MATH5806 – Course Outline

Information about the course

Course Authority and lecturer:

Dr Yanan Fan, Room RC-2055, phone 9385 7034, email Y.Fan@unsw.edu.au

Consultation:

Consultation will be agreed upon between the students and the lecturer at a mutually convenient time, otherwise, they can be made by appointment.

Credit, Prerequisites, Exclusions:

This course counts for 6 Units of Credit (6UOC).
Prerequisite: Math5856 or equivalent.
Exclusion: Math3821.

Lectures:

The lectures run from weeks 1 to 12:

Tuesday 5:00-8:00pm
Room: RC-3084/RC-G012C

Syllabus:

The topic covered in this course include: simple linear regression; least squares regression; diagnostics and transformations in SLR; weighted least squares; multiple linear regression; diagnostics and transformations in MLR; model selection; ridge regression and Lasso; scatter plot smoothing; splines; additive models; generalised linear models; generalised additive models; projection pursuit regression; neural networks; classifications.

The lectures will be complemented by tutorials lab sessions where the Statistical package R will be used.
Tutorials:

There will be regular lab tutorials following the lectures each week in the Maths computing lab.

Recommended reference book:

5. R manual: http://cran.au.r-project.org/

Lecture Notes

All additional lecture materials including notes can be found on Blackboard 9 at http://lms-blackboard.telt.unsw.edu.au/

Objective:

The aim of this course is to introduce students to modern regression models, and to give experience in appreciating the issues and computing methods needed for applications to real data.

The activities and assessment for the course will contribute to the core science graduate attributes of ‘Research, inquiry and analytical thinking abilities’, ‘Capability and motivation for intellectual development’ and ‘Communication’.

Teaching strategies used in the course and how they support student learning outcomes. New ideas and skills are first introduced, discussed and demonstrated in lectures, then students develop these skills by applying them to specific tasks in tutorials and assessments. Active student participation in tutorials is expected.

Assessments:

- There will be two assignments during the term of the session. Each assignment will contribute 15% to the final mark for the course.
• There will be a mid-session test, approximately half way through the course, worth 15% of the total mark. The test will be held during class time.

• The end of session exam will be worth 55% of the total mark.

Important Administrative information:

The school has strict rules for academic conduct and plagiarism. Information on these and matters concerning examination can be obtained via links on the course home page.

Note

The information contained herein is for general guidance of students and is as accurate as possible at the date of issue. You will be informed of any changes.

Course Evaluation and Development

The School of Mathematics and Statistics evaluates each course each time it is run. We carefully consider the student responses and their implications for course development. It is common practice to discuss informally with students how the course and their mastery of it are progressing.

School Rules and Regulations

Fuller details of the general rules regarding attendance, release of marks, special consideration etc are available via the School of Mathematics and Statistics Web page at http://www.maths.unsw.edu.au/students/current/policies/studentpolicy.html.

Plagiarism and academic honesty

Plagiarism is the presentation of the thoughts or work of another as one’s own. Issues you must be aware of regarding plagiarism and the university’s policies on academic honesty and plagiarism can be found at http://www.lc.unsw.edu.au/plagiarism and http://www.lc.unsw.edu.au/plagiarism/plagiarism_STUDENTBOOK.pdf.