

School of Economics and Finance  
**QUAN 102 STATISTICS FOR BUSINESS**

Trimester 1, 2014

**COURSE OUTLINE**

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**Lecturers:**

- Yiğit Sağlam, RH312, 463-9989 (weeks 1-3)  
email: [yigit.saglam@vuw.ac.nz](mailto:yigit.saglam@vuw.ac.nz)
- John Randal, RWW115, 463-5558 (weeks 4-12)  
email: [john.randal@vuw.ac.nz](mailto:john.randal@vuw.ac.nz)

**Administrator:** Francine McGee, RH319, phone 463-5818  
email: [francine.mcgee@vuw.ac.nz](mailto:francine.mcgee@vuw.ac.nz)

**Coordinator:** John Randal, contact as above

**Lecture times:** Monday and Thursday, 2:10-3:00, KKLT303 (CRN 1482)  
Monday and Thursday, 4:10-5:00, KKLT303 (CRN 4501)

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

**Course website:** <http://www.blackboard.vuw.ac.nz/>

**Who to contact:**

*Academic problems (difficulty with material):* contact your lecturer or ask your tutor

*Administrative problems (blackboard, assignment marks, tutorial scheduling, medical certificates):* contact Francine McGee, who will advise the course coordinator if necessary

**Trimester Dates**

*Teaching Period:* Monday 3 March - Friday 6 June

*Study Period:* Monday 9 June - Thursday 12 June

*Examination Period:* Friday 13 June - Wednesday 2 July (inclusive)

**Withdrawal dates:**

1. Your fees will be refunded if you withdraw from this course on or before Friday 14 March 2014.

2. The standard last date for withdrawal from this course is Friday 16 May.

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.

## Prescription

An introduction to techniques useful in business research or practice. Topics include graphs and diagrams, measures of location and dispersion, index numbers, probability, sampling, estimation and testing (z,t, chi-square, sign and Mann-Whitney tests), correlation and simple regression.

## 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 stages.
- 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 delivery

This course will be delivered by two lectures per week and a tutorial in 9 out of the 12 weeks. There will be two tests and four assignments.

## Readings

The text is: Clark and Randal (2010), *A First Course in Applied Statistics*, Pearson, ISBN 978-1-4425-4151-1. This is available from the Victoria Book Centre for \$84.30. The first edition of this book is not suitable. *Exercises and solutions from the first edition are available on Blackboard.*

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>

## Expected workload

In weeks when there is a tutorial (see the course content below) you should spend 3 hours in class per week (2 lectures and 1 tutorial); in the remaining weeks you should spend 2 hours in class per week (2 lectures).

You should expect to spend an additional 6-8 hours per week reading, studying and completing assignments. Overall it is expected that you will spend approximately 150 hours on completing this course.

## Course content

Chapter references are to *the second edition* of 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
3 Mar	1	Variables; processing data; stemplots	2	
6 Mar	2	Summary statistics	3.1, 3.2	
10 Mar	3	Standard deviation; boxplots	3.2.3, 3.4	L1-2
13 Mar	4	Scatterplots; correlation	4.1-4.2	
17 Mar	5	Regression (estimation and assumptions)	4.3	L3-4
20 Mar	6	Regression (prediction)	4.3	
24 Mar		<i>Assignment 1 due 5.00pm, content: Lectures 1-4</i>		
24 Mar	7	Introduction to probability	6.1-6.2	
26 Mar		<i>Test 1, 60 minutes, 6.30pm, content: Lectures 1-6</i>		
27 Mar	8	Probability trees	6.3	
31 Mar	9	Bayes' rule	6.3.2	L7-8
3 Apr	10	Distributions; binomial experiments	6.4, 7.1	
7 Apr	11	Binomial distribution	7.2-7.3	L9-10
10 Apr	12	Normal distribution	8.1	
14 Apr		<i>Assignment 2 due 5.00pm, content: Lectures 5-10</i>		
14 Apr	13	Central limit theorem	8.2	L11-12
17 Apr	14	Sampling distribution	8.3	
<i>Easter and Mid-trimester break, 18 April - 4 May</i>				
5 May	15	Introduction to inference; interval for a mean	9.1	
7 May		<i>Test 2, 60 minutes, 6.30pm, content: Lectures 7-14</i>		
8 May	16	Testing for a single mean	9.1	
12 May	17	Small sample testing for a mean	9.2	L13-16
15 May	18	Inference for a proportion; margin of error	9.4, 9.6	
19 May		<i>Assignment 3 due 5.00pm, content: Lectures 11-16</i>		
19 May	19	Comparing two means	10.1, 10.2	
22 May	20	Paired comparison	10.5	
26 May	21	Comparing proportions	10.6	L19-20
29 May	22	Contingency table	12.2	
2 June		<i>No lecture - Queen's Birthday</i>		
3 June		<i>Assignment 4 due 5.00pm, content: Lectures 15-18</i>		
5 June	23	<i>p-values</i>	9.1.3	
<i>Examination, see <a href="http://www.victoria.ac.nz/timetables/index.aspx">http://www.victoria.ac.nz/timetables/index.aspx</a></i>				

The following textbook content is not covered in this course: § 2.3.2, 4.2.2. 5, 8.4, 9.3, 9.4.3, 9.5, 10.4, 10.7, 11, 12.1, 12.2.2, 13.

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.

### Tutorials

To view and sign up to tutorials go to <https://signups.victoria.ac.nz/>. You should attend one tutorial per week. Tutorial sign up closes on Wednesday 5 March at midday.

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.

### Assignments

There will be four short assignments, due roughly fortnightly as indicated above. Assignments will be issued on Blackboard and will consist of exercises from the *second edition* of Clark and Randal. 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 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

### 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, 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.

### 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 13 June - 2 July (inclusive).

### Assessment Requirements

From Trimester 1, 2014, a revised Assessment Handbook will apply to all VUW courses: see <http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>.

In particular, there will be a new grade scheme, in which the A+ range will be 90-100% and 50-54% will be a C-.

Your final grade is based on a mark determined as follows:

- Assignments are worth 10% (see above).
- Two 60 minute multi-choice tests will be held on: Wednesday 26 March, 6:30pm (based on lectures 1-6, CLOs 1-3); and Wednesday 7 May, 6:30pm (based on lectures 7-14, CLOs 4-6). *These are each worth 20% of your final mark.*
- The final exam will be two hours, will be long-answer (not multi-choice) and will be based primarily on lectures 15-24, although some material from earlier lectures may also be assessed (CLOs 1, 2, 5-9). *This will be worth the remaining 50% of your final mark.*

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 Faculty of Commerce programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

### **Penalties**

Late assignments will not be accepted.

### **Mandatory course requirements**

You must attend 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. If you cannot complete an assignment or sit a test or examination, refer to [www.victoria/home/study/exams-and-assessments/aegrotat](http://www.victoria/home/study/exams-and-assessments/aegrotat).

### **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.

### **Student feedback**

Student feedback on University courses may be found at:  
[http://www.cad.vuw.ac.nz/feedback/feedback\\_display.php](http://www.cad.vuw.ac.nz/feedback/feedback_display.php).

### **Link to general information**

For general information about course-related matters, go to  
<http://www.victoria.ac.nz/vbs/studenthelp/general-course-information>