

STAT395: Biostatistics & Epidemiology (Semester 2, 2004)

Brief description:

An introduction to the commonly used study designs – randomised clinical trials, case-control studies, cohort studies and cross sectional surveys – with applications to epidemiological problems. Statistical methods for analysing data from such studies, with particular emphasis on categorical data analysis, including logistic regression and the Poisson regression, and models for censored survival data. *SAS* (version 8.00 or newer) and *EcStat*, an add-in program in MS Excel, are used throughout this course.

Lecture Time/Location:

Wednesday 2-5 pm / E6A 133

Lecturer:

Dr Kehui Luo (Weeks 1-11)
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Ms Ruth Penman (Weeks 12-13)
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Unit Home Page:

<http://www.stat.mq.edu.au/units/stat395/>

Course Materials and Online Discussion:

All course materials including lecture notes, assignments and data files can be downloaded from *STAT818 Epidemiological Methods* web page on web site

<http://online.mq.edu.au/webct/homearea/homearea?>

To login into this web site, you will be asked for the user name and password that were supplied by the university following your enrolment this year. You may click the *Discussions* (ie, Bulletin Board) button on the same web page for online discussion with other students enrolled STAT395/818 and lecturers. More information about the Bulletin Board is given on the attached information sheet "Quick Guide to the Bulletin Board". Note that you should visit this web site regularly for updated course materials, and also possible **announcements or updates** placed on the *Discussion* board from the Lecturers.

Student Resource Centre
Division of Economics and Statistics
MACQUARIE UNIVERSITY

Unit Outline:

- Week 1: Introduction to epidemiological research methods; Introduction to *EcStat*
Week 2: Review of basic statistical methods; Introduction to *SAS*
Week 3: Simple methods for binary outcomes and determinants; Matching in case-control studies
Week 4: Mantel-Haenszel methods; Meta-analysis.
Assignment 1
Week 5: Logistic regression I
Week 6: Logistic regression II
Week 7: Poisson regression
Assignment 2
Week 8: Sample size calculations
Week 9: Kaplan-Meier survival curves
Week 10: The proportional hazards model
Assignment 3
Week 11: The proportional hazards model (contd)
Week 12: Critical appraisal
Week 13: Revision
Examination

Tutorials (Wednesdays 9am or 10 am, Computer Lab C5C217):

A set of tutorial exercises or tasks will be given each week (Note: Tutorial starts from Week 2.). You must attend at least 80% tutorial classes (ie, at least 9 out of 12). Both performance and attendance to tutorials are part of assessment of this unit (see Assessment section below).

Assignments:

Three assignments will be set and **on-time submission is compulsory**. The hand-in dates are shown on the assignment sheets.

Note: Student must submit all assignments in order to pass this unit, regardless of their performance in the final examination. Students who are unable to submit any assignment on time or unable to fulfil the tutorial attendance requirement, because of illness or some other cause, must report the circumstances *in writing* to the lecturer, and documentation must also be provided to the Registrar.

Examination:

It will examine any material covered throughout the unit. Time for the exam will be announced at the end of the semester. Remember that you have to pass the final exam to get a pass or higher grade.

Note: For the exam, you may bring into exam room an A4 size sheet of notes, formulas, etc, written on *both sides*. Any other materials such as lecture notes are not permitted. Calculators (preferably scientific) should be brought in, but they should **not** be of the text/programmable type. However, you are only allowed to bring an A4 page with notes on *one side* into any supplementary exam on the grounds that extra preparation time have been available to the candidate; Any student who cannot attend the exam due to unavoidable disruption must report the circumstances *in writing* to the lecturer (supported by medical certificate or other proper evidence), and documentation must also be provided to the Registrar.

Assessment:

Three assignments (30%).
Tutorials and **attendance** to tutorial classes (10%)
Examination (60%).

Recommended textbook:

Epidemiological research methods, by D. McNeil, Wiley, 1996.

Recommended reading:

1. Epidemiology in Medicine, by H. Hennekens & J. E. Burning, Little Brown, 1987.
2. Statistics in Epidemiology, by H. Sahai & A. Khurshid, CRC Press, 1996.
3. Statistical Methods in Medical Research, 3rd Edition, by P. Armitage & G. Berry, Blackwell, 1994.
4. Epidemiologic Research: Principles and Quantitative Methods, by D. G. Kleinbaum et al, Van Nostrand Reinhold, 1982.
5. An introduction to categorical data analysis, by A. Agresti, Wiley, 1996.
6. Logistic regression: a self-learning text, by D. G. Kleinbaum, Spring-Verlag, 1992.
7. Applied Logistic Regression, D. Hosmer & S. Lemeshow, John Wiley & Sons, 1989.
8. Survival Analysis: A Self-Learning Text, by D. G. Kleinbaum, Springer, 1996.
9. Modelling survival data in medical research, by D. Collett, Chapman & Hall, 1994.
10. Analysis of Survival Data, by D. R. Cox & D. Oakes, Chapman & Hall, 1984.

Plagiarism:

Please read the University's document "The Dangers of Cheating and Plagiarism and How to Avoid it" (overleaf). The copying of work from another student can result in very severe penalties.

THE DANGERS OF CHEATING AND PLAGIARISM AND HOW TO AVOID IT

To cheat in the context of university assignments, tests and examinations is to attempt to gain an unfair advantage by violating the principles of intellectual and scholarly integrity. Cheating also encompasses plagiarism, which is the appropriation or imitation of another person's ideas and manner of expressing them.

WHAT IS CHEATING?

You will be guilty of cheating if you do any of the following:

1. Copy from another student during a test or examination. This is cheating whether or not there is collusion between the students involved. Collusion with another student who wishes to cheat from you exposes both parties to penalties under University Regulations.
2. Use or paraphrase the work of others, including any document, audio-visual or computer-based material, when preparing an assignment or writing an examination, and pretend it is your own work by not acknowledging where it came from.
3. Copy from another student's coursework whether that copying be with or without the knowledge of that student. This includes:
 - copying all or part of someone else's assignment
 - allowing someone else to copy all or part of your assignment
 - having someone else do all or part of an assignment for you
 - doing all or part of someone else's assignment for them.
4. Make up data and fabricate results in research assignments.
5. Impersonate someone else in an examination or test, or arrange such impersonation.
6. Use forbidden material in a test or examination, whether in printed or electronic form. For example, attempting to use a non-standard calculator in a restricted calculator examination.

WHY IS IT WRONG?

If you take and use the work of another person without clearly stating or acknowledging your source, you are falsely claiming that material as your own work and committing an act of plagiarism. This is wrong because:

- it violates the principle of intellectual and scholarly integrity.
- it devalues the grades and qualifications gained legitimately by other students.

PREVENTING CHEATING

All students and staff have a responsibility to prevent, discourage and report cheating.

Typically students cheat because they are having difficulty with the unit content, the language of the unit, or both. Cheating and/or plagiarism can be a temptation when students are experiencing difficulty with a heavy workload in the unit and seek to save time by using others work.

To avoid having students resort to cheating, the University provides many services to help students with their course or to make thoughtful decisions about whether to continue. Within the Division of Economic and Financial Studies, students should first seek assistance from their tutor and/or lecturer. The University also offers help through the Dean of Students or the University Health and Counselling Services.

There is a difference between getting help and cheating. You are encouraged to get help if you need assistance to understand the material and any set work so that you are in a better position to create your own answers.

HOW TO PLAY SAFE

To maintain good academic practice, so that you may be given credit for your own efforts, and so that your own contribution can be properly appreciated and evaluated, you should acknowledge your sources and you should *ALWAYS*:

- (i) State clearly in the appropriate form where you found the material on which you have based your work, using the system of reference specified by the Division in which your assignment was set;
- (ii) Acknowledge the people whose concepts, experiments or results you have extracted, developed or summarised, even if you put these ideas into your own words;
- (iii) Avoid excessive copying of passages by another author, even where the source is acknowledged. Find another form of words to show that you have thought about the material and understood it, but remember to state clearly where you found the ideas.

There is nothing wrong with working with other students in a group; indeed sometimes you will be encouraged to do so. But after a certain point, each student must work on their own to produce their own written answers. If no specific guidelines for group-work have been given, a reasonable interpretation is that it is acceptable for two or more students to discuss a problem among themselves or with a staff member. The group may then agree that the answer should include certain points. But then each member of the group must independently write their own answer to the problem.

PENALTIES

Students who are guilty of cheating and plagiarism will be penalised. Depending on the nature of the offence, the unit coordinator will determine the penalty. For example, extensive plagiarism may result in zero marks for an assignment. Repeat offences will be referred to the University Discipline Committee and may result in failure or exclusion from the university.

(This material has been compiled from the existing plagiarism documents of Macquarie University and University of Auckland.)

DO NOT REMOVE
THE STAPLES