ACST4002
Actuarial Control Cycle 1
Session 1, In person-scheduled-weekday, North Ryde 2022
Department of Actuarial Studies and Business Analytics

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# General Information

**Unit convenor and teaching staff**

**Unit Convenor**
Simon Guthrie  
*simon.guthrie@mq.edu.au*

Contact via iLearn Dialogue or discussion forums  
739, 4 Eastern Rd  
See iLearn

**Lecturer**
Bruce Edwards  
Contact via iLearn discussion forum or in class

**Teaching Assistant**
Hong Xie  
Contact via iLearn Dialogue (admin enquiries)

**Credit points**
10

**Prerequisites**
ACST359 or ACST3059

**Corequisites**

**Co-badged status**

**Unit description**
This unit, in conjunction with ACST4003 (or ACST403) Actuarial Control Cycle 2, develops and applies the actuarial principles and practices underlying the design, assessment, management and control of financial systems in the areas of life insurance, general insurance, superannuation and other less traditional areas of actuarial practice. The two units together consider the process of actuarial and financial management including: product design; pricing; marketing; monitoring of experience; reserve setting; financing; solvency; determination and distribution of surplus; and its role in enterprise risk management. The overall control process is studied within the constraints imposed by the commercial environment and the actuarial professional code of conduct and standards. This includes a discussion of business ethics and issues of professionalism in actuarial practice. Students gaining a Credit average across ACST4002 (or ACST402) and ACST4003 (or ACST403) (minimum mark of 60 on both units) will satisfy the requirements for exemption from the Actuarial Control Cycle subject of the Actuary program of the Actuaries Institute.
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:

UL01: Discuss and apply an Actuarial Control Cycle in a variety of practical commercial situations.
UL02: Relate the main features of actuarial control cycle within the general environment to medium and long-term commercial decisions.
UL03: Analyse the main features and risks of financial products and contracts from the point of view of consumers and providers.
UL04: Demonstrate an understanding of enterprise risk management and apply a risk assessment framework to identify and assess the risks in a range of situations.
UL05: Discuss and apply the process of product design.

General Assessment Information
Assessment criteria for all assessment tasks will be provided on the unit iLearn site.

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.

Late submissions of assessments Unless a Special Consideration request has been submitted and approved, no extensions will be granted. There will be a deduction of 10% of the total available assessment-task marks made from the total awarded mark for each 24-hour period or part thereof that the submission is late. Late submissions will only be accepted up to 96 hours after the due date and time.

No late submissions will be accepted for timed assessments – e.g., quizzes, online tests.

Table 1: Penalty calculation based on submission time

<table>
<thead>
<tr>
<th>Submission time after the due date (including weekends)</th>
<th>Penalty (% of available assessment task mark)</th>
<th>Example: for a non-timed assessment task marked out of 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 24 hours</td>
<td>10%</td>
<td>10% x 30 marks = 3-mark deduction</td>
</tr>
<tr>
<td>24-48 hours</td>
<td>20%</td>
<td>20% x 30 marks = 6-mark deduction</td>
</tr>
<tr>
<td>48-72 hours</td>
<td>30%</td>
<td>30% x 30 marks = 9-mark deduction</td>
</tr>
</tbody>
</table>
**Assessment Tasks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessed Coursework</td>
<td>10%</td>
<td>No</td>
<td>Weekly</td>
</tr>
<tr>
<td>Assignment</td>
<td>8%</td>
<td>No</td>
<td>Week 7</td>
</tr>
<tr>
<td>Case Study</td>
<td>12%</td>
<td>No</td>
<td>Week 8</td>
</tr>
<tr>
<td>Final Exam</td>
<td>70%</td>
<td>No</td>
<td>Exam period</td>
</tr>
</tbody>
</table>

**Assessed Coursework**

Assessment Type ¹: Problem set  
Indicative Time on Task ²: 10 hours  
Due: **Weekly**  
Weighting: **10%**

A range of tasks due throughout the session based on textbook chapters, iLearn discussion and class quizzes.

On successful completion you will be able to:

- Discuss and apply an Actuarial Control Cycle in a variety of practical commercial situations.
- Relate the main features of actuarial control cycle within the general environment to medium and long-term commercial decisions.
- Analyse the main features and risks of financial products and contracts from the point of view of consumers and providers.

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<table>
<thead>
<tr>
<th>Indicative Time on Task</th>
<th>Weighting</th>
<th>Late Submission Penalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>72-96 hours</td>
<td>40%</td>
<td>40% x 30 marks = 12-mark deduction</td>
</tr>
<tr>
<td>&gt; 96 hours</td>
<td>100%</td>
<td>Assignment won’t be accepted</td>
</tr>
</tbody>
</table>

**Special Consideration**

To request an extension on the due date/time for a timed or non-timed assessment task, you must submit a Special Consideration application. An application for Special Consideration does not guarantee approval.

The approved extension date for a student becomes the new due date for that student. The late submission penalties above then apply as of the new due date.
• Demonstrate an understanding of enterprise risk management and apply a risk assessment framework to identify and assess the risks in a range of situations.
• Discuss and apply the process of product design.

Assignment
Assessment Type 1: Presentation
Indicative Time on Task 2: 2 hours
Due: Week 7
Weighting: 8%

The assignment consists of a PowerPoint presentation (5 minutes) and a script of 600 words.

On successful completion you will be able to:
• Discuss and apply an Actuarial Control Cycle in a variety of practical commercial situations.
• Relate the main features of actuarial control cycle within the general environment to medium and long-term commercial decisions.
• Analyse the main features and risks of financial products and contracts from the point of view of consumers and providers.
• Demonstrate an understanding of enterprise risk management and apply a risk assessment framework to identify and assess the risks in a range of situations.
• Discuss and apply the process of product design.

Case Study
Assessment Type 1: Case study/analysis
Indicative Time on Task 2: 12 hours
Due: Week 8
Weighting: 12%

An individual, written, case study report (word limit of up to 5000 words).

On successful completion you will be able to:
• Discuss and apply an Actuarial Control Cycle in a variety of practical commercial situations.
• Relate the main features of actuarial control cycle within the general environment to
medium and long-term commercial decisions.

• Analyse the main features and risks of financial products and contracts from the point of view of consumers and providers.

• Demonstrate an understanding of enterprise risk management and apply a risk assessment framework to identify and assess the risks in a range of situations.

• Discuss and apply the process of product design.

Final Exam

Assessment Type 1: Examination

Indicative Time on Task 2: 28 hours

Due: Exam period

Weighting: 70%

The final examination will be closed book, a three-hour written paper with ten minutes reading time, to be held during the University Examination period.

On successful completion you will be able to:

• Discuss and apply an Actuarial Control Cycle in a variety of practical commercial situations.

• Relate the main features of actuarial control cycle within the general environment to medium and long-term commercial decisions.

• Analyse the main features and risks of financial products and contracts from the point of view of consumers and providers.

• Demonstrate an understanding of enterprise risk management and apply a risk assessment framework to identify and assess the risks in a range of situations.

• Discuss and apply the process of product design.

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

Classes

ACST4002 students share lecture classes and a common teaching website with the units ACST7031 and ACST8031, which are also offered via distance education throughout the world. Please see iLearn for details of classes.

Style of classes

We believe that the best way we can help you to master the Actuarial Control Cycle subject is not by giving traditional lectures where your role is basically to listen, think and take notes. We have planned classes to be like workshops: a mixture of short "micropresentations", small group work, discussions involving the whole class, and individual activities.

Most weeks, we will ask you to do some preparatory work - reading, research, writing or just thinking. If you want to get the most out of the classes, do the preparation, and get involved in the classroom work.

Please see iLearn for details of class delivery.

Downloadable lecture recordings

In all weeks, standard recordings of campus lectures using the University's lecture recording facility (ECHO360) will be available. The recordings capture audio and screenshot. Since the classes in this unit are not traditional lectures but contain periods of group discussion, the recordings will contain some stretches of background noise which you will need to fast forward through. To access the recordings for all weeks, click on the ECHO360 link on the right hand side of the webpage, then select the relevant lecture recording date, then click Play.

Timetable

The timetable for classes can be found on the Macquarie University website at:
http://www.timetables.mq.edu.au

Alterations to the class times or locations will be advised in class and on the teaching website. Please see iLearn for details.

Teaching staff

Simon Guthrie is the unit convenor and will be taking four weeks of classes and supervising presentations. Simon can be contacted via Dialogue on the website, or during his consultation hours.

Bruce Edwards will be conducting other classes and supervision of presentations. Bruce is an industry practitioner with a wide range of knowledge across many areas in which actuaries practice. Outside of classes, the forum for interaction with Bruce will be the website Discussion forums.

Hong Xie is the teaching administrator, and can deal with any administrative queries related to the unit. Hong can be contacted via Dialogue on the website.
Assumed knowledge

We assume from the start of the Actuarial Control Cycle that you have acquired the knowledge and skills in subjects CT1 to CT8 of Part I of the Actuaries Institute education program.

Required and recommended texts and materials

Textbook


You should buy the book immediately, if you haven't already, as assessment tasks based on the book are due at the beginning of the second week of classes. Other useful articles will be set out at the beginning of each Learning Guide, and made available on the teaching website.

Learning Guide

There is a Learning Guide for each section of work. You should read the Learning Guide in advance of the lectures, and bring a copy with you to classes.

Technology Used and Required

In this unit, you will need to have access to and to be able to use software to produce overhead slides, .pdf documents, and word-processing software to produce reports.

Teaching Website

Course material is available on the online learning management system (iLearn). The teaching website is integral to this unit. Passive involvement in this unit greatly reduces the likelihood of achieving the exemption standard of understanding. Interaction with other students and with teachers is very important, and the website is the forum for that interaction. You will need to be accessing the website regularly to see announcements, read postings and stay informed - at least every couple of days. This is your responsibility and we cannot make any allowances for students who miss important information due to not checking the website regularly. The website entry page is at: http://ilearn.mq.edu.au

Teaching and Learning Activities

The unit is taught as set out in the Classes section. The Unit Schedule sets out the assessment and the topics covered in each week of the semester.

Exemptions

The Macquarie University units ACST4002/7031/8031 (Control Cycle 1) and ACST4003/7032/8032 (Control Cycle 2) together will satisfy the requirements for exemption from the Actuarial Control Cycle subject of the Actuary program of the Actuaries Institute. You will be recommended for exemption if you attain grades of Credit or better in these two units. If you attain a Pass in one of these units, then the exemption will be recommended if and only if a Standardised Numerical Grade (SNG) of at least 60 is achieved in both units, and the average SNG is at least 65. For students who have completed part of Actuarial Control Cycle at a
different university, each case is considered individually based on the exemption requirements at those universities. It is the responsibility of the student to apply to Macquarie University to recommend them to the Actuaries Institute for professional exemptions. For information about this process please contact Hong Xie via iLearn.

**Unit Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Week beginning</th>
<th>Topic</th>
<th>Lecturer</th>
<th>UAM Chapter</th>
<th>Assessment task</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21-Feb</td>
<td>Meeting Consumers’ Needs</td>
<td>BE</td>
<td>4</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>28-Feb</td>
<td>Financial Services Overview</td>
<td>BE</td>
<td>Readings</td>
<td>TCT1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7-Mar</td>
<td>Context of Actuarial Work</td>
<td>SG</td>
<td>5, 14 (part)</td>
<td>TCT2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>14-Mar</td>
<td>Product Development</td>
<td>BE</td>
<td>8</td>
<td>TCT3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>21-Mar</td>
<td>Modelling</td>
<td>SG</td>
<td>9, 10</td>
<td>TCT4</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>28-Mar</td>
<td>ERM</td>
<td>BE</td>
<td>2</td>
<td>TCT5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4-Apr</td>
<td>Presentations</td>
<td>-</td>
<td>-</td>
<td>Presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study break</td>
<td></td>
<td>11-Apr</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study break</td>
<td></td>
<td>18-Apr</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>25-Apr</td>
<td>Applying Risk Management</td>
<td>BE</td>
<td>6</td>
<td>TCT6, Case Study</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2-May</td>
<td>Capital 1</td>
<td>SG</td>
<td>11</td>
<td>TCT7</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>9-May</td>
<td>Capital 2</td>
<td>BE</td>
<td>11</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>16-May</td>
<td>Pricing 1</td>
<td>SG</td>
<td>13</td>
<td>TCT8</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>23-May</td>
<td>Pricing 2</td>
<td>BE</td>
<td>13</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>30-May</td>
<td>Revision</td>
<td>BE</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
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**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](https://students.mq.edu.au/admin/other-resources/student-conduct)

**Results**

Results published on platform other than [eStudent](https://eStudent.mq.edu.au), (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](https://eStudent.mq.edu.au). For more information visit [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

**Academic Integrity**

At Macquarie, we believe [academic integrity](https://www.mq.edu.au/about/macquarie/university-life/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](https://students.mq.edu.au/support/), [academic skills development](https://students.mq.edu.au/support/) and [wellbeing consultations](https://students.mq.edu.au/support/).

**Student Support**

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

**The Writing Centre**

The [Writing Centre](https://students.mq.edu.au/support/) 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
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 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/](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.