



UNSW Course Outline

ACTL4001 Actuarial Theory and Practice A - 2024

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General Course Information

Course Code : ACTL4001

Year : 2024

Term : Term 1

Teaching Period : T1

Is a multi-term course? : No

Faculty : UNSW Business School

Academic Unit : School of Risk and Actuarial Studies

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This course develops the theory and practice underlying the actuarial management of risk-based and other products offered by financial institutions. The course draws examples from actuarial practice and discusses implications for life insurance, general insurance, superannuation, asset-

liability management and other areas where actuaries are involved in product design, pricing, reserving, investment and surplus management. The course emphasises recent developments in actuarial theory and practice. This course, along with ACTL4002/ACTL5200, corresponds to the Actuarial Control Cycle in the Actuary Program of the Actuaries Institute.

Course Aims

The course aims to increase students' understanding of:

- Professionalism in relation to actuarial practice
- Australian financial institutional structure & regulation
- Financial product design
- The role of the Actuarial Control Cycle

Relationship to Other Courses

The courses offered focus on the practical application of concepts introduced in the Foundation Program, extending to the actuarial courses taught in the first three years at UNSW. They include the Actuarial Theory & Practice courses, which specifically address the requirements of the Actuarial Control Cycle as outlined by the Actuaries Institute. Students achieving an average of over 65% in these two courses will be considered for exemption from the Actuarial Control Cycle.

The Actuaries Institute emphasizes the development of a holistic approach to practical problem-solving, along with the judgement and professional skills necessary for the effective application of actuarial principles. Therefore, the primary objective of these courses is to equip students with a professional approach to managing the actuarial aspects of a financial institution. This includes:

1. Product development and pricing.
2. Valuation of assets and liabilities, along with capital determination.
3. Application of the Actuarial Control Cycle in various practical commercial contexts.
4. Enterprise risk management.

Furthermore, the courses will consistently incorporate discussions on professionalism, ethics, and the development of reasoned arguments.

Course Learning Outcomes

Course Learning Outcomes
CL01 : Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions
CL02 : Analyse the Main Features and Risks of Financial Products and Contracts, from the Point of View of Consumers and Providers
CL03 : Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management
CL04 : Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations
CL05 : Discuss and Apply the Process of Product Design
CL06 : Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations
CL07 : Examine the Need for and Impact of Regulation and Government Policy on Medium and Long Term Commercial Decisions
CL08 : Apply Appropriate Techniques to the Pricing of Products and Contracts
CL09 : Concisely put forward your considered views on a topic in writing and in writing
CL010 : Record and reflect on your contribution to teamwork
CL011 : Apply the Tests of Professionalism
CL012 : Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions.
CL013 : Identify how you can contribute to the financial sector meeting its social purpose

Course Learning Outcomes	Assessment Item
CLO1 : Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO2 : Analyse the Main Features and Risks of Financial Products and Contracts, from the Point of View of Consumers and Providers	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO3 : Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO4 : Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO5 : Discuss and Apply the Process of Product Design	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO6 : Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO7 : Examine the Need for and Impact of Regulation and Government Policy on Medium and Long Term Commercial Decisions	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO8 : Apply Appropriate Techniques to the Pricing of Products and Contracts	<ul style="list-style-type: none"> • Discussion • Group Project • Final Exam
CLO9 : Concisely put forward your considered views on a topic in writing and in writing	<ul style="list-style-type: none"> • Discussion • Group Project
CLO10 : Record and reflect on your contribution to teamwork	<ul style="list-style-type: none"> • Group Project
CLO11 : Apply the Tests of Professionalism	<ul style="list-style-type: none"> • Final Exam • Discussion • Group Project
CLO12 : Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions.	<ul style="list-style-type: none"> • Final Exam • Discussion • Group Project
CLO13 : Identify how you can contribute to the financial sector meeting its social purpose	<ul style="list-style-type: none"> • Final Exam • Discussion • Group Project

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Students are encouraged to become deep learners. As deep learners, you will take responsibility

for your own learning, choosing to engage with the subject matter for its own sake, rather than merely aiming to pass exams. This involves developing personal opinions about the subject and continuing to learn and think throughout life.

There are many facts to learn about the context of actuarial work, and these will be covered in both the readings and lectures. However, these materials will also introduce you to various opinions, challenging you to develop your own views on the difficult and sometimes controversial questions that actuaries must address in practice. Often, there are no definitive right answers.

This approach can be described as guided self-learning. The ultimate goal is for you to view yourself as a member of the actuarial (or related) profession, equipped to apply your knowledge to new situations in the financial sector.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Discussion Assessment Format: Individual	15%	Start Date: Weekly Due Date: Weekly
Group Project Assessment Format: Group	25%	Start Date: Not Applicable Due Date: 25/03/2024 04:00 PM
Final Exam Assessment Format: Individual	60%	Start Date: Not Applicable Due Date: Exam schedule

Assessment Details

Discussion

Assessment Overview

This course includes weekly formative activities, such as online discussion questions and class discussions, designed to reinforce the concepts learned each week. These activities encourage students to stay engaged with the course materials, helping them identify areas for improvement and enhancing their overall learning experience.

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- CL03 : Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management

- CL04 : Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations
- CL05 : Discuss and Apply the Process of Product Design
- CL06 : Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations
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- CL08 : Apply Appropriate Techniques to the Pricing of Products and Contracts
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- CL013 : Identify how you can contribute to the financial sector meeting its social purpose

Detailed Assessment Description

For detailed information on assessment requirements and marking rubrics, please refer to the relevant sections in Moodle.

Assignment submission Turnitin type

Not Applicable

Group Project

Assessment Overview

The group project is aligned with the actuarial control cycle, providing a practical learning opportunity for participants to engage with real challenges in actuarial practices, with the support of peers, academics, and industry practitioners.

Course Learning Outcomes

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Detailed Assessment Description

For detailed information on assessment requirements and marking rubrics, please refer to the relevant sections in Moodle.

Final Exam

Assessment Overview

This is a 2-hour and 15-minute closed-book exam designed to fulfill the Actuaries Institute exemption requirements. It will be invigilated and scheduled during the university's exam period.

Course Learning Outcomes

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- CL08 : Apply Appropriate Techniques to the Pricing of Products and Contracts
- CL011 : Apply the Tests of Professionalism
- CL012 : Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions.
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Detailed Assessment Description

For detailed information on exam coverages, please refer to the relevant sections in Moodle.

Assignment submission Turnitin type

This is not a Turnitin assignment

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Course introduction and the actuarial control cycle UAM Chapters 1, 5.4-5.7
Week 2 : 19 February - 25 February	Lecture	General environment and financial products UAM Chapters 3.4-3.6, 4.5
Week 3 : 26 February - 3 March	Lecture	Intro to risk management UAM Chapters 2.1-2.6, 6.1-6.4
Week 4 : 4 March - 10 March	Lecture	Data and assumptions UAM Chapters 10.1-10.3
Week 5 : 11 March - 17 March	Lecture	Models UAM Chapters 9.1-9.5
Week 6 : 18 March - 24 March	Other	Flex week
Week 7 : 25 March - 31 March	Lecture	Product design UAM Chapters 8.1-8.5
Week 8 : 1 April - 7 April	Lecture	Pricing UAM Chapters 13.1-13.13
Week 9 : 8 April - 14 April	Lecture	Profit UAM Chapters 16.1-16.3
Week 10 : 15 April - 21 April	Lecture	Enterprise risk management and course review UAM Chapters 2.7-2.14, 11.5

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Resources

Prescribed Resources

The required reading for this course is:

- C Bellis, Richard Lyon, Stuart Klugman and John Shepherd, Understanding Actuarial Management, Institute of Actuaries, Second Edition, 2010 (UAM)

Students can order the textbook from the UNSW Bookshop. Other papers and resources that are considered relevant will be available on Moodle.

The Moodle site for this course will contain the Course Outline, presentations made by lecturers, and any notices relevant to this course. It is important that you visit the site regularly to see any notices posted there by the Lecturer-in-Charge and are able to regularly read the emails sent by

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Xiao Xu					Yes	Yes

Other Useful Information

Academic Information

COURSE POLICIES AND SUPPORT

The Business School expects that you are familiar with the contents of this course outline and the UNSW and Business School learning expectations, rules, policies and support services as listed below:

- Program Learning Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Protocol for Viewing Final Exam Scripts
- Student Learning Support Services

Further information is provided on the [key policies and support](#) page.

Students may not circulate or post online any course materials such as handouts, exams, syllabi or similar resources from their courses without the written permission of their instructor.

STUDENT LEARNING OUTCOMES

The Course Learning Outcomes (CLOs) – under the Outcomes tab – are what you should be able to demonstrate by the end of this course, if you participate fully in learning activities and successfully complete the assessment items.

CLOs also contribute to your achievement of the Program Learning Outcomes (PLOs), which are developed across the duration of a program. PLOs are, in turn, directly linked to [UNSW graduate capabilities](#). More information on Coursework PLOs is available on the [key policies and support](#) page. For PG Research PLOs, including MPDBS, please refer to the [UNSW HDR Learning](#)

Academic Honesty and Plagiarism

As a student at UNSW you are expected to display [academic integrity](#) in your work and interactions. Where a student breaches the [UNSW Student Code](#) with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Submission of Assessment Tasks

SPECIAL CONSIDERATION

You can apply for special consideration when illness or other circumstances beyond your control interfere with your performance in a specific assessment task or tasks, including online exams. Students studying remotely who have exams scheduled between 10pm and 7am local time, are also able to apply for special consideration to sit a supplementary exam at a time outside of these hours.

Special consideration is primarily intended to provide you with an extra opportunity to demonstrate the level of performance of which you are capable. To apply, and for further information, see Special Consideration on the UNSW [Current Students](#) page.

Special consideration applications will be assessed centrally by the Case Review Team, who will update the online application with the outcome and add any relevant comments. The change to the status of the application immediately sends an email to the student and to the assessor with the outcome of the application.

Please note the following:

1. Applications can only be made through Online Services in myUNSW (see the UNSW [Current Students](#) page). Applications will not be accepted by teaching staff. The lecturer-in-charge/

course coordinator will be automatically notified when your application is processed.

2. Applying for special consideration does not automatically mean that you will be granted a supplementary exam or other concession.
3. If you experience illness or misadventure in the lead up to an exam or assessment, you must submit an application for special consideration, either prior to the examination taking place, or prior to the assessment submission deadline, except where illness or misadventure prevent you from doing so.
4. If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment or the period covered by your supporting documentation.
5. Under the UNSW Fit To Sit/Submit rule, if you sit the exam/submit an assignment, you are declaring yourself well enough to do so and are cannot subsequently apply for special consideration.
6. If you become unwell on the day of – or during – an exam, you must stop working on your exam, advise your course coordinator or tutor and provide a medical certificate dated within 24 hours of the exam, with your special consideration application. For online exams, you must contact your course coordinator or tutor immediately via email, Moodle or chat and advise them you are unwell and submit screenshots of your conversation along with your medical certificate and application.
7. Special consideration requests do not allow the awarding of additional marks to students.

Further information on Business School policy and procedure can be found under “Special Consideration” on the [key policies and support](#) page.

LATE SUBMISSION PENALTIES

For assessments other than examinations, late submission will incur a penalty of 5% per day or part thereof (including weekends) from the due date and time. An assessment will not be accepted after 5 days (120 hours) of the original deadline unless special consideration has been approved. An assignment is considered late if the requested format, such as hard copy or electronic copy, has not been submitted on time or where the ‘wrong’ assignment has been submitted.

For assessments which account for 10% or less of the overall course grade, and where answers are immediately discussed or debriefed, the LIC may stipulate a different penalty. Details of such late penalties will be available on the course Moodle page.

FEEDBACK ON YOUR ASSESSMENT TASK PERFORMANCE

Feedback on student performance from formative and summative assessment tasks will be provided to students in a timely manner. Assessment tasks completed within the teaching period

of a course, other than a final assessment, will be assessed and students provided with feedback, with or without a provisional result, within 10 working days of submission, under normal circumstances. Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Faculty-specific Information

PROTOCOL FOR VIEWING FINAL EXAM SCRIPTS

UNSW students have the right to view their final exam scripts, subject to a small number of very specific exemptions. The UNSW Business School has set a [protocol](#) under which students may view their final exam script. Individual schools within the Faculty may also set up additional local processes for viewing final exam scripts, so it is important that you check with your School.

If you are completing courses from the following schools, please note the additional school-specific information:

- Students in the **School of Accounting, Auditing & Taxation** who wish to view their final examination script should also refer to [this page](#).
- Students in the **School of Banking & Finance** should also refer to [this page](#).
- Students in the **School of Information Systems & Technology Management** should also refer to [this page](#).

COURSE EVALUATION AND DEVELOPMENT

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the [myExperience survey](#), which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

QUALITY ASSURANCE

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All

material used for such processes will be treated as confidential.

TEACHING TIMES AND LOCATIONS

Please note that teaching times and locations are subject to change. Students are strongly advised to refer to the [Class Timetable website](#) for the most up-to-date teaching times and locations.