



STAT 193 - Statistics for the Natural and Social Sciences

Course Outline (2014 - T2)

School of Mathematics, Statistics and Operations Research

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STAT193 does NOT use Blackboard, but has its own website.

This course outline is at: http://msor.victoria.ac.nz/Courses/STAT193_2014T2/CourseOutline

General Information

STAT 193 is a basic statistics course (similar to many overseas) for students majoring in the biological and social sciences. It leads on to the applied statistics courses STAT 292-293, STAT 391-394, and the Statistics Major. STAT 193 is usually taken to be equivalent to QUAN 102 - but if you are taking STAT 193 to substitute for a course where QUAN 102 is the pre-requisite, you should check with the relevant course coordinator. Note also that STAT 193 cannot be credited together with QUAN 102.

The topics covered and due dates are set out in the [Course Key Dates](#).

The trimester has 12 teaching weeks: 14 July-22 August 2014, with a 2 week break and then 8 September-17 October 2014.

Withdrawal from the course: information on dates, deadlines and procedures can be found at <http://www.victoria.ac.nz/home/admisenrol/payments/withdrawalsrefunds.aspx>

Course Learning Objectives and Content

The course material will be delivered in 36 lectures, including revision lectures. Topics covered include, summary and graphical display of data, correlation, regression, probability. Introduction to the Normal distribution, large sample confidence intervals and hypothesis tests. Small sample hypothesis tests and confidence intervals, analysis of variance (ANOVA), the chi-squared test for contingency tables and the non-parametric Sign test.

At the completion of the course, students should:

1. be able to summarise and display data
2. understand the basic concepts of probability and random variables
3. be familiar with standard probability distributions (Binomial, Normal, T, F, Chi-square)
4. be able to understand the principles and practice of estimation, confidence intervals and hypothesis testing, including p-values
5. be able to fit linear regression lines and compute correlation coefficients, compute and interpret confidence intervals, carry out and interpret hypothesis tests (large and small samples, one and two sample tests, paired data, analysis of variance, contingency tables, sign test),
6. place statistical conclusions back into the context of the scientific question, and express those conclusions in plain language.

Lectures

The course content is delivered through three lectures every week.

Stream A (CRN 4442):	Tue, Thu, Fri 13.10-14.00	Kirk 303
Stream B (CRN 6164):	Tue, Wed, Fri 11.00-11.50	Tue: SUMT228, Wed, Fri: MacLaurin 103

Lecturers (all in Cotton Building)

Dr Richard Arnold (Course Coordinator), Room CO540 , ext 5668, Richard.Arnold@msor.vuw.ac.nz
Dr Ivy Liu, Room CO424, ext 5648, i-ming.liu@msor.vuw.ac.nz
Dr Nokuthaba Sibanda, Room CO532, ext 6779, nokuthaba.sibanda@msor.vuw.ac.nz
Dr Larry Zhang, Room CO432, ext 5274, Larry.Zhang@msor.vuw.ac.nz
Dr John Heath, J.M.Heath@massey.ac.nz

Teaching Assistants in Charge of Administration

A number of Teaching Assistants will assist the lecturers with distributing handouts and with administration.

Contact details are:

Steven Archer, Room CO363, 04 463 5233 extn 8316, steven.archer@msor.vuw.ac.nz (Senior Tutor)
Thuong Nguyen, Room CO528, ext 8699, thuong.nguyen@msor.vuw.ac.nz
Darcy Webber, Room CO530, ext 5441, darcy.webber@msor.vuw.ac.nz

Help Sessions

Consultant tutors are available for a total of ten hours per week to discuss problems students have in understanding lecture notes, and in the assignments. The sessions are held at the following times. Times: Monday 2-4 (AM104), Tuesday 9-11 (AM104), Wednesday 2-4 (AM102), Thursday 9-11 (AM104), and Friday 2-4 (AM104).

Student Learning Support Service

Extra help is available from the Student Learning Support Service for students who are having trouble with STAT 193. Contact Student Learning Support, Level 0, Kirk Wing, Hunter Courtyard, ext 5999, for more information. Hours: Mon-Thu 8:30-4:00

Student Learning Support runs Help Sessions especially for STAT 193, please see their website for details: http://www.victoria.ac.nz/st_services/slss/whatweoffer/mathsstats.aspx

Tutorials

Each student will be allocated to a tutorial at which they may pick up their dataset, marked assignments and the test. Tutorial Exercises, which reinforce lecture material, will be worked through. The tutorials may also be used to discuss comments made by the markers, obtain help over points of difficulty in the lectures or text book, or in tackling the current assignment. The times for these will be announced in lectures. Allocation to tutorial groups will take place in the first week of the trimester.

The Tagata Pasifika tutorial available for Maori and Pacific Nations students (TP) is at a time and place to be confirmed. (This will be announced in lectures and on the course webpage)

Students are allocated to one tutorial for the recording of assessment results, and the return of assignments, test paper, dataset, etc., but they are free to attend as many other tutorials as they wish. Student numbers in tutorials are kept roughly equal so as to share out the load on the markers. Students who wish to change their tutorial must complete a form at the School Office (Cotton 358) so that they transfer to one of the more lightly loaded tutorials, and so that the change is updated on the computer records.

Attendance at tutorials is optional, however whether or not you attend a tutorial you MUST be allocated to a tutorial group. You may be disenrolled from the course if you do not enrol in a tutorial group.

Assignments

There are two types of assignments, which provide practice in statistical methods and feedback on progress:-

- **Weekly Assignments** (WAs) are necessary to pass the course, but the marks are not included in the in-term assessment as most people improve as the course progresses. All 5 WAs are compulsory.

- **Project Assignments** (PAs) form part of the in-term assessment. Each student will receive their **own unique dataset** at a tutorial (or from the course website), and will be required to complete their own individual projects based on that dataset. The overall assessment of the two Project Assignments may contribute up to 15% of the final mark. Both project assignments are compulsory.

Assignment questions will be handed out in lectures. Spare copies of assignments will be available from the table outside the School Office (CO358) on Floor 3, Cotton Building, and are also available from the course web page. All completed assignments are to be posted in the appropriate locked pigeonhole on Level 3 of the Cotton building by 5pm on the due date, which is usually a Tuesday.

Late assignments due to illness will not be accepted without a medical certificate. Those caused by bereavement, family, cultural or sporting commitments must be discussed with the senior tutor Steven Archer (steven.archer@msor.vuw.ac.nz). Late Assignments not sanctioned by Steven Archer or the course coordinator Richard Arnold will receive penalties, and may not always be assigned a mark, though will be recorded as done.

Marked assignments will be returned at tutorials. Uncollected assignments will be kept at the School Office (CO358) on the 3rd floor of the Cotton Building. Model answers will be returned with assignments.

Students should keep their datasets and all marked PAs, for back-referencing, and as evidence of completion.

All students are strongly advised to keep up with the material in the course by doing all the assignments fully and handing them in on time. This gives the opportunity to put the lecture material into practice, provides feedback on progress, and also provides additional information for the course coordinator in the event of an aegrotat application.

Term Test

There is one compulsory test. This will be held from 6.30pm - 7.30pm in the evening, on Wednesday 20 August. It is worth up to 10% of your final assessment.

Final Examination

The examination is 3 hours, and will take place in the examination period: 24 October-15 November 2014

Students will be given **either**;

A Combined Mark, equal to 25% Internal Assessment, 75% Final Examination.

or
100% Final Examination.

WHICHEVER IS TO THE STUDENT'S ADVANTAGE (We will compute the greater mark and award it to you automatically).

To gain a grade in the A range you must achieve at least 80% on the final examination. To obtain an A+ grade you must achieve 90% on the final examination.

Pass Rate

Usually 75-80% of students who sit the final examination in STAT 193 pass the course. In practice, those who persist and work regularly in the course have a much higher chance of passing.

Mandatory Course Requirements

The mandatory course requirements which must be met are:

1. Enrollment in a tutorial group.
2. Reasonable attempts at all 5 Weekly Assignments. These must be handed in on time.
3. Both Project Assignments must be satisfactorily completed and handed in on time.
4. The Test must be attended, and a satisfactory level of attainment gained.
5. The Final Examination must be sat.

(These requirements must all be met, even if the final course mark is calculated from the final exam only)

Exemptions to these requirements will be granted only on production of a medical certificate or other appropriate evidence. No credit can be given for any missed assignments. In the case of missed assignments, additional work may be prescribed at the discretion of the Course Coordinator. No work will be accepted after the examination has taken place.

Your internal assessment mark will be posted in the last week of the trimester. If you have a query about in-term marks, you will need to supply your test paper and marked assignments, so they should be kept in a safe place.

The minimum course requirements which must be met in order to pass the course are, in addition to the mandatory course requirements above:

1. A mark of 40% or more must be attained in the final examination.
2. The final assessment mark must be greater than or equal to 50%.

Workload

Outside lectures and tutorials work should not take more than four to six hours a week to complete (on average). If substantially more time than this is required, seek help from your tutor, the consultants or the Student Learning Support Service.

Textbooks

The set text is: A First Course in Applied Statistics, Clark and Randal, Pearson Education. Both the first (2004) and second (2011) editions are suitable for the course. The text should be available from the Victoria Book Centre, Whitcoulls, Bennetts Bookshop, and will also be held in closed reserve in the Study Hall of the Library.

The text is also available to buy as an eBook: <http://www.pearsoned.co.nz/9781486003808>

Calculators

An **approved graphics calculator is required** for this course. The Casio FX9750Gii is **strongly recommended**: tuition will be provided in its use, and it costs approximately \$135. (Approved calculators are **ONLY** those **graphics** calculators that are approved for **ALL** NCEA examinations.)

The [Calculators](#) page on the course website has more information.

Dictionaries

If English is not your first language you may take a dictionary into the final examination. It must be paper and NOT electronic.

Use of Computer Packages

You may use statistical packages to do the assignments and projects if you wish but the package used must be cited.

Web Page

At the end of each week lecture notes from that week will be posted on the course web page. Assignment Questions and Selected Handouts are also available from the web page. Spare copies of all assignments and handouts can be found outside the School Office (CO358) on the 3rd Floor of the Cotton Building. No assignment solutions will be posted on the web page. Also note that copies of previous examination papers are available in the Library. After the first week, each student's individual project dataset will be available from the course web page.

Notices

All notices will be posted on the course [Notices](#) webpage.

Some of these notices will also be posted on the STAT 193 noticeboards, which are on Level 3 of the Cotton Building, in the East-West corridor.

A noticeboard on Level 3 near the School office has also been set aside for Mathematics, Statistics and Operations Research students to contact each other to request and to offer tutoring or coaching in these subjects. Put a notice on the board if you need a personal tutor and want to pay another student to help you.

Class Representative

A class representative is chosen by the students in the class each trimester. Your class representative is available if you come across problems regarding STAT193 and for any reason the issue cannot be resolved directly with staff. If you would like to talk about a concern you have, please email your class rep and a meeting can be arranged. The name of the class rep will be put on the Notices/Home page.

Lecture Theatre Formalities

As a consequence of the Health and Safety Act 1992, students cannot sit on the steps or aisles between and around the benches. Please be careful when moving in or out of the theatre. Students should make themselves familiar with evacuation procedures.

An important note!

Mathematically inexperienced students or students with a poor background in maths should note that the way to learn statistics is to **DO** it i.e. attempt it, get help, have another go. *Assignments do not have to be perfect.*

Withdrawal from the course

Information on dates, deadlines and procedures can be found at <http://www.victoria.ac.nz/home/admisenrol/payments/withdrawalsrefunds.aspx>

For this trimester the course withdrawal date is 25 July 2014.

Academic integrity and plagiarism

Academic integrity means that university staff and students, in their teaching and learning are expected to treat others honestly, fairly and with respect at all times. It is not acceptable to mistreat academic, intellectual or creative work that has been done by other people by representing it as your own original work. Academic integrity is important because it is the core value on which the University's learning, teaching and research activities are based. Victoria University's reputation for academic integrity adds value to your qualification. The University defines plagiarism as presenting someone else's work as if it were your own, whether you mean to or not. "Someone else's work" means anything that is not your own idea. Even if it is presented in your own style, you must acknowledge your sources fully and appropriately. This includes:

- Material from books, journals or any other printed source
- The work of other students or staff
- Information from the internet
- Software programs and other electronic material
- Designs and ideas
- The organisation or structuring of any such material

Find out more about plagiarism, how to avoid it and penalties, on the University's website: <http://www.victoria.ac.nz/home/studying/plagiarism.html>

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 or go to the Academic Policy and Student Policy sections on: <http://www.victoria.ac.nz/home/about/policy>

The AVC(Academic) website also provides information for students in a number of areas including Academic Grievances, Student and Staff conduct, Meeting the needs of students with impairments, and student support/VUWSA student advocates. This website can be accessed at: http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx

Where to get more detailed information

Find key dates, explanations of grades and other useful information at <http://www.victoria.ac.nz/home/study>.

Find out about academic progress and restricted enrolment at <http://www.victoria.ac.nz/home/study/academic-progress>.

The University's statutes and policies are available at <http://www.victoria.ac.nz/home/about/policy>, except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar.aspx> (See Section C).

Further information about the University's academic processes can be found on the website of the Deputy Vice-Chancellor (Academic) at <http://www.victoria.ac.nz/about/governance/dvc-academic>
