Quantitative Analysis For Business

BSNS102:

2016 Semester Two

Course Outline

Quantitative Analysis for Business

This paper covers descriptive and inferential statistics for students majoring in Commerce, including applications to business research and practice. Students will learn to use statistical software, applying statistical analysis to practical problems that firms in the real world frequently face.

0.15 EFTS, 18 points; prerequisites: none; restrictions: QUAN101, STAT110, and STAT115.

Lectures:	Mondays and Wednesdays 1pm (see eVision for rooms).
Computer Lab:	1x50 minutes per week as streamed on Evision.
Help Sessions/tutorial:	Un-streamed times to be advised.

Blackboard

Lecture podcasts, notes, assignments, data sets and notices will be placed on the BSNS102 Blackboard page.
http://blackboard.otago.ac.nz:

Staff Team

Associate Professor Nathan Berg	Warren McNoe
(Course Co-ordinator)	(Course Administrator)
Room: CO 725	Room: CO703
Phone: 479 8648	Phone: 479 8137
e-mail: nathan.berg@otago.ac.nz	e-mail:warren.mcnoe@otago.ac.nz

All administrative enquiries (e.g. regarding assignments, labs, tutorials, etc.) should go to Warren McNoe. If you are missing copies of handouts or other course materials, please download these from Blackboard.

Staff Office Hours

In addition to formal contact hours lecturers are available during their office hours. Office hours will be posted on BSNS102 Blackboard's staff information page.

About BSNS102

BSNS102 is an introductory course in business statistics designed specifically for students majoring in Commerce. It covers the techniques business students are most likely to use in their future courses and professional lives.

BSNS102 emphasizes how to interpret statistical information, how to identify potential problems when using statistical information to guide business decision making, choosing appropriate statistical techniques, justifying the validity of commonly used techniques, and standards of evidence needed to make high-stakes decisions that commonly face business practitioners. The statistical software, SPSS, will be used extensively, in addition to very basic manual calculations. Excel will also be used in laboratory sessions

BSNS102 follows a particular business case scenario throughout the entire semester. Assignments and the final exam are similarly based on this business case and the data analysis exercises related to it that students will have worked on regularly during lab sessions.

Learning Outcomes

It is expected that students will develop the following knowledge and skills during the course of this paper:

1. Explain and implement sample survey methods and data collection.
2. Distinguish between different data types.
3. Tabulate, calculate and analyse descriptive statistical measures, while interpreting those statistical measures in a manner that aids business decision making.
4. Define discrete probability distributions and calculate probabilities.
5. Define the standard normal distribution and be able to standardise a normal distribution.
6. Implement hypothesis tests, construct confidence intervals for a sample mean or a proportion, and interpret those findings in context (both by hand and by using electronic calculators and SPSS/Excel).
7. Implement hypothesis tests and construct confidence intervals for differences in sample two means or proportions (for independent random samples), while interpreting those findings in context (both by hand and by using calculators and SPSS/Excel).
8. Implement one-way ANOVA and carry out appropriate post-hoc tests using SPSS/Excel.
9. Carry out chi-square multinomial (goodness of fit) tests and related chi-square tests of independence, while relating these findings to applied business decisions (by calculator and with SPSS/Excel).
10. Estimate linear regressions using SPSS, while assessing the suitability of this regression technique based on subsequent residual analysis and (as always) interpreting these findings in context. Forecasting using regression models will also be discussed..
11. Correlation analysis (Spearman's and Pearson's correlation); tests for significant correlation; interpreting correlations (as distinct from causation) in context.
12. Consider special problems analysing time series data; identify components of additive and multiplicative time series models; calculate (and interpret) trends and seasonal factors; techniques to de-seasonalise time series data; time series forecasting.

Computer Labs

Refer to eVision for your weekly computer laboratory time. Computer Laboratories start in the first week of the semester with a **numeracy diagnostic test**. Laboratories are held in COG04 or COG05 (on Leith St., just south of Albany St. next to Liquorland).

The first lab session is COMPULSORY for all BSNS102 students. You are required to complete an online numeracy quiz which will provide information about your numeracy skill level to help inform and improve teaching and learning. You do not need to prepare for this session. Please bring your student I.D.

In the Labs, students will work on techniques needed to solve tasks based on the business case scenario. It is our aim that all students will become proficient and self sufficient at using SPSS and Excel as statistical tools. If you are not streamed or need to change your streamed lab, then please contact Warren by email or see Warren at his office CO703.

Textbook   *Australian Business Statistics,* Selvanathan, Selvanathan, Keller and Warrack 6th Ed.

New copies of the sixth edition are available at the University Bookshop. There are also a large number of second-hand copies of the third and fourth edition for sale.

E book version is available from Cengage:
http://www.cengagebrain.co.nz/shop/isbn/9780170237000

Additional reading

What is a p-value anyway? 34 Stories To Help You Actually Understand Statistics (200 pages), by Andrew Vickers, is on close reserve at the Central Library.

Expected Workload

The expected workload for an 18 credit paper is 12 hours per week for 15 weeks. This time includes formal contact hours, completion of assignments and lab sessions, self-study and exam preparation.

BSNS102, the expected workload is:

Lectures	26
Computer Labs/ Tutorials	12
Assignments	30
Exam and quiz preparation	30
Computing outside lab times	22
Self study of notes and text	60
Total	180 Hours

Guide to Assessment (100%)

1.	Five Hand-In Assignments	25%
2.	Practical SPSS Lab Test	10%
3.	Five Aplia Online Tests	15%
4.	Final Exam	50%

Assignments

Assignments are due on Friday by 12 pm for Tuesday lab session students and the following Monday 12 pm for Thursday Lab streams. Assignment sheets state the relevant due dates and deadlines. You should hand in these assignments in the appropriate Economics/BSNS102 box on the 7th floor of the Commerce building**.**

Aplia online Tests

Five online Aplia tasks are scheduled throughout the semester. Each online task is worth 3%. See following schedule table for due dates. All students must register on the Aplia web page using their student email addresses. See announcement on Bb for details and link.

Laboratory Participation

Students should be punctual when arriving for lab sessions. Lab sessions are designed to give you hands-on experience in data analysis using Excel and SPSS. Because of our time constraints, we will provide help with each lab session's current exercise. Opportunities to receive help with previously covered material may be limited. Printing facilities in the labs are also limited. Therefore, in most cases, you will need to print your output at a later time and place.

Tutorials/ Help sessions

Weekly help sessions/ tutorials will be run by Warren covering material from lectures in an applied hands-on manner. Sessions are designed primarily for students who are finding the lecture material and assignments difficult. Worksheets and times will be posted on Blackboard and handed out at each session).

Practical Lab Test

A 40-minute Lab Test will be held during one scheduled Laboratory time in the week beginning the 5th September. The Practical Lab Test is based on data analysis using SPSS and focused on assessing your skills using SPSS. Students must attend the Laboratory session they are streamed into and arrive punctually for the Practical Lab Test.

Final Exam

A comprehensive final exam will be held during the examination period at the end of the semester. Students will be notified through E-vision of the date and tim*e.*

Topic Schedule

Topics will be taught in the order shown in the table below. The week indicated in the table is, however, subject to change. Please be alert for any announced changes to this schedule.

Week	Week Beginning	Lecture Topics	Computer Labs	Task Due
1	11 July	Data Types and Descriptive Measures	Numeracy Lab	
2	18 July	Descriptive Stats, Sampling, Questionnaires	Lab 1	Aplia#1
3	25 July	Probability Distributions, Cross Tabulation	Lab 2	Assignment 1
4	1 August	Central Limit Theorem, Confidence Intervals for One Sample	Lab 3	Aplia#2
5	8 August	Hypothesis Tests for One Sample	Lab 4	Assignment 2
6	15 August	Confidence Intervals for Two Samples	Lab 5	
7	22 August	Hypothesis Tests Two Samples	Lab 6	Aplia#3
	29 August	Mid-Semester Break		
8	5 September	Dependent Samples HT, Non-Parametric Tests	Lab Test	Assignment 3
9	12 September	Chi-square Tests, Multinomial/ Goodness-of-Fit Test, Test of Independence	Lab 7	Aplia#4
10	19 September	One-Way Analysis of Variance Test	Lab 8	Assignment 4
11	26 September	Linear Regression	Lab 9	Aplia#5
12	3 October	Correlation and Time Series Forecasting	Lab 10	Assignment 5 Due Friday for all
13	10 October	Review		

- **Assignments are due by Friday 12 pm for Tuesday lab session students and the following Monday by 12 pm for Thursday Lab stream students, with one exception: Assignment 5, which is due Friday, the 7th of October, for all students.**

- **Aplia tasks must be completed by 11.45pm Sunday of the week indicated in table above.**

Reading List Australian Business Statistics

Topics	3rd edition	4th and 5th edition	6th edition
Types of Data	2.2-2.5	2	2.1
Descriptive Statistics	3.1-3.8	3,4	3,4,5
Sampling	6,7.1-7.4	6	2.2-2.5
Probability and Probability Distributions and the concept of statistical independence	4.1-4.4,5.1-5.3,5.5,5.7,5.8	5.1-5.3,7.1-7.3,7.6,8.1,8.2	6 7,8.1,8.3
Sampling Distributions	7.5-7.6	10	9
Central Limit Theorem	p275	p396 (352 5th ed.)	10
Confidence Intervals for a single population or sample mean	8.3,8.4	11.2,11.3	11.1-11.3
Confidence Intervals for a single sample mean or proportion,	8.5	11.4	11.4
Consideration of sample sizes when estimating a single sample mean or proportion	8.7	11.5	11.5
Fundamentals of Hypothesis Testing	10.1,10.2,10.4	13.1,13.3	13.1,13.3
Hypothesis Test for One Mean	10.3,10.5	13.2,13.4	13.2,13.4
Hypothesis Test for One Proportion	10.7	13.6	13.6
Confidence Interval for difference in two means	9.2,9.3	12.1,12.2	12.1,12.2
Confidence Interval for difference in two proportions	9.5	12.4	12.4
Hypothesis Test for difference in two means from independent samples	11.2	14.1	14.1
Hypothesis test for difference between two proportions	11.4	14.3	14.3
Matched Pair data and hypothesis tests		14.2	14.2
Non-Parametric tests		12.3,14.2, 16.2	12.3,14.2 21
Chi-squared Test of independence	17.3	20.2	17.2
Chi-squared Multinomial Test	17.2	20.1	17.1
One-Way Analysis of Variance Test	15.1,15.2,15.5	18.1,18.4	16.1, 16.2
Linear Regression	18.1-18.5	21.1-21.5	18.1- 18.5
Analysis of residuals	18.8	21.7	18.7
Correlation	18.7	21.6	18.6
Time Series, Forecasting	22	25	23

Policy on late submissions and extensions

Late assignments cannot be accepted as we intend to hand back marked assignments as quickly as possible. If you are unable to complete an assessment due to illness or other serious circumstances, please contact the course administrator, Warren.

Impairment

The Economics Department encourages students to seek support if they find that they are having difficulty with their studies because of disability, temporary or permanent impairments, and injury or chronic illness.

Contact either:
The Economics Disability Contact Person, or
Disability Information and Support
Phone: 479 8235   Fax: 479 5873
Email: disabilities@otago.ac.nz Website: http://www.otago.ac.nz/disabilities

Academic Integrity

Academic integrity means being honest in your studying and assessments. It is the basis for ethical decision-making and behaviour in an academic context. Academic integrity is informed by the values of honesty, trust, responsibility, fairness, respect and courage. Students are expected to be aware of, and act in accordance with, the University's Academic Integrity Policy.

Academic Misconduct, such as plagiarism or cheating, is a breach of Academic Integrity and is taken very seriously by the University. Types of misconduct include plagiarism, copying, unauthorised collaboration, taking unauthorised material into a test or exam, impersonation, and assisting someone else's misconduct. A more extensive list of the types of academic misconduct and associated processes and penalties is available in the University's Student Academic Misconduct Procedures.

It is your responsibility to be aware of and use acceptable academic practices when completing your assessments. To access the information in the Academic Integrity Policy and learn more, please visit the University's Academic Integrity website at www.otago.ac.nz/study/academicintegrity or ask at the Student Learning Centre or Library. If you have any questions, ask your lecturer.

Academic Integrity Policy www.otago.ac.nz/administration/policies/otago116838.html

Student Academic Misconduct Procedures
 www.otago.ac.nz/administration/policies/otago116850.html

Class Representatives:
The class (or student) representative system is an avenue for encouraging communication and consultation between staff and students. It provides you one way to communicate your views on the teaching and delivery of the paper, while providing staff with an opportunity to communicate information and gain constructive feedback from students. The class representative system is intended to contribute substantively to the development of our sense of community within departments of the Commerce Division and to provide an additional dimension to the range of support services offered to students.

We will seek volunteers for the role of class representatives with announcements made early in the semester. The OUSA invites all class representatives to a training session, conducted by OUSA, about what it means to be a class representative and some of the possible procedures for dealing with any issues that might arise. These sessions will also provide information on the services that OUSA offers and the role OUSA can play in solving problems that may occur. The OUSA provides support to class representatives during the semester. Departmental staff will also meet with class representatives during the semester to discuss general issues or matters that anyone wishes to discuss.
Your class representative's name and contact details will be posted on Blackboard early in the semester.

Concerns about the Course
We hope you will feel comfortable coming to talk to us if you have any concerns about the course. The Course Co-ordinator will be happy to discuss any concerns you may have. Alternatively, you can report your concerns to the Class Representative, who will follow up with departmental staff. If, after trying to communicate with us though these channels, you do not feel that your concerns have been addressed, there are further University channels available to you that may help find resolution. For further advice or more information on these further channels, please contact the departmental administrator or Head of Department.

Disclaimer
While every effort is made to ensure that the information contained in this document is accurate, the information in this document is subject to change. Changes, if any, will be announced in class and via Blackboard. Students are encouraged to check Blackboard regularly. We will try our best to communicate and provide clear announcements during lectures and on Blackboard. It is ultimately the student's responsibility, however, to access these sourced of information and be informed.