STATS 762 Course Information 2014

Lecturers:

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Office Hours:
Office hours are:

Steffen: 11:00 - 1:00 Thursday.  
Alan: 10:30 - 12:00 Tuesday and Thursday.

Students may expect to find us in our offices and available for consultation during these times. Outside office hours we don't guarantee to be in, but welcome enquiries if we are. Alternatively, make an appointment with us or our Departmental Manager Karen McDonald in Rm 303, Building 303. k.macdonald@auckland.ac.nz  
Steffen will give the extra lectures.

Lectures:  
Tuesday Wednesday and Thursday at 9:00 am in Rm 106-100 (Room 100 in the Biology Building). First class meeting is on Tuesday 22nd July. The first half of the course will be taught by Steffen Klaere, the second half by Alan Lee. The extra lectures will be taught by Steffen.

Tutorials:  
Every week we have a three hour-long tutorial sessions: Tuesday 12-1, Wednesday 12-1 and Wednesday 1-2. They are held in the ground floor tutorial laboratory in Building 303S, Room 303S-G75.
We operate these as drop-in sessions, so you can come at anytime during these three hours. Usually a worksheet is available for you to work through, so you can develop the R skills required for the current assignment. Help is also available for any aspect of the course. **NB: Tutorials begin in the second week.**

**Course Content:**
This course provides an introduction to the process and procedures of statistical modelling. The topics to be covered include graphical methods, multiple regression, regression diagnostics, analysis of variance and analysis of covariance. We also consider some extensions of this kind of analysis to generalized linear models, including log-linear models and logistic regression models, with particular emphasis on the analysis of contingency tables.

These lectures are in common with STAT 330. There are six extra lectures dealing with the geometric approach to least squares, and an extra assignment requiring a higher level of mathematical and computing knowledge.

**Learning Outcomes:**
At the conclusion of the course, you should have be able to
- Explore data graphically,
- Make a sensible choice of model, based on the data, and the scientific question being addressed
- Fit the model using R
- Critically examine the model fit, and make adjustments as necessary,
- Draw sensible conclusions from the analysis
- Communicate these conclusions to a lay audience.
- Understand and appreciate the geometric approach to least squares, based on projections, vector spaces and matrix representations of the general linear model.

**Computing:**
To do the assignments you will need to use a computer. You can either use one of the University computer laboratories, or your own personal computer. Some help on computing issues is available in the large computer laboratory in the basement of Building 303S.
The computer language used in the course is R. If you are using your own computer, you will need to load R onto it. See the course website for instructions.

**Assignments:**
There will be five data-analytic assignments; the due dates are given in the Course Planner below. The assignments will typically call for a computer analysis of a set of data. These must be typed, using Word or Latex. There is also a theoretical assignment dealing with the geometric material.

**Tests:**
Instead of a lecture on September 17, there will be a test of one hour's duration, at the usual lecture time and place. The test will be "closed book".

**Examination:**
The final examination for STATS 762 will be held at a time and place to be arranged. It will be "closed book", and be of 3 hours duration. The exam will be partly multiple-choice.

**Texts:**
The course book for this course is available on the class web page, and a hard-copy version is available free of charge at the Statistics Department office in Commerce A. In addition, electronic copies of all the lecture slides (with voice-over) are available on the class web page. A reading list is also given below.

**Web Page:**
All the course materials are available on the Web. Follow the link on the class Cecil page. All assignments will be distributed via the Web and via CECIL. There is also a bulletin board, which you should consult regularly. You can also access the course page via the URL www.stat.auckland.ac.nz/~stats330

**Assessment:**
The final mark for the year is calculated on the basis of the assignments, the test and the end of year examination. The assessment components for STATS 762 are valued as follows (total 100%)

Assignments: 20%
Test 20%
Examination 60%

In order to pass the paper you must get 50% out of the total of 100%.
Note: It is very important that you attempt ALL of the assignments and sit the test. Assignments are a very important part of this course as they give you practice in applying the theory and techniques presented in lectures to actual problems. You will find it difficult to master the ideas discussed in the course without the practice you get from doing the assignments.

Collaboration:
It is our view that discussion with other students is an important part of the learning process and we encourage you to discuss problems with each other (and us!) However, you must not copy the details of another person's assignment. In other words, you can work together to decide how to do an assignment, but you must write up your own solutions. You must not collaborate during tests and examinations.

Reading List:
We have found the following books useful in the preparation of the course. Some of them are classic works - most of the material in this course is very traditional, apart from the use of R.


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<td>12</td>
<td>20/10/2014</td>
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<td>Lecture 34. Revision.</td>
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