis tests via p-values.

All assessment gives an opportunity to demonstrate these objectives.

Course content

Chapter references are to Clark and Randal. You should prepare for each lecture by going over the indicated text book sections - do not try to read it in detail until *after* the lecture. (Note: L = Lecture, T = Tutorial)

Date	Lecture	Topic	Text	Tutorial
16 Nov	1	Variables; processing data; stemplots	2	
16 Nov	2	Summary statistics	3.1, 3.2	
17 Nov	3	Standard deviation; boxplots	3.2.3, 3.4	
17 Nov	4	Scatterplots; correlation	4.1-4.2	
18 Nov	5	Regression (estimation and assumptions)	4.3	
18 Nov	6	Regression (prediction)	4.3	
19 Nov		Tutorial 1		L1-4
22 Nov		Tutorial 2, *Assignment 1 due. To be handed in at tutorials*		L5-6
23 Nov	7	Introduction to probability	5.1-5.2	
23 Nov	8	Probability trees	5.3	
24 Nov		*Test 1, 60 minutes, 10:00am, content: Lectures 1-6*		
25 Nov	9	Bayes' rule	5.4	
25 Nov	10	Distributions; binomial experiments	6	
26 Nov		Tutorial 3		L7-8
29 Nov		Tutorial 4, *Assignment 2 due. To be handed in at tutorials*		L9-10
30 Nov	11	Binomial distribution	6	
30 Nov	12	Normal distribution	7	
1 Dec	13	Central limit theorem	7.2	
1 Dec	14	Sampling distribution	7.3	
2 Dec	15	Introduction to inference; intervals for a single mean	8.1	
2 Dec	16	Testing for a single mean	8.1	
3 Dec		Tutorial 5		L11-14
6 Dec		Tutorial 6, *Assignment 3 due. To be handed in at tutorials*		L15-16
7 Dec	17	Small sample testing for a single mean	8.2	
7 Dec	18	Inference for a proportion; margin of error	8.4, 8.6	
8 Dec		*Test 2, 60 minutes, 10:00am, content: Lectures 7-14*		
9 Dec	19	Comparing two means	9.1-9.2	
9 Dec	20	Pooled variance, testing for common variance	9.1-9.2	
10 Dec		Tutorial 7		L17-18
13 Dec		Tutorial 8, *Assignment 4 due. To be handed in at tutorials*		L19-20
14 Dec	21	Paired comparisons	9.5	
14 Dec	22	Comparing proportions, contingency tables	9.2-9.3	
15 Dec	23	Contingency table testing	11.2	
15 Dec	24	p-value approach to testing		
16 Dec		Revision		
		Examination, see http://www.victoria.ac.nz/timetables/index.aspx		

Lecture materials will be supported by practice in the tutorials, and through the assignments. Specific tutorial and assignment exercises will be distributed via Blackboard. You should try the problems in advance of attending the tutorial. The assignment will allow further practice of these skills.

Course delivery

This course will have three 2-hour lectures and two 1-hour tutorials per week over five weeks. It is expected that students will prepare for their tutorials and actively participate in them.

Tutorials

Tutorials will be held on Mondays and Fridays throughout the course, starting from Friday in week 1 (19/11). They will cover material from the lectures from the previous

week. Attendance at tutorials is not compulsory, however, it is highly recommended that you attend. Tutorial exercises from the textbook will be listed on Blackboard, and these should be attempted before the tutorial you attend. Bring your textbook and calculator. All assignments should be handed to your tutor on Monday.

Assignments

There will be four short assignments, due at your tutorial as indicated in the Course Content table. Assignments will be issued on Blackboard. The assignments will be given one of three marks:

- 0, indicating the assignment is of unacceptable quality
- 1, indicating reasonable understanding/accuracy, but some flaws or omissions
- 2, indicating a perfect or near-perfect assignment
- 3, all attempted, all correct.

A mark of less than 4/12 would indicate that you may struggle to pass the test and/or final exam. Discussion of assignments with other students is allowed, but submitted work should be your own. Copied work (for all involved parties) is unacceptable and will not only count as having been missed, but may also initiate disciplinary action against the students concerned Assignment feedback will be posted by all tutors on Blackboard Discussion Forum.

- *DO* head your assignments with
  - ⋆ your **NAME**,
  - ⋆ your **TUTOR'S NAME**, and
  - ⋆ the **TIME** of your tutorial.
- *DO* staple all sheets together.
- *DO NOT* fold your assignments or seal them shut.
- *DO NOT* put your work in a plastic sleeve.

Marked assignments will be returned at the tutorial of the following week. Uncollected assignments will be disposed of at the end of the course. Missed or late assignments will be given a *zero mark*.

The assignments are *worth 10% of your final grade, determined as follows:*

Assignment total	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade contribution	0	2	3	4	5	6	7	8	9	9	10	10	10

Expected workload

You should expect to spend 8 hours in class per week (3 lectures, 2 hours each and 2 tutorials) and to spend 20 - 25 hours per week reading, studying and completing assignments.

Readings

The text is: Clark and Randal (2004), *A First Course in Applied Statistics*, Pearson, ISBN 1877258903 (VUW Library call number QA276 C594 F). This is available from the Victoria Book Centre for $64.39. Tutorial and assignment problems will be set from this book, and it contains tables which will be essential during the course. Second hand copies may be available.

Complementary books which might provide useful alternative explanations and prac-

tice exercises are:

- P. Belgrave and C. Jeffcoat (2004) *Statistics for Business*, Thomson (HF1017 B429 S).
- D.S. Moore and G.P. McCabe (2003) *Introduction to the Practice of Statistics (4th ed.)* W.H. Freeman: New York (QA276.12 M821 I 4ed).
- D.A. Lind, W.G. Marchal and S.A. Wathen (2005) *Statistical Techniques in Business and Economics (12th ed.)* Irwin: Homewood, Illinois (HA29 L742 S 12ed).

The VUW library has a web page that contains detailed information about library resources and has links to other sites. Its URL is http://www.vuw.ac.nz/library

Materials and Equipment

You must have a calculator that evaluates powers and has statistical options, including the evaluation of means and standard deviations. Correlation and regression options are useful, but not vital. (The recommended model is a modern Casio fx-82 - older versions of this model did not do regression, RRP approx $30). Graphics calculators and programmable calculators are permitted, but not necessary. All programmable calculators must be reset prior to the test and exam.

Assessment Requirements

Assignments are worth 10% of your final grade (see above).

Two 60 minute multi-choice tests will be held on: Wednesday 24 November, 10:00am (based on lectures 1-6); and Wednesday 8 December, 10:00am (based on lectures 7-14). *These are each worth 20% of your final grade.*

The final exam will be two hours, and will be based primarily on lectures 15-24, although some material from earlier lectures may also be covered. *This will be worth the remaining 50% of your final grade.*

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 audit purposes. The findings may be used to inform changes aimed at improving the quality of FCA programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

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 period Monday 20 December to Thursday 23 December (inclusive).

Penalties

Late assignments will not be accepted.

Mandatory course requirements

You must attempt both tests.

If your performance in the test or assignments is affected by ill health you should take a medical certificate to the course administrator as soon as possible. If you do not meet

the mandatory requirements, you may appeal to Dr Randal. 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.

Class representative

A class representative will be elected in the first week, whose name and contact details will be 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 conveyed to students via Blackboard and/or email.

Emails may be sent to the address that you supplied with your enrolment; but they may also be sent to your SCS email address, which is your official university email address. You should keep an eye on both email addresses.

For the following important information follow the links provided:

Academic Integrity and Plagiarism
http://www.victoria.ac.nz/home/study/plagiarism.aspx

General University Policies and Statutes
http://www.victoria.ac.nz/home/about/policy

AVC (Academic)Website: information including: Conduct, Academic Grievances, Students with Impairments, Student Support
http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx

Faculty of Commerce and Administration Offices
http://www.victoria.ac.nz/fca/studenthelp/

Manaaki Pihipihinga Programme
http://www.victoria.ac.nz/st_services/mentoring