



FACULTY OF
BUSINESS AND ECONOMICS

ACST152
Introduction to Actuarial Studies

First Semester 2011

Applied Finance and Actuarial Studies Department

**MACQUARIE UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS
UNIT GUIDE**

Year and Semester:	First Semester 2011
Unit convenor:	Shauna Ferris
Prerequisites:	Admission to BCom in Actuarial Studies Or 18 Credit Points with GPA ≥ 2.75
Credit points:	3

Students in this unit should read this unit guide 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

This unit provides an introduction to the important underlying aspects of actuarial work. We look at the development of actuarial techniques in the context of life insurance, general insurance, superannuation, and investment.

The aim is to develop problem-solving skills and give students some of the basic tools for risk management and financial modelling. The unit shows how studies in related disciplines (such as accounting, demography, economics, statistics, computing, and mathematics) are essential to the education of an actuary.

The unit works through the control cycle approach to insurance: business objectives, product design, risk assessment, modelling of insurance and financial risks (including claim frequency and claim size of individual claims and on a portfolio basis), pricing, reserving, investment and asset liability matching, claims management, legal requirements, solvency, profitability, and responding to experience.

Students are assumed to have studied mathematics in high school up to at least HSC Extension 1 level (or equivalent from other states/countries).

This subject is a prerequisite for more advanced units in the actuarial studies program.

TEACHING STAFF

- Convenor /Lecturer
Shauna Ferris
Email Shauna.Ferris@mq.edu.au
Building E4a room 617
- Visiting Lecturer
Peter Carroll
- Teaching Assistant
Pan Jiang
- Tutors
Shauna Ferris
Pan Jiang
Kirsten Flynn

Pan Jiang and Kirsten Flynn can be contacted via the Private Mail facility on Blackboard.

CONSULTATION TIMES

If you have any enquiries about the administration of the unit, please send an email to the teaching Assistant, Pan Jiang, via the Private Mail facility on Blackboard. If she can't answer the question, she will pass it on to the Convenor, Shauna Ferris.

If you have any questions about the course content, you can either

- Post the question on the discussion board, OR
- Visit one of the tutors during consultation hours.
 - The Consultation Room is E4B 104
Kirsten's Consultation Time is Wednesday at 12:00
Pan's Consultation Time will be posted on the Bulletin Board

Shauna Ferris has consultation hours on Friday afternoons between 3:00 and 5:00 in her office at E4B 617.

You are encouraged to seek help at a time that is convenient to you from a staff member teaching on this unit during their regular consultation hours. In special circumstances, an appointment may be made outside regular consultation hours. You may phone staff during their consultation hours.

In order to gain access to staff located at levels 1, 2 and 3 of building E4A during their consultation hours please ring the staff member from the phones available in the

lobby (phone numbers of relevant staff members will be provided on Blackboard and are available next to the phones).

Students experiencing significant difficulties with any topic in the unit must seek assistance immediately.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.

CLASSES

- There is one two-hour lecture each week (Tuesday 11:00 to 1:00)
- Each student should attend one one-hour tutorial class each week, EXCEPT in week 1.
- The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>

Students will not be allowed to switch tutorials after week 1, unless there is a very good reason for the change. Send any requests to the Teaching Administrator, Pan Jiang, via the Private Mail facility.

To help you find your room, it is helpful to know that

- Buildings on the East side of Campus are labelled E
- Buildings on the West Side of Campus are labelled W
- Buildings near the Centre of the campus are labelled C
- Buildings at the south end of the campus have low numbers
- Buildings at the north end of the campus have high numbers

For example building C5A is in the middle of the campus, building E12A is on the north east side of the campus.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

There is no set textbook for this unit. All lecture notes, readings, and tutorial questions will be provided via the Blackboard, along with other useful learning materials such as copies of old exams.

TECHNOLOGY USED AND REQUIRED

- Students will need to use the online learning system, the Blackboard. (see below).
- Students will be using EXCEL spreadsheets
- Students will also use the programming language R. This is available for free download over the internet. Instructions will be provided later in the term, via the Blackboard.

UNIT WEB PAGE

Course material is available on the learning management system (BlackBoard)

The web page for this unit can be found by going to learn.mq.edu.au and entering your user id and password. This will give you a list of all the units you are enrolled in this semester.

If you forget your password or have any technical problems accessing the website, then you can contact the help desk at 9850-4357 (9850-HELP) or by going to C5C244.

The Blackboard will be used

- To communicate any announcements about administrative matters (e.g. any changes in the timetable etc)
- To provide lecture notes, Camtasia recordings (e.g. demos of computer work), tutorial exercises and solutions, and assessment tasks
- To provide other course material such as recommended readings, datasets and life tables, and background material for assignments
- To provide an opportunity for communication between students and staff, via the Discussion Boards
- To provide feedback on assessment tasks via MyGrades

The Blackboard also allows students to submit assignments electronically.

Any important information about the unit (such as timetable changes) will be announced in lectures AND posted on the Blackboard.

PLEASE BE SURE TO CHECK THE BLACKBOARD ANNOUNCEMENTS AND MAIL AT LEAST ONCE A WEEK. THIS IS YOUR RESPONSIBILITY.

LEARNING OUTCOMES

We will be adopting a problem-based learning approach. We will look at a range of typical actuarial problems, and learn some of the mathematical / statistical / computing / modelling skills which are needed to solve these problems. Since these are real-life problems, we will also be look at practical problems of business management – including ethical issues. The problems will be drawn from life insurance, general insurance, health insurance, superannuation, banking, and other financial services.

The learning outcomes of this unit are:

- 1 Understanding of the mathematical and statistical and computing techniques used in model building
2. Understand the steps in model-building

- 3 Be able to critically assess models
- 4 Be able to use the results of the models to manage risks
- 5 Apply the results of modelling to make business decisions
- 6 Understand the necessity for compliance with legal, professional and ethical standards in actuarial work

An outline of topics will be placed in the Administration Folder on the Blackboard

GRADUATE CAPABILITIES

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop students' generic skills in a range of areas. One of the aims of this unit is that students develop their skills in the following:

- Foundation skills of literacy, numeracy and information technology;
- Communication skills;
- Critical analysis skills;
- Problem-solving skills;
- Creative thinking skills.

TEACHING AND LEARNING STRATEGY

- The lecture will be taught by lectures and tutorials.
- The lecturers will present the course material in lectures, but we expect students to be active participants – asking questions, responding to questions from the lecturer, and working through some of the problems with “thought experiments”. Please bring a calculator to each class, since you will need the calculators to work through some examples.

We WON'T give you a set of notes BEFORE the class, because we want you to think through the problem for yourself (instead of just reading the answer and memorizing it).

We WILL give you the lectures notes AFTER the lecture, so that you have a good summary of the main points and worked examples of numerical problems. These will be placed on the Blackboard.

- The tutorials will be small groups (about 25 students per group). You will be given tutorial questions each week, which you are expected to attempt BEFORE the tutorial. The tutorial questions cover material presented in the previous week, i.e. if we cover the topic “ruin probability” in week 1 lectures, you will be given question on this topic in week 1, which you should complete and hand in at the tutorial in week 2. This will count for assessment. You must satisfactorily complete at least 10 tutorial exercises. You may work together on these tutorials, as long as the work you hand is your own (not simply copied from another student).

- All course material will be posted on the Blackboard, along with old tests and exams.
- Please use the discussion board to ask questions and discuss any issues raised in class.
- We will provide anonymous section of the discussion board, so that you can feel free to make helpful comments on the course. If there is anything that we can do to make it easier for your to learn, please let us know. Please show courtesy to others and do NOT use the discussion board to make negative comments about your fellow students or staff. Be constructive.
- Sometimes, for the more complex problems, we will need to use a computer program. We will produce sample programs and video recordings to show you how to write some simple programs. You should practice these at home. We will be using EXCEL spreadsheet and R. [Note: R is a computer language which is both FREE and very useful for actuaries. We will give you instructions about how to download this software later.] If you don't have a computer at home, you can use PCs in the University's computer labs.

Discussion Area

We will encourage you to participate in class discussions. This might include answering questions raised by the lecturer in class; asking questions about anything you don't understand; or attempting to answer questions raised by other students.

Topics & Threads

The discussion area is divided into topics. When you view the contents of a topic, you will initially see a list of the "threads" in that topic. Clicking on the small plus sign within a square will expand the listing to display all the messages in a thread. Alternatively, the "unthreaded" link will display all messages chronologically, rather than sorted by thread.

If you are posting a reply to someone else's message, view their message and press the "reply" button. Then the software will correctly attach your reply to the same thread as the original message. This makes it easier for others to follow the thread of the argument. Hence the name "thread".

Ensure you comply with the "Information Technology Security Policy and Rules" and the "Information Technology Usage Rules" accessible from the Technical Information link on the home page. Breaches of these rules DO result in disciplinary action.

The rules indicate that offensive language is unacceptable. Please be aware that the students in this unit come from a diverse range of cultural backgrounds and that words that you regard as mild expletives may be highly offensive to others.

Etiquette

Mobile phones and other non-silent devices should be turned off during classes. Offenders may be awarded unpleasant demerits, such as cleaning used overhead projector slides.

In some cultures it is common for students to give gifts to their teachers at the end of semester. The teaching staff understand that being a full-time university student usually involves financial hardship so we are definitely not expecting gifts. Our best reward is to see our students doing well.

RESEARCH AND PRACTICE

- This unit uses research by Macquarie University researchers.
- This unit uses research from external sources.
- This unit gives you practice in applying research findings in your assignments

RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES

Diagnostic Test

Students in ACST152 come from a range of different backgrounds: different schools, different states, different countries:

- Some students have studied advanced mathematics; some have not
- Some students have studied commerce and economics; some have not
- Some students have studied introductory statistics; some have not.

During the first two weeks of term, we will post a Diagnostic Test on the website in the Assessment Tasks folder. This test does not count for assessment purposes – but it will help us to identify students who may need extra help. Please attempt the Diagnostic Test and submit your answers via the Blackboard. Instructions for submitting your answers are provided in the Assessments folder. Students who have difficulty with the Diagnostic Test will be advised to seek extra help. The University runs a Numeracy Centre which provides one-to-one tutoring for mathematical and statistical topics.

Assessment Tasks

	Length	Due Date	Weight
Tutorial Questions	n/a	Every week	5% (10 * ½ mark)
Class Test	1.5 hours	Week 7 (during lecture timeslot)	20%
Essay	1500 words	Week 8 - April 27	12%
Simulation Report	1500 words	Week 11 - May 17	8%
Final Exam	3 hours	Exam period	55%
		Total	100%

- Each week you will be given tutorial questions. You should hand in your answers to these questions at the tutorial each week (except week 1). If your tutor is convinced that you have made a reasonable attempt at the questions, you will earn ½ mark (maximum 5 marks over the term).
- Further details of the other assessment tasks, including assessment criteria, will be posted on the Blackboard later in the term.
- Essays and research tasks should be submitted electronically. We will give you instructions on how to do this.
- Note that you should always acknowledge the source of any work you submit. Rules about academic referencing will be placed on the Blackboard. Please read these before you submit any work.
- Extensions will be granted when you can provide evidence of illness or unavoidable disruption to your studies. If you think you deserve an extension, you should send an email to our Teaching Assistant (Pan Jiang) via Private Mail explaining the circumstances and requesting an extension.
- Late submissions will be accepted up to one week late, but with a penalty of 10% of the marks for the assignment, for each day late (or part thereof). Late submissions will not be accepted after the solutions are posted on the website!

- **Examinations**

A final examination is included as an assessment task for this unit to provide assurance that:

- i) the product belongs to the student and
- ii) the student has attained the knowledge and skills tested in the exam.

In order to pass this unit, a student must have satisfactory performance in both the coursework and the final exam.

A 3 hour final examination for this unit will be held during the University Examination period.

The University Examination period in First Half Year 2011 is from June 6 to June 24.

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. The University's policy on special consideration process is available at

http://www.mq.edu.au/policy/docs/special_consideration/policy.html

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. (Individual Faculties may wish to signal when the Faculties' Supplementary Exams are normally scheduled.)

The Macquarie university examination policy details the principles and conduct of examinations at the University. The policy is available at:

<http://www.mq.edu.au/policy/docs/examination/policy.htm>

ACADEMIC HONESTY

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at

http://www.mq.edu.au/policy/docs/academic_honesty/policy.html

GRADES

Macquarie University uses the following grades in coursework units of study:

HD - High Distinction
D - Distinction
CR - Credit
P - Pass
F - Fail

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at:

<http://www.mq.edu.au/policy/docs/grading/policy.html>

GRADING APPEALS AND FINAL EXAMINATION SCRIPT VIEWING

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes a valid grounds for appeal before appealing your grade.

http://www.businessandconomics.mq.edu.au/new_and_current_students/undergraduate_current_students/how_do_i/grade_appeals

SPECIAL CONSIDERATION

The University is committed to equity and fairness in all aspects of its learning and teaching. In stating this commitment, the University recognises that there may be circumstances where a student is prevented by unavoidable disruption from performing in accordance with their ability. A special consideration policy exists to support students who experience serious and unavoidable disruption such that they do not reach their usual demonstrated performance level. The policy is available at: http://www.mq.edu.au/policy/docs/special_consideration/procedure.html

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>.

[Individual Unit Convenors may wish to add Unit/ Faculty specific support eg BESS, Room, PAL, E4B Consultation Room.]

IT CONDITIONS OF USE

Access to all student computing facilities within the Faculty of Business and Economics is restricted to authorised coursework for approved units. Student ID cards must be displayed in the locations provided at all times.

Students are expected to act responsibly when utilising University IT facilities. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted. Material that is not related to coursework for approved unit is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.