ACST152

Introduction to Actuarial Studies

S1 Day 2016

Dept of Applied Finance and Actuarial Studies

Contents

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General Information

Unit convenor and teaching staff
Unit Convenor
Shauna Ferris
shauna.ferris@mq.edu.au
Contact via shauna.ferris@mq.edu.au
e4a 617
Tuesday 12 noon to 2 pm or by appointment

Angela Chow
angela.chow@mq.edu.au

Credit points
3

Prerequisites
Admission to BActStud or (18cp and GPA of 3.25 (out of 4.0))

Corequisites
STAT171

Co-badged status

Unit description
This unit provides an introduction to the important underlying aspects of actuarial work. It looks at the development of actuarial techniques in the context of life insurance, general insurance, superannuation, and investment. The aim is to develop problem-solving and communication 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. This unit is relevant for students who want to become actuaries or risk managers. Students are assumed to have studied mathematics in high school up to at least HSC Extension 1 level or equivalent.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Understand the way the actuarial control cycle is used to identify and manage financial risks

Be able to build simple cash flow models which can be used for decision making. Be abe to implement these in Excel or using other software

Be able to apply demographic data (such as Life Tables) and statistical models (including models based on the Binomial, Poisson, or Normal distributions) to price policies and determine ruin probabilities. Be able to implement simulation models in Excel or using other software.

Be able to explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary. Explain how the business environment affects the management of the financial services business.

Understand the tools which can be used to manage risk, including the impact of diversification and leverage; capital; risk pooling and risk transfer.

General Assessment Information

The grades for each assessment task will be posted on iLearn and students can check their results by looking at the Gradebook online. We will post an Announcement when the grades are available. It is the responsibility of students to view their marks for each within-session assessment on iLearn within 20 days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment tasks (not including the final exam mark) will not be addressed.

Assessment Tasks

Name	Weighting	Due
Quizzes	8%	Fridays 5 pm
Assignment	12%	Monday 5pm Week 10
Class Test	20%	Week 8 (Lecture timeslot)
Final Exam	60%	During University Exam Period

Quizzes

Due: **Fridays 5 pm**
Weighting: **8%**

Students will be asked to do online quiz questions on a weekly basis, via iLearn The quizzes will help students to keep up to date with the course material covered in lectures and tutorials. The schedule of quiz due dates will be shown on iLearn. Quizzes will be due on Friday at 5pm in most weeks. There will be a practice quiz in week 1 (not counting for marks) so that students can become familiar with the online quiz system, The first quiz which counts for assessment purposes will be in week 2. The 8 best tests will be counted for assessment purposes. No extensons will be granted. Students who have not submitted a task prior to the deadline will be awarded a mark of 0, unless the student has applied for Special Consideration and the request has been approved.

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Assignment

Due: **Monday 5pm Week 10**
Weighting: **12%**

Students will be asked to undertake a project which will require model-building and research.

No extensions will be granted.Late tasks will be accepted up to 72 hours after the submission deadline. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission - 20% penalty). This penalty does not apply for cases in which an application for special consideration is made and approved.

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Class Test

Due: **Week 8 (Lecture timeslot)**
Weighting: **20%**

The test will be approximately 75 minutes with 10 minutes reading time. The test will be held during the normal lecture time (Monday) in week 8. Students should bring a non programmable calculator to the test (no text retrieval capability). Students who do not attempt the test will be awarded a mark of 0 for this task, except in cases where an application for special consideration has been made and is approved.

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Final Exam

Due: **During University Exam Period**
Weighting: **60%**

The exam will be three hours plus ten minutes reading time. The exam will be held during the University Examination period for semester 1. The examination timetable will be posted on the University website later in the term. Students will be allowed to use a no-programmable calculator during the examination (The calculator must not have text retrieval capability). The Macquarie University examination policy describes the principles and conduct of examinations at the University. This policy is available at http://www.mq.edu.au/docs/examination/policy.htm

In order to be eligible for a passing grade in this unit, you must pass the final exam.

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Delivery and Resources

Classes

The timetable for classes can be found on the University web site at:http://www.timetables.mq.edu.au/. This timetable shows the class times and locations.

• Lectures : 2 hours per week

Monday 3 pm to 5 pm in E7B T3

Please bring a calculator so that you can attempt some exercises during class.

Be prepared to share your ideas.

* Computer skills. In this unit students learn how to use EXCEL to build simple financial

models and do simulations.

We have provided Camtasia recordings to demonstrate how to build spreadsheets and use common EXCEL functions. These Camtasia recordings are available on iLearn. This material is examinable so students should watch these recordings.

- Tutorials : 1 hour per week (You should enrol in one of the tutorial groups shown below)

    Tutorial Groups

  - Friday 10 am in Y3A211
  - Friday 11 am in Y3A211
  - Friday 12 noon in Y3A211
  - Friday 2 pm in X5B132

Note that rooms may change depending on the number of students enrolling in other units across the University - any changes will be announced in Lectures and on iLearn.

There are no tutorials in week 1.

Tutorial questions will be posted on iLearn each week. Please attempt the tute questions BEFORE the class, so that you can ask your tutor if you need help. Note that the tutorial exercises provide excellent preparation for the class test and final exam.

Students may request a change of tutorial time if there is a good reason (e.g. you have a part time job which clashes with your assigned tutorial).

iLEARN

The course notes, readings, tutorial questions, tutorial solutions, and sample exams for this unit will be posted on the iLearn system. There will be a separate folder for each week.

* If you have any personal questions, then you can send Shauna a message via the Dialogue Module. For example, if you are sick and you need Special Consideration, or you want to switch tutes, send a messsge via the Dialogue.

* if you have any general questions about the unit, you can post a message under General Discussion. This is a public noticeboard: all the students and staff can see your message.

* Students are encouraged to help each other. If you notice that one of your colleagues has posted a question on General Discussion, and you think you know the answer, you may post a reply. You are encouraged to help each other with tute questions; but you should NOT share the answers to quiz questions. The quiz questions are good preparation for the class test and exam,

so it is better if you try to do these yourself.

* If you have any helpful suggestions for how to improve the course, please feel free to send Shauna a message via the Dialogue.

* Prizes are awarded to students who make positive contributions to the class.

* We aim to record the lectures and make these recordings available via iLearn. However sometimes there are technical hitches, so we cannot guarantee that these recordings will always be available. We do NOT recommend skipping lectures and relying on listening to all the recordings the night before the class test or final exam. To watch the recorded lectures click on the ECHO360 button on the right hand side of the iLearn home page for ACST152.

* We will also be posting some Audio-visual recordings which will demonstrate Excel skills and R skiils. You can play these back at home to work through EXCEL exercises step by step.

* From time to time we might need to make an announcement to the whole class (e.g. if a tutorial is moved to a different room or there is a scholarship available). The announcements will appear on iLearn, and you will also be sent an email to your Uni email address. Please look at your Uni email regularly - at least once a week.

Consultation times

One of the tutors will hold consultation hours every week in E4B 104. If you want extra help with any of the course material, please attend the Tutor's consultation sessions in E4B104. The times will be notified via an Announcement on iLearn.

Shauna Ferris will usually be available for consultation on Tuesday afternoon between 12 noon and 2 pm. Sometimes Shauna might be away at a conference or committee meeting, so if you want to talk to Shauna please send her an email at shauna.ferris@mq.edu.au to let her know you are coming along and/or arrange an alternative time to meet.

Students experiencing significant difficulties with any topic in the unit should seek assistance as soon as possible. We are happy to help you. Students who enter this course come from a range of different backgrounds - although most have studied the NSW HSC maths syllabus, we also have students from other states and other countries. Some students will already have good computer skills from high school, others will already know a bit about economics, and so on - each student will have different strengths and weaknesses. Don't be afraid to ask for help!

Resources

Students should bring a calculator to classes (lectures and tutorials). Students should bring a calculator to the class test and to the final exam. The calculator should be non-programmable and should not have the ability to store and retrieve text.

We will be using the iLearn system, so it would be helpful if students have a computer and access to the Internet. Students can also use the University's computer labs.

We will be using computer software (such as Excel and R) to

develop some financial models. R is open-source software and can be downloaded at no cost (we will provide instructions on how to do so).

Changes for 2016

The student feedback from 2015 did not recommend too many changes. Some students thought the unit was too difficult, and a few thought it was too easy. This year we will include a few extra challenging problems for those who want to be "mentally stretched".

This course is designed to give students an understanding of practical problems which actuaries must solve. So we will be keeping an eye on current financial events which affect the financial services industry and the actuarial profession. These issues will be discussed in tutorials.

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Unit Schedule

The Unit Schedule will be posted on iLearm.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of

Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Supplementary Examinations Policy -

Further information regarding supplementary examinations, including dates, is available here :

http://www.businessandeconomics.mq.edu.au/current_students/undergraduate/how_do_i/special_consideration

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge,

scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Be able to build simple cash flow models which can be used for decision making. Be abe to implement these in Excel or using other software

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- Understand the tools which can be used to manage risk, including the impact of diversification and leverage; capital; risk pooling and risk transfer.

Assessment tasks

- Quizzes
- Assignment
- Class Test
- Final Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Be able to build simple cash flow models which can be used for decision making. Be abe to implement these in Excel or using other software

- Be able to apply demographic data (such as Life Tables) and statistical models (including models based on the Binomial, Poisson, or Normal distributions) to price policies and determine ruin probabilities. Be able to implement simulation models in Excel or using other software.

- Understand the tools which can be used to manage risk, including the impact of diversification and leverage; capital; risk pooling and risk transfer.

Assessment tasks

- Quizzes
- Assignment
- Class Test
- Final Exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Understand the way the actuarial control cycle is used to identify and manage financial risks
- Be able to explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary. Explain how the business environment affects the management of the financial services business.

Assessment tasks

- Quizzes
- Assignment
- Class Test
- Final Exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Understand the way the actuarial control cycle is used to identify and manage financial

risks

- Be able to explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary. Explain how the business environment affects the management of the financial services business.

Assessment tasks

- Assignment
- Final Exam

Research and Practice

- This unit uses research from a range of sources. References for given topics will be available on the iLearn system.
- This unit gives you opportunities to conduct your own research