# ACST1052

Introduction to Actuarial Studies

Session 1, In person-scheduled-weekday, North Ryde 2024

Department of Actuarial Studies and Business Analytics

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td>2</td>
</tr>
<tr>
<td>Learning Outcomes</td>
<td>2</td>
</tr>
<tr>
<td>General Assessment Information</td>
<td>3</td>
</tr>
<tr>
<td>Assessment Tasks</td>
<td>3</td>
</tr>
<tr>
<td>Delivery and Resources</td>
<td>6</td>
</tr>
<tr>
<td>Policies and Procedures</td>
<td>6</td>
</tr>
</tbody>
</table>

## Disclaimer

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General Information

Unit convenor and teaching staff
Guillaume Boglioni Beaulieu
g.boglioni@mq.edu.au
Room 750, 4 Eastern Rd
TBC

Credit points
10

Prerequisites
Admission to BActStud or BActStudBSc or BAppFinBActStud or BActStudBProfPrac or BActStudProfPrac(Hons)

Corequisites
STAT1371

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:
ULO1: Comprehend how the actuarial control cycle is used to identify and manage financial risks.

ULO2: Construct simple cash flow models which can be used for decision making and implement these in Excel or other softwares.

ULO3: Apply demographic data and statistical models to price policies, determine ruin probabilities and implement simulation models in Excel or other softwares.

ULO4: Explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary and how the business environment affects the management of the financial services business.

ULO5: Identify and discuss 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

Late Assessment Submission Penalty (written assessments)

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of ‘0’ will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submissions of time-sensitive tasks, such as scheduled tests/exams, online quizzes, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to apply for Special Consideration.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment</td>
<td>20%</td>
<td>No</td>
<td>Week 11</td>
</tr>
<tr>
<td>Weekly Formative Tasks</td>
<td>25%</td>
<td>No</td>
<td>Every week</td>
</tr>
<tr>
<td>Class Test</td>
<td>15%</td>
<td>No</td>
<td>Week 7</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
<td>No</td>
<td>Final Exams Period</td>
</tr>
</tbody>
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Assignment

Assessment Type 1: Quantitative analysis task
Indicative Time on Task 2: 15 hours
Due: Week 11
Weighting: 20%
Students will be asked to undertake a project which will include a numerical component (using a spreadsheet) and a written component.

On successful completion you will be able to:

- Comprehend how the actuarial control cycle is used to identify and manage financial risks.
- Construct simple cash flow models which can be used for decision making and implement these in Excel or other softwares.
- Apply demographic data and statistical models to price policies, determine ruin probabilities and implement simulation models in Excel or other softwares.
- Explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary and how the business environment affects the management of the financial services business.
- Identify and discuss the tools which can be used to manage risk, including the impact of diversification and leverage, capital, risk pooling and risk transfer.

**Weekly Formative Tasks**

Assessment Type 1: Quiz/Test  
Indicative Time on Task 2: 10 hours  
Due: *Every week*  
Weighting: **25%**

Online quizzes will be held weekly.

On successful completion you will be able to:

- Comprehend how the actuarial control cycle is used to identify and manage financial risks.
- Construct simple cash flow models which can be used for decision making and implement these in Excel or other softwares.
- Apply demographic data and statistical models to price policies, determine ruin probabilities and implement simulation models in Excel or other softwares.
- Explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary and how the business environment affects the management
of the financial services business.

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

Class Test

Assessment Type ¹: Quiz/Test
Indicative Time on Task ²: 10 hours
Due: Week 7
Weighting: 15%

The test will be approximately 90 minutes with 10 minutes reading time, to be held during class time.

On successful completion you will be able to:

- Comprehend how the actuarial control cycle is used to identify and manage financial risks.
- Construct simple cash flow models which can be used for decision making and implement these in Excel or other softwares.
- Apply demographic data and statistical models to price policies, determine ruin probabilities and implement simulation models in Excel or other softwares.
- Explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary and how the business environment affects the management of the financial services business.
- Identify and discuss the tools which can be used to manage risk, including the impact of diversification and leverage, capital, risk pooling and risk transfer.

Final Exam

Assessment Type ¹: Examination
Indicative Time on Task ²: 28 hours
Due: Final Exams Period
Weighting: 40%

The final examination will be a two-hour written paper with ten minutes reading time, to be held during the University Examination period.
On successful completion you will be able to:

- Comprehend how the actuarial control cycle is used to identify and manage financial risks.
- Construct simple cash flow models which can be used for decision making and implement these in Excel or other softwares.
- Apply demographic data and statistical models to price policies, determine ruin probabilities and implement simulation models in Excel or other softwares.
- Explain why legislation, accounting standards, codes of conduct, and professional requirements are necessary and how the business environment affects the management of the financial services business.
- Identify and discuss the tools which can be used to manage risk, including the impact of diversification and leverage, capital, risk pooling and risk transfer.

1 If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

2 Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

**Delivery and Resources**

**Lectures:** 2h lectures are held each week, in class (and recorded via Echo360).

**Pre-recorded videos:** students are also responsible to watch pre-recorded videos (about Excel and R programming) to complement their learning. The content of those videos is assessable.

**Tutorials:** 1h tutorials are held each week (starting in Week 2), in class (and they are NOT recorded). In tutorials, students will be placed in small teams and asked to work on sets of problems. Each team will be responsible to present their solutions to specific problems to the rest of the class.

Information about unit Resources can be found on the iLearn site of the unit.

**Policies and Procedures**

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). 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
• Assessment Procedure
• Complaints Resolution Procedure for Students and Members of the Public
• Special Consideration Policy

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

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

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

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

• Workshops
• Chat with a WriteWISE peer writing leader
• Access StudyWISE
• Upload an assignment to Studiosity
• Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

• Subject and Research Guides
• Ask a Librarian

Student Services and Support
Macquarie University offers a range of Student Support Services including:

• IT Support
• Accessibility and disability support with study
• Mental health support
• Safety support to respond to bullying, harassment, sexual harassment and sexual assault
• Social support including information about finances, tenancy and legal issues
• Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries
Got a question? Ask us via AskMQ, or contact Service Connect.

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.

Unit information based on version 2024.03 of the Handbook