ACST152

Introduction to Actuarial Studies

S1 Day 2018

Archive (Pre-2019) - 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
Monday 1 pm noon to 2 pm or by appointment

Tutor
Ben Sandercock
ben.sandercock@mq.edu.au
Contact via via iLearn "Send a message" button

Angela Chow
angela.chow@mq.edu.au

Credit points
3

Prerequisites
Admission to BActStud or BActStudBSc or BAppFinBActStud or BActStudBProfPrac

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

Assessment criteria for all assessment tasks will be posted on the unit's iLearn site.

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.

The University Policy for Special Consideration is given at https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

Assessment Tasks

Name	Weighting	Hurdle	Due
Quizzes	8%	No	Fridays 5 pm
Assignment	12%	No	Monday 5pm May 10, Week 10
Class Test	20%	No	Week 8 April 30
Final Exam	60%	No	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 (there will not be a quiz in every week, because in some weeks students will be busy with other assignments and tests preparation). 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. Quizzes which are completed during the four few weeks of term will be used to identify students who may need additional help.The 8 best tests will be counted for assessment purposes.

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for special consideration is made and approved.

On successful completion you will be able to:

- 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.

Assignment

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

Students will be asked to undertake a project which will require model-building (in Excel) and a written report.

Assignments should be submitted via iLearn, by uploading your report and Spreadsheet (the Assignment Instructions on iLearn will explain how to submit).

No extensions will be granted.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. No submission will be accepted after solutions have been posted.

On successful completion you will be able to:
  • Understand the way the actuarial control cycle is used to identify and manage financial risks
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  • 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.

Class Test

Due: **Week 8 April 30**
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 9:00 to 11 :00) in week 8, on April 30. 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 - but this penalty does not apply in cases in which an application for special consideration is made and approved.

On successful completion you will be able to:

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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 non-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

On successful completion you will be able to:

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- 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.

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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 9 am to 11 am in Lecture Theatre T4 in 17 Sir Christopher Ondaatje Ave

  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 also 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.

The best way to develop computing skills is to attempt sample problems, so please work through the examples in the Camtasia recordings.

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

  Tutorial Groups

  - Monday 11 am in room 236 at 17 Wally's Walk
  - Monday 11 am in room 914 at 6 Eastern Road
  - Monday 12 noon in room 211 at 4 Western Road
  - Monday 1 pm in room 307 12 Second Way

> Note that rooms and times for tutorials may change depending on the number of students enrolling in both ACST152 and 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. To find the iLearn page, go to ilearn.mq.edu.au and enter your user name and password. Once you log in, you should see a list of all the units you are enrolled in - and this should include ACST152 Introduction to Actuarial Studies. Click on the unit name to go to the unit's iLearn home page,

* If you have trouble logging in to iLearn or you can't remember your password, ring 9850 HELP or send a question by email to OneHelp@mq.edu.au.

* If you have any personal questions, then you can send Shauna a message via iLearn (click on "Send a message"). For example, if you are sick and you need Special Consideration, or you want to switch tutes because you have a timetable clash, send a messsge to Shauna via iLearn."Send a Message"

* if you have any general questions about the unit, you can post a message under General Discussion (which is on iLearn). This is a public noticeboard: all the students and staff can see your message. For example, if you have a question about one of the assignments, you can post the question here.

* 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.

* Please be polite to each other when you post messages on iLearn.

* 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 or other problems, 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.

* 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, in a folder near the top of the home page, 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 6 Eastern Road Room 104. If you want extra help with any of the course material, please attend the Tutor's consultation sessions. The consultation times will be notified via an Announcement on iLearn.

Shauna Ferris will usually be available for consultation on Monday afternoon between 2 pm and 3 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. We will be using computer software (such as Excel) to develop some financial models. If you do not have a computer at home, or you do not have internet access, or you do not have EXCEL software, you can use the University's computer labs.

Changes for 2018

Based on the student feedback, students were fairly happy with this unit in 2017, so we have not made many changes. Some students thought the EXCEL assignment was too hard, so we will try to include more EXCEL practice questions this year, so that students can be better prepared for the assignment.

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.

Many students said that the online quizzes and tutorial exercises were very helpful in preparing for the test and final exam. If you have trouble understanding any of the tutorial or quiz problems, please go and see a tutor during the weekly consultation times. [The consultation hours will be posted on iLearn].

Unit Schedule

The Unit Schedule will be posted on iLearm.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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.m

q.edu.au.

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

- 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

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.

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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 task

- Assignment

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