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 3 (Summer) 2006

COURSE OUTLINE

Lecturers:
- Adrian Slack, RH315, phone 472-1000 ext 8571 (L1-6)
contact by email preferred at: adrian.slack@vuw.ac.nz
- Ganesh Nana, phone 931-9206 (L7-14)
contact by email preferred at: ganesh.nana@berl.co.nz
- John Randal, RH308, phone 463-5558 (coordinator, L15-36)
contact by email preferred at: john.randal@vuw.ac.nz

Lecture times: Mon, Wed, 9:00-10:50am, KK LT303

Tutorial time: One from Weds 12-1, 1-2, 2-3, 3-4. Sign up online at
http://signups.vuw.ac.nz/

The Director of all School of Economics and Finance 100-level Programmes is Mrs Penelope de Boer, RH 319, phone 463-5818 (or ext. 5818), or EA 128, phone 463-7449 (or ext. 7449). She will handle the allocation of students to tutorial groups and the recording of information such as assignment, test and exam marks. All administrative queries concerning assignments or tutorials should be directed to Mrs de Boer. Check Blackboard for her office hours.

The Course Coordinator 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 tutorial supervisor (for academic problems), or to Mrs de Boer (for administrative problems). Dr Randal is also the person to see if you need to make special arrangements because of a disability, or if you want to appeal your test mark or terms result.

You can find Blackboard at http://www.blackboard.vuw.ac.nz/ - if QUAN 102 does not appear, please email Dr Randal or Mrs de Boer (Penelope.deBoer@vuw.ac.nz) immediately, with your SCS username.

Course 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:

- Identify the relevant statistical approach(es) for a wide variety of practical problems.
- Conduct basic statistical analysis as required to address particular questions.
- Communicate the conclusions from an analysis to people who are unfamiliar with statistical terminology.
- Display an awareness of the assumptions on which particular statistical techniques depend and communicate that awareness to non-specialists.

Readings

The text is Clark and Randal (2004) A First Course in Applied Statistics, ISBN 1877258903 (VUW Library call number QA276 C594 F). This is available from the Victoria Book Centre for $52.95. 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 practice 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 available library resources and has links to several 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). Calculators will be essential for the test and the 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. All programmable calculators must be reset prior to the test and exam.

Tutorials

Weekly tutorials will be held on Wednesday afternoons. They will cover material from Wednesday the previous week, and the most recent Monday lecture. Attendance at weekly tutorials is not compulsory, however, it is recommended that you prepare for the tutorial nonetheless. Preparation consists of reviewing the lecture material, and answering a short series of online questions. Tutorial exercises will be prescribed on Blackboard, and these should be attempted before the tutorial you attend. Bring your textbook and calculator.

Perdisco's e-workbook

An online study resource has been developed for this course to help you learn the complex content that will be covered this semester. Using hundreds of interactive practice

questions and problem solving exercises, the e-workbook helps you make the most of your limited study time by offering:

- The chance to practice, revise and focus on each topic until you completely understand it
- Step-by-step feedback explaining why each answer you have given was correct or incorrect
- Virtual tutoring available anywhere, anytime (even outside of normal class hours)
- At a glance, you can see the areas you need to focus on.

The e-workbook costs AU\$34.10 for unlimited access throughout the semester and can be purchased online by credit card or by mail using a personal or bank cheque. Payment instructions are provided after registration.

As you can appreciate, a great deal of time and effort has gone into the development of this extensive and useful learning resource. Students who have regularly engaged with the e-workbook content in previous semesters have performed exceptionally well and have found that the benefits far outweigh the cost. Indeed, students who use the e-workbook and do not pass the unit are guaranteed a refund under Perdisco's "Guaranteed Pass Program".

To start using the e-workbook, visit http://www.perdisco.com/students and click on "Create a new account". This service is being trialed for permanent use in QUAN102, so any feedback will be greatly appreciated.

E-workbook tutorial assignments

The e-workbook is also being used to deliver interactive tutorial assignments that will contribute to your overall assessment marks for this course. The tutorial assignments can be submitted online from anywhere, are marked instantly and give you immediate feedback on your performance.

In the interest of student access and equity, a limited number of free "library copies" are provided in Electronic Special Reserve (ESR) for students who cannot afford to purchase the e-workbook to complete their tutorial assignments. To access these, you must first create an account, add this course's e-workbook to it and click on "ESR login". For more information, click "ESR info" after registration. The ESR accounts are subject to a maximum number of simultaneous users, and a time limit.

Assessment Requirements

Your course mark will be a weighted average, made up as follows:

Tutorial preparation (via Perdisco): 10%   Test: 20%   Exam: 70%

A 60 minute test covering lectures 1-18 (Monday 13 November to Monday 11 December inclusive) will be held during the regular lecture time on Wednesday 20 December. The final exam will be scheduled by the university in the summer trimester examination period, 12–17 February, 2007.

Assignments

Eight weekly assignment will be issued, which should be submitted at the Wednesday lecture, or before in the appropriately labelled slot in the cabinet outside MY 221 on the

second floor of Murphy. These will assess deeper understanding of the course material than the tutorial preparation exercises will. There will be eight weekly assignments, the first of which will be due in week 2. The questions will generally be taken directly from the textbook, and will be listed 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.

While a total of 4/16 is *required* for terms, a mark of less than 8/16 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) will count as having been missed.

Head your assignments with your NAME, and the TIME of your tutorial. SECURE all sheets together and DO NOT FOLD your assignments or seal them shut. DO NOT put your work in a plastic sleeve. Assignments not meeting these conditions, or which are late, may not be marked. Marked assignments will be returned only at the tutorial of the following week. Uncollected assignments will be disposed of at the end of the course.

Penalties

Missed tutorial preparation or assignments will be given a zero mark.

Mandatory course requirements

A provisional terms list will be posted on Blackboard by Friday 9 February. For terms you must:

- receive at least 4 out of 16 for the eight assignments
- satisfactorily complete a set of computer exercises by Wednesday 31 January (these will be distributed prior to the Christmas break)
- sit the term test

If your performance in the test or assignments is affected by ill health you should take a medical certificate to Mrs de Boer as soon as possible. Students denied terms 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 terms. If you are denied terms and sit the final exam, you will still fail the course.

Course content

The following is the timetable for the course. The lecture schedule is as follows, with chapter references to Clark and Randal. You should prepare for each lecture by scanning the indicated text book sections - do not try to read it in detail until *after* the lecture.

Date	Lecture	Topic	Text
13 Nov	1	Introduction; motivation; examples of statistics in use	1
13 Nov	2	Variables; processing data; stemplots	2
15 Nov	3	Histograms; barcharts	2
15 Nov	4	Summary statistics; mean and standard deviation	3
20 Nov	5	Summary statistics for grouped data	3
20 Nov	6	Percentiles; boxplots	3.4
22 Nov	7	Scatterplots; correlation	4.1-4.2
22 Nov	8	Regression	4.3
27 Nov	9	Regression cntd	4.3
27 Nov	10	Introduction to probability	5.1-5.2
29 Nov	11	Probability trees	5.3
29 Nov	12	Bayes' rule	5.4
4 Dec	13	Probability distributions; binomial experiments	6
4 Dec	14	Binomial applications; proportions	6
6 Dec	15	Normal distribution	7
6 Dec	16	CLT; application to binomial	7
11 Dec	17	Intro to inference; intervals for a single mean	8.1
11 Dec	18	Testing for a single mean	8.1
13 Dec	19	Small sample tests for a mean	8.2
13 Dec	20	Sign test	8.3
18 Dec	21	Inference for a proportion	8.4
18 Dec	22	FPCF; margin of error	8.5-8.6
20 Dec		No lecture, TERM TEST	
Christmas/New Year/Mid-trimester break, 4 weeks			
15 Jan	23	Comparing two means, large samples	9.1
15 Jan	24	Comparing two means, small samples	9.2
17 Jan	25	Comparing two variances	9.3
17 Jan	26	Mann-Whitney	9.4
22 Jan		No lecture, Wellington Anniversary Day	
24 Jan	27	Paired comparisons	9.5
24 Jan	28	Comparing proportions	9.6
29 Jan	29	Two populations and FPCF	9.7
29 Jan	30	One-way chi-square; goodness of fit	11.1
31 Jan	31	Contingency table testing	11.2
31 Jan	32	Regression testing	12.1-12.2
5 Feb	33	Prediction and prediction intervals	12.4
5 Feb	34	F-tests in a regression context	12.3
7 Feb	35	Wrap-up and revision	13
7 Feb	36	Revision	

Lecture materials will be supported by the online e-workbook, practice in the weekly tutorials, and through the assignments. Specific tutorial and assignment exercises will be distributed via Blackboard, and will be available prior to the Wednesday lecture each week. You should try the problems in advance of attending the tutorial. The assignment, due the following Wednesday morning, will allow further practice of these skills.

Communication of additional information

Additional information or information on changes will be posted on Blackboard. Some information may be emailed to you via your SCS address, so check this regularly. (This is your University email address.)

SUPPLEMENTARY INFORMATION

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 available in hard copy or under 'About Victoria' on the VUW home page at http://www.vuw.ac.nz/.

Student 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 are to be taken if there is a complaint. For information about complaint procedures under the Statute on Student Conduct, contact the Facilitator and Disputes Advisor or refer to the statute on the VUW policy website at:
http://www.vuw.ac.nz/policy/StudentConduct.

The policy on Staff Conduct can be found on the VUW website at:
http://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; class representatives may be able to help you in this. If you are not satisfied with the result of that meeting, see the Head of School or the relevant Associate Dean;

VUWSA Education Coordinators are available to assist in 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 at: http://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. 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 student or staff.

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

Note: It is however, perfectly acceptable to include the work of others as long as that 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 at: http://www.vuw.ac.nz/home/studying/plagiarism.html.

Notice of Turnitin Use

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 or 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. Turnitin will retain a copy of submitted materials 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.

Students with Impairments

The University has a policy of reasonable accommodation of the needs of students with disabilities. The policy aims to give students with disabilities the same opportunity as 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, please contact the Course Coordinator as early in the course as possible. Alternatively you may wish to ap-

proach a Student Adviser from Disability Support Services (DSS) to discuss your individual needs and the available options and support on a confidential basis. DSS are located on Level 1, Robert Stout Building, telephone (04) 463 6070, email disability@vuw.ac.nz. The name of your School's Disability Liaison Person is in the relevant prospectus or can be obtained from the School Office or DSS.

Student Support

Staff at Victoria want students to have positive learning experiences at the University. Each Faculty has a designated staff member who can either help you directly if your academic progress is causing you concern, or quickly put you in contact with someone who can. Assistance for specific groups is also available from the Kaiwawao Māori, Manaaki Pihipihinga or Victoria International.

In addition, the Student Services Group (email student-services@vuw.ac.nz) is available to provide a variety of support and services. Find out more at
http://www.vuw.ac.nz/st_services/

VUWSA employs 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 (tel. (04) 463 6983 or (04) 463 6984, email education@vuwsa.org.nz) is located on the ground floor, Student Union Building.

Manaaki Pihipihinga - Māori and Pacific Mentoring Programme (Faculty of Commerce and Administration)

This is a mentoring service for Māori and Pacific students studying at all levels. Weekly one hour sessions are held at the Kelburn and Pipitea Campuses in the Mentoring Rooms, 14 Kelburn Parade, and Room 210 and 211, Level 2, Railway West Wing. Sessions cover drafting and discussing assignments, essay writing, and any questions that may arise from tutorials and/or lectures. A computer suite networked to Cyber Commons is available for student use.

To register with Manaaki Pihipihinga, please contact one of the following:

Puawai Wereta   Fa'afoi Seiuli
Room 210, Level 2   Room 109 B
Railway West Wing   14 Kelburn Parade
Tel. (04) 463 8997   Tel. (04) 463 5842
Email: Puawai.Wereta@vuw.ac.nz   Email: Faafoi.Seiuli@vuw.ac.nz

The Pacific Support Coordinator is also available on the Pipitea Campus, Room 212, Level 2, Railway West Wing, every Thursday, 1-4pm. No appointment is necessary. You can either come in, email or phone with any issue that you need help with. Fa'afoi links Pacific students to the services and support they need while studying at Victoria.