



ACST357 General Insurance Pricing and Reserving

Unit Convenor: Shauna Ferris (sferris@efs.mq.edu.au)

Pre-requisites: ACST356 (P) OR ACST399 (P); AND STAT271(P)

Co-requisites: none

Not counted for credit with: ACST243

Students in this unit should read this unit outline carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult one of the teaching staff in the unit.

ABOUT THIS UNIT

The unit is divided into three parts. Each part will be taught by a different lecturer.

- 1. *Time Series* (weeks 1-4);
- 2. *Generalized Linear Models* (weeks 5-9); and
- 3. *Reserves for Outstanding Claims* (weeks 9-13):

Other units recommended for students interested in working in the financial services industry in areas related to the topics in this unit include ECON232 Econometric principles, ECON233 Econometric Analysis, ECON333 Econometric Methods, STAT278 Computer Simulation, and STAT305 Simulation and Forecasting.

It is a 3 credit point unit.

The course will cover most of the material in the second half of the UK Institute of Actuaries' syllabus for Subject CT6 Statistical Methods [topics (vii), (viii), and (ix)]. A copy of this syllabus is available on the unit website.

TEACHING STAFF

Shauna Ferris, Unit Coordinator, Room E4A 617

If you wish to contact Shauna Ferris, please do so by sending an email to sferris@efs.mq.edu.au.

Dr. Xian Zhou, Room E4A 607,

If you wish to contact Dr Zhou, please do so by sending an email via the private Mail facility on Web CT.

Philip Cooper, Room E4A611

If you wish to contact Philip Cooper, please do so by sending an email via the private Mail facility on Web CT.

If you have a question about the course content, please post it on the discussion board on the website. If you are uncertain about some topics, it is likely that other students are also confused. So it may be helpful to all of your fellow students if questions and answers are posted on the website.

Scott Duncan is acting as a teaching assistant for this unit. Please address any enquiries about administration to Scott via the Private Mail facility on the unit website. If he can't answer your question he can pass the message on to the appropriate person.

CLASSES

Lectures are held on

Thursdays from 11:00 to 1:00 in E7B T2

Fridays from 12:00 to 1:00 in W5A T1

Tutorials are held on

Fridays from 1:00 to 2:00 in W5A T1

The time series lectures will NOT be recorded using i-lecture.

The GLM lectures and Outstanding Claims Estimation lectures will be recorded using i-lecture and posted on the website. However we do NOT recommend you to skip lectures and rely on catching up by listening to the recording – sometimes there are technical problems with the recordings. Skip lectures at your own risk!

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

For the time series part of the course, we will be using the Act Ed Study Materials for subject CT6 Statistical Methods (Chapters 12-13). ASSOC is arranging to buy the Act Ed notes in a bulk purchase, so that a discount will be available. The CT6 notes will also provide useful background reading for other parts of the course. Additional lecture notes for this part will be posted on the website as well.

For other sections of the course we will be posting course notes on the website.

Other useful references for the time series part of the course are

An Introduction to Generalised Linear Models by Annette Dobson (2001)

Time Series by M Kendall (1976)

Time Series Analysis: Forecasting and Control by George Box and Dwilym M. Jenkins, (1990)

Forecasting: Methods and Applications (3rd edition) by Spyros G Makridakis, Steven C. Wheelwright, and Rob J. Hyndeman (1988)

Statistical Methods for Forecasting by Bovas Abraham and Johannes Ledolter (2005)

For the part of the course which covers estimation of outstanding claims, you can download

Best Estimates for Reserves, by Glen Barnett and Ben Zehnirith, in Proceedings of the Casualty Actuarial Society, LXXXVII, No 166-167, pp 245-303 – see especially sections 1 & 2 and appendices A-D. This paper is on the list of readings for the Casualty Actuarial Society, and is available from www.casact.org/pubs/proceed/proceed00/00245.pdf A list of errata for this paper and the spreadsheet that can carry out some of the calculations is at <http://www.insureware.com/Library/Technical/technical.php#BestEstimates>.

UNIT WEB PAGE

The web page for this unit can be found at: <http://online.mq.edu.au>

The website will be used extensively for this unit so please consult the web page frequently. You will find administrative updates, lecture notes, tutorials and assignments posted there.

LEARNING OUTCOMES

The discipline-based learning outcomes are as defined in the syllabus for IA subject CT6.

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop students' generic skills in a range of areas. In this unit we aim to develop problem solving skills, communication skills, and critical analysis skills.

ASSESSMENT

Assessment:

- | | |
|---------------------|-----|
| • Class Test 1 | 15% |
| • Class Test 2 | 15% |
| • Final Examination | 70% |

All students are required to pass the final examination AND have satisfactory performance on the class tests in order to obtain a passing grade for the unit.

Class Test 1 is scheduled for Thursday August 30, 2007 during the usual lecture time. It will cover the times series topics.

Class Test 2 is scheduled for Thursday October 18, 2007 during the usual lecture time. It will cover the GLM topics.

If there are any changes in lecture or test times, an announcement will be posted on the unit website.

During class tests, students will be allowed to use

- a calculator (one without text retrieval capability); and
- one A4 page into the exam (the A4 page may have writing on both sides).

Final Examination:

Exam duration: 3 hour exam plus 10 minutes reading time.

The final exam will cover all of the material in the course. Students will be allowed to use

- a calculator (one without text retrieval capability); and
- one A4 page into the exam (the A4 page may have writing on both sides).

Normal examination rules apply to the conduct of the class tests and the final exam. These rules are set out under the heading "Conduct of Examinations" in the Student Information section of the Macquarie University Handbook of Undergraduate Studies (page 42).

STUDENT SUPPORT SERVICES

Besides the general services available (see below), the Division of Economics and Financial Studies offers ERIC: EFS Resource and Information Centre

http://www.efs.mq.edu.au/student_support/eric

WEEKLY TABLE OF TOPICS

Week	Topics covered
1	Time Series (Dr Xian Zhou)
2	Time Series (Dr Xian Zhou)
3	Time Series (Dr Xian Zhou)
4	Time Series (Dr Xian Zhou)
5	GLMs (S Ferris) and TEST 1
6	GLMs (S Ferris) Note : <i>APEC PUBLIC HOLIDAY SEPT 7</i>
7	GLMs (S Ferris) Note : Conception Day Starts at 1 pm (No Tute)
BREAK	
8	GLMs (S Ferris)
9	GLMs (S Ferris) and Outstanding Claims Estimation (P Cooper)
10	Outstanding Claims Estimation (P Cooper) and TEST 2
11	Outstanding Claims Estimation (P Cooper)
12	Outstanding Claims Estimation (P Cooper)
13	Outstanding Claims Estimation (P Cooper) and revision

IMPORTANT GENERAL REQUIREMENT FOR ALL UNITS:

ADVICE OF ABSENCE :

Applications for Special Consideration in respect of a class test or other class assessment task must be made on the "Advice of Absence or Other Circumstances" form. These are available from the Student Enquiry Service on level 1 of the Lincoln Building.

EXAMINATIONS AND SPECIAL CONSIDERATION:

The University Examination periods are from 14/11/2007 to 30/11/07. You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations. <http://www.timetables.mq.edu.au/exam>

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. Information about unavoidable disruption and the special consideration process is available at: <http://www.reg.mq.edu.au/Forms/APSCon.pdf>

If a Supplementary Examination is granted as a result of the Special Consideration process, the examination will be scheduled after the conclusion of the official examination period.

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, that is, the final day of the official examination period.

No aids, other than a pen and pencil, may be brought into an exam *unless specifically permitted by the Convenor*. The following are expressly forbidden: mobile phones, calculators, computers, I-pods, PDAs, MP3s and any other electronic aid, and books.

After the grades are determined, you may wish to review your paper and/or apply for a review of your grade. The instructions for this will be posted on the Division website http://www.efs.mq.edu.au/student_support/important_processes/important_processes_grade_appeal_and_exam_script_viewing. Please read this information carefully before submitting a request.

PLAGIARISM AND CHEATING:

The University defines plagiarism in its rules: “Plagiarism involves using the work of another person and presenting it as one’s own.” Plagiarism is a serious breach of the University’s rules and carries significant penalties. You must read the University’s practices and procedures on plagiarism. These can be found in the *Handbook of Undergraduate Studies* or on the web at: <http://www.student.mq.edu.au/plagiarism/>

The policies and procedures explain what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Disciplinary Committee.

Plagiarism is simply a type of cheating. Any confirmed cheating may result in serious penalties, including deduction of marks, failure in the unit, and/or referral to the University Disciplinary Committee.

UNIVERSITY POLICY ON GRADING:

The grading system is described in section 10.5 of the Bachelor Degree Rules in the Handbook for Undergraduate Studies, available at www.handbook.mq.edu.au/PDFs/2007/ug-bachelor-degree-rules.pdf. You will be given a grade of High Distinction, Distinction, Credit, Pass, Conceded Pass, or Fail

Academic Senate has a set of guidelines on the distribution of grades across the range from fail to high distinction. For an explanation of the policy see: <http://www.mq.edu.au/senate/MQUonly/Issues/Guidelines2003.doc> or <http://www.mq.edu.au/senate/MQUonly/Issues/detailedguidelines.doc>

Your final result will include one of these grades plus a standardized numerical grade (SNG). Your raw mark for a unit may not be the same as the SNG which you receive. Under the Senate guidelines, results may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performance of their students should achieve similar results. The standard grading scheme is:

0 – 44	Fail
45 – 49	Conceded Pass
50 – 64	Pass
65 – 74	Credit
75 – 84	Distinction
85 – 100	High Distinction

STUDENT SUPPORT SERVICES:

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au>

CLASSROOM ETIQUETTE

Students are expected to arrive on time, certainly before five minutes past the hour, and not to leave until the class ends. If you have a recurring problem that makes you late, or forces you to leave early, have the courtesy to discuss this with your lecturer/tutor.

Students are expected to be quiet during lectures unless, of course, class participation is required.

Mobiles should be turned off during classes; not simply set to “silent”.