ACTL 4001/5001
ACTUARIAL THEORY & PRACTICE A

Course Outline
Semesters 1, 2015

Part A: Course-Specific Information

Please consult Part B for key information on Business School policies (including those on plagiarism and special consideration), student responsibilities and student support services.
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business.unsw.edu.au
PART A: COURSE-SPECIFIC INFORMATION

This course outline covers ACTL4001 & ACTL5100, which will be delivered in Semester 1 and also provides information for ACTL4002 & ACTL 5200 (Actuarial Theory & Practice B), which will be delivered in Semester 2.

1 STAFF CONTACT DETAILS

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Room</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturer-in-charge</td>
<td>Associate Professor Anthony Asher</td>
<td><a href="mailto:a.asher@unsw.edu.au">a.asher@unsw.edu.au</a></td>
<td>Business School Building 650</td>
<td>9385 7619</td>
</tr>
</tbody>
</table>

Consultation times: By appointment, before lectures, or Tuesday between 16.00 – 17.00, but may be amended by notices on Moodle, which is where all details in respect of the courses can be found. (See section 5 below for details.) Written queries should be made in the discussion forums on Moodle so that all students can see the responses. There will be no response to subject related questions on private emails.

There will be guest lecturers with significant experience in financial institutions to provide background knowledge on the operation of particular markets.

2 COURSE DETAILS

2.1 Teaching Times and Locations

ACTL4001 & ACTL5100 lectures will be held at the Kensington campus at times and in lecture rooms as shown in myUNSW. In Semester 1, they are scheduled for the UNSW Global Lecture Theatre on Thursdays.

Except for weeks 1, 6, 12 and 13, the format of the face to face learning will be:

<table>
<thead>
<tr>
<th>Time</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>5pm through to 6:30pm</td>
<td>ACTL4001/4002</td>
</tr>
<tr>
<td>6:30 pm through to 7:30pm</td>
<td>Both</td>
</tr>
<tr>
<td>7:30 pm through to 9:00pm</td>
<td>ACTL5100/5200</td>
</tr>
</tbody>
</table>

In weeks 1, 6, 12 and 13 all students should attend from 6pm through to 8pm.

2.2 Units of Credit

The course is worth 6 units of credit. This course is available to 4th year combined degree, Honours and Co-op undergraduate students, and Master of Actuarial Studies and non-award postgraduate students. The undergraduate and postgraduate classes will be combined for the lecture, but separate tutorials will be held. The assessment is the same for both classes.
2.3 Summary of Course

The Actuarial Theory & Practice courses develop the theory and practice underlying the actuarial management of financial institutions. The courses particularly cover applications in life, health and general insurance, superannuation and banking where actuaries are involved in product design, pricing, reserving, risk, investment and surplus management. The courses emphasise students’ ability to bring together what they have learnt in the undergraduate courses in order to make professional judgements.

2.4 Course Aims and Relationship to Other Courses

The courses consider the practical application of the concepts covered in the Part I courses covered in the first 3 years actuarial courses at UNSW. The Actuarial Theory & Practice courses, together with ACTL4303/ACTL5303 Asset and Liability Management cover the part II requirements of the Institute of Actuaries of Australia (Actuaries Institute). Students who obtain over 75% average for these three courses will be recommended for Part II exemption. This means that they can qualify for the actuarial designation after three years of appropriate practical experience, and the completion of a final professionalism course.

In Part II, the Actuaries Institute expects students “to develop a holistic approach to practical problem solving, and develop a level of judgement and professional skills required to successfully apply actuarial principles”.

The main aim of these courses is therefore to prepare students to take a professional approach to the actuarial management of a financial institution:

- Product development and pricing
- Valuation of assets and liabilities and the determination of capital
- Application of the Actuarial Control Cycle to meet commercial and regulatory objectives
- Enterprise risk management

There will be references to professionalism, ethics and the ability to make reasoned argument, throughout the course.

2.5 Student Learning Outcomes

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all coursework students in the Business School. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree (e.g. ‘be an effective team player’). You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree (e.g. ‘participate collaboratively and responsibly in teams’).
For more information on the Program Learning Goals and Outcomes, see Part B of the course outline.

### Business Undergraduate Program Learning Goals and Outcomes

1. **Knowledge:** Our graduates will have in-depth disciplinary knowledge applicable in local and global contexts.
   You should be able to select and apply disciplinary knowledge to business situations in a local and global environment.

2. **Critical thinking and problem solving:** Our graduates will be critical thinkers and effective problem solvers.
   You should be able to identify and research issues in business situations, analyse the issues, and propose appropriate and well-justified solutions.

3. **Communication:** Our graduates will be effective professional communicators.
   You should be able to:
   a. Prepare written documents that are clear and concise, using appropriate style and presentation for the intended audience, purpose and context, and
   b. Prepare and deliver oral presentations that are clear, focused, well-structured, and delivered in a professional manner.

4. **Teamwork:** Our graduates will be effective team participants.
   You should be able to participate collaboratively and responsibly in teams, and reflect on your own teamwork, and on the team’s processes and ability to achieve outcomes.

5. **Ethical, social and environmental responsibility:** Our graduates will have a sound awareness of the ethical, social, cultural and environmental implications of business practice.
   You should be able to:
   a. Identify and assess ethical, environmental and/or sustainability considerations in business decision-making and practice, and
   b. Identify social and cultural implications of business situations.

### Business Postgraduate Coursework Program Learning Goals and Outcomes

1. **Knowledge:** Our graduates will have current disciplinary or interdisciplinary knowledge applicable in local and global contexts.
   You should be able to identify and apply current knowledge of disciplinary or interdisciplinary theory and professional practice to business in local and global environments.

2. **Critical thinking and problem solving:** Our graduates will have critical thinking and problem solving skills applicable to business and management practice or issues.
   You should be able to identify, research and analyse complex issues and problems in business and/or management, and propose appropriate and well-justified solutions.

3. **Communication:** Our graduates will be effective communicators in professional contexts.
   You should be able to:
   a. Produce written documents that communicate complex disciplinary ideas and information effectively for the intended audience and purpose, and
   b. Produce oral presentations that communicate complex disciplinary ideas and information effectively for the intended audience and purpose.

4. **Teamwork:** Our graduates will be effective team participants.
   You should be able to participate collaboratively and responsibly in teams, and reflect on your own teamwork, and on the team’s processes and ability to achieve outcomes.

5. **Ethical, social and environmental responsibility:** Our graduates will have a sound awareness of ethical, social, cultural and environmental implications of business issues and practice.
   You should be able to:
a. Identify and assess ethical, environmental and/or sustainability considerations in business
decision-making and practice, and
b. Consider social and cultural implications of business and/or management practice.

By the end of these courses, you should be able to meet the Actuaries Institute learning outcomes:

“1. Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations
2. Apply the Tests of Professionalism
3. Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions
4. Examine the Need for and Impact of Regulation and Government Policy on Medium and Long Term Commercial Decisions
5. Analyse the Main Features and Risks of Financial Products and Contracts, from the Point of View of Consumers and Providers
6. Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management
7. Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations
8. Discuss and Apply the Process of Product Design
9. Select an Appropriate Model to Solve Client Problems
10. Recognise the Importance of Capital
11. Apply Relevant Approaches and Techniques to the Valuation of Liabilities
12. Apply Appropriate Techniques to the Pricing of Products and Contracts
13. Measure, Report and Manage Solvency
14. Measure and Report Emerging Profits and/or Costs
15. Monitor and Assess Experience
16. Manage the Business and Respond to the Experience”

In addition, you will be expected to:

17. Concisely put forward your considered views on a topic in writing and verbally
18. Record and reflect on your contribution to teamwork

The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed (they may also be developed in tutorials and other activities):
<table>
<thead>
<tr>
<th>Program Learning Goals and Outcomes</th>
<th>Course Learning Outcomes</th>
<th>Course Assessment Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course helps you to achieve the following learning goals for all postgraduate coursework students:</td>
<td>On successful completion of the course, you should be able to:</td>
<td>This learning outcome will be assessed in the following items:</td>
</tr>
</tbody>
</table>
| 1 | Knowledge | • Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations  
• Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions  
• Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management  
• Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations  
• Discuss and Apply the Process of Product Design | • Assignment  
• Exams |
| 2 | Critical thinking and problem solving | • Examine the Need for and Impact of Regulation and Government Policy on 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  
• Select an Appropriate Model to Solve Client Problems  
• Recognise the Importance of Capital  
• Apply Relevant Approaches and Techniques to the Valuation of Liabilities  
• Apply Appropriate Techniques to the Pricing of Products and Contracts  
• Measure, Report and Manage Solvency  
• Measure and Report Emerging Profits and/or Costs  
• Monitor and Assess Experience  
• Manage the Business and Respond to the Experience | • Presentation and response  
• Written answers  
• Assignment  
• Exams |
| 3a | Written communication | • Concisely put forward your considered views on a topic in writing | • Assignment  
• Re-written answer  
• Exams |
| 3b | Oral communication | • Concisely put forward your considered views on a topic verbally | • Presentation and response |
| 4 | Teamwork | • Record and reflect on your contribution to teamwork | • Assignment teamwork reflection |
| 5a. | Ethical, environmental and sustainability responsibility | • Apply the Tests of Professionalism | • Assignment  
• Exams |
| 5b. | Social and cultural awareness | • Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions. | • Assignment  
• Exams |
3 LEARNING AND TEACHING ACTIVITIES

3.1 Approaches to Learning and Teaching in the Course

Students are encouraged to become deep learners. As a deep learner, you would have taken responsibility for your own learning, and have chosen to become interested in the subject for its own sake rather than merely to pass the exams. You will be developing your own personal opinions on the subject, and will go on learning and thinking throughout life. Students may find it helpful to use the Biggs study process questionnaire on Moodle to understand the extent to which you are a deep learner.

There are many facts to learn about the context of actuarial work and these will be covered in the readings and in the lectures. Both readings and lectures will, however, also expose students to different opinions and you will be expected to develop your own views on the difficult and sometimes controversial questions that actuaries have to address in practice. In many cases, there are no right answers.

This could be described as a guided self-learning approach, and is expected to provide a greater depth of understanding of the concepts compared to lectures that only involve lecturers talking. The ultimate aim is for you to see yourself as a member of the actuarial (or related) profession and be able to apply your knowledge to new situations encountered in the financial sector.

3.2 Learning Activities and Teaching Strategies

The strategy for the course involves:

- Students preparing for a lecture by reading and thinking about the relevant material, and identifying issues they are uncertain of for discussion in the class. A weekly quiz highlights the main issues, provides immediate feedback on basic misunderstandings, and provides a discipline so that all students are prepared to contribute to tutorials and lectures.
- Lectures highlighting the main implications and dealing with difficult concepts, accompanied by discussion where the class is expected to contribute and to provide feedback to the Lecturer-in-Charge that the topics have been understood.
- Presentations where the student is expected to research a topic and then develop a short presentation for their peers, followed by a response from another student and discussion by the class. This also allows for feedback, and discussion of the broader context of the issue addressed by the presentation.
- Re-written answers of the midsession examination to give more detailed feedback on critical thinking and written communication.

The period when all students are present will include:

- Any announcements relevant to the course (which will also be on Moodle)
- The lecture by the Lecturer-in-Charge or guest
- Small group discussions
The periods when only one group of students is present will include:

- Student presentations
- Discussion
- Feedback on what students learnt during the discussion

The course textbooks, lectures and assessment tasks are designed to provide a framework for your learning. Every student has a different approach to learning. How much time you spend on reading in preparation for lectures, completing assessment tasks, reviewing course objectives, deepening your understanding and preparing for final examinations will depend on your learning approach. Lectures and class discussions will cover the main concepts and issues and will not necessarily cover all the details of the course readings or texts.

Your private study is the most important component of this course. Weekly readings, reviewing key concepts, and your own topic summaries should be considered as a basis of a regular private study regime. Keeping up to date is very important and each week builds on the prior week so it is important that you have your study regime organised early.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass these courses, you must:

- achieve a composite mark of at least 50%; and
- make a satisfactory attempt at all assessment tasks.

In order to gain an exemption from the Institute of Actuaries of Australia Part II course you must obtain an average 75% in ACTL4001, ACTL4002 and ACTL4303 or ACTL5100, ACTL5200 and ACTL5303.

4.2 Assessment Details

ACTL4001/ACTL5100

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midsession exam</td>
<td>10%</td>
<td>1 hour</td>
<td>Week 6</td>
</tr>
<tr>
<td>Presentation</td>
<td>6%</td>
<td>6 mins</td>
<td>As scheduled on Moodle</td>
</tr>
<tr>
<td>Weekly quiz</td>
<td>5%</td>
<td>Varies</td>
<td>Each week</td>
</tr>
<tr>
<td>Re-written answers</td>
<td>4%</td>
<td>500 words</td>
<td>Weeks 8 to 11</td>
</tr>
<tr>
<td>Assignment</td>
<td>10%</td>
<td>4 pages</td>
<td>Week 10</td>
</tr>
<tr>
<td>Portfolio report</td>
<td>5%</td>
<td>2000 words</td>
<td>Week 12</td>
</tr>
<tr>
<td>Final Examination</td>
<td>60%</td>
<td>2 hours</td>
<td>As advised by UNSW</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Details for ACTL4002/ACTL5200 will be provided in July.

Whilst feedback will be provided to students after their assessment tasks have been completed, students should note that the final assessment can involve scaling of overall marks to adjust for varying difficulty across years and to adjust for variations in marking standards of different examiners. This scaling will be overseen by an external reviewer appointed by the Institute of Actuaries of Australia, who will assess the results and needs to agree on the overall level of marks.

4.3 Presentations

The presentations, and responses, are intended to develop your ability to be clear and focussed, particularly to engage with an audience. It will also develop your skills in research: being able to select and apply disciplinary knowledge to business situations. You are expected to spend 4 or 5 hours preparing, but will only have 6 minutes to present. Presentations will be stopped after 6 minutes. Some topics will require some research of your own; others refer to specific papers, which you will need to summarise. Wikipedia is often a useful source, but you must check references. Some of the topics can be answered easily, but you are expected to give background and reasoning for your answer. Other topics are more complex, and so the extent and depth of your research will necessarily be limited by the time available.

Presentation topics are as set out in this Course Outline. Students may indicate their preferences for topics to the Lecturer-in-Charge by email before 26 February for S1 and 23 July for S2. A schedule of presenters and responders will be placed on Moodle soon after. Students may agree between themselves to swap presentations provided both students involved notify the Lecturer-in-Charge at least 1 week before the first presentation is due. You may also suggest a replacement topic on which you would like to present, but it must be agreed by the Lecturer-in-Charge first.

Presentations must include no more than 8 PowerPoint slides and a draft copy must be sent to the Lecturer-in-Charge, and to the respondent, by the Thursday before the presentation, and the final version loaded onto Moodle by Thursday after the presentation. This will be made available to other students. Respondents will not be permitted to use their own PowerPoint slides, but may refer to the original presentation.

Marking rubrics will be placed on the Moodle site, but grading for presentations in both semesters will take into account the clarity of your communication and whether you have engaged the audience with your enthusiasm for the topic and your awareness of them and their interests. Marks will be deducted for failing to:

- make adequate preparation
- provide copies of your presentation to the Lecturer-in-Charge
- finish at the 6 minute mark

You are not being evaluated on whether your analysis is comprehensive or not, and will lose marks if you rush through the presentation to finish on time. Much rather say that the slides you cannot cover are for information, and focus on engaging the audience with the critical points you want to make.

Responders are expected to thank presenters, comment on what they found particularly interesting and ask one or two questions. No marks are given, but 10% of
the marks for their own presentation will be deducted for not being present at the allocated time.

4.4 Weekly quiz

There will be a short weekly multiple choice quiz to ensure that all students are up to date with their accumulation of knowledge, and able to contribute to tutorials and lectures. The questions allow for multiple attempts and have no penalty on second and subsequent attempts. There is however a 10 minute delay between attempts to give you time to reconsider your answers. Students must get all the questions right to be given the marks for the week, each of which will be equally weighted.

If you disagree with any of the answers, you may email the Lecturer-in-Charge before the lecture with your reasons. You will then not be penalised for a wrong answer.

4.5 Re-written answers

Model answers are not provided for questions in the course in order to emphasise students’ responsibility for developing their own, critical, thinking. In order also to develop your writing skills and better understand the requirements of the course, students are to choose one question from the mid-semester examination and prepare a model answer of less than 500 words to be submitted by the end of week 8. This is to be reviewed by a member of your assignment group (not the person who reviews yours), and submitted in a word document to the Lecturer-in-Charge. Peer reviewers will be expected to look for spelling and grammatical errors, and lack of clarity in the re-written answers.

You will be given feedback on their result on the word document, and asked to re-write as many times as necessary to develop a “model answer”. The re-writes will also need to be reviewed by the same person. Your changes each time need to be shown in “track changes” in Word. Full marks will be given for acceptable answers completed by the end of week 11, but marks will be deducted for inadequate attempts, or failure to adequately review your team member’s submission.

4.6 Mid-Session & Final Exams

The exam content and the answers are reviewed by a representative of the Actuaries’ Institute. The exams are intended to test your knowledge of the material covered as well as your ability to concisely express yourself. You will be expected to be able to apply material learned to different situations. In ACTL4002 and ACTL5200, questions may relate to these courses and to material covered in ACTL4001 and ACTL5100.

4.7 Assignment

The assignment is intended to develop your skills in research, your understanding ability to concisely and coherently present your ideas, as well as working in groups. You are expected to spend 8 to 10 hours on the assignment. The questions are set out below.

Students must join a group of 3 or 4 and notify the Lecturer-in-Charge of their group name and members (or their failure to find a group) by the end of week 2 for S1.
S2, students will be allocated to a group in the first week. The Lecturer-in-Charge may re-assign some group members later.

The group must meet enough times for each member to have a chance to chair the meeting and to take the minutes (but not when that are chairing). Different members must be allocated different tasks on which they must report progress at least once. Any data collected or calculations made must be checked by a different member of the group.

Your group report must be in 11 point Arial font on A4 paper. It should include no more than two pages of minutes and three pages of report. (If you have an internal group dispute over the minutes, the dissenting party or parties can include a comment as to the reason for their dissent attached to the offending item). Each member must also attach a personal reflection of no more than one page reflecting on the functioning of the group, the different contributions made by different members, and your opinion on the quality of the report. While you may share your personal reflections, they will be penalised if they resemble each other closely.

Assignment reflections must be submitted via Moodle by midnight of the Saturday of week 10, with hard copies to be handed in at the following lecture. The group report should be attached by the group member with the lowest student number and also handed in with the hard copies. Students should be reminded to keep a copy of all work submitted for assessment and to keep their returned marked assignments.

Rubrics for grading (and their weighting) will be placed on Moodle and will take into account:

- The content of your report; whether it demonstrates some innovative research, careful analysis and professionalism
- The structure and clarity of your report
- Whether team meetings (the minutes you took) been appropriately documented
- Whether you appear to have made a positive contribution to the team
- Your insights into the functioning of the team and the strengths of other members

The topics are set out below.

**ACTL4001/5100**

You are an actuarial team employed by a management consulting company that hopes to be retained by the board of a small, unlisted general insurance company operating only in Queensland. It only sells house building and contents insurance and motor vehicle comprehensive insurance and automatically includes flood insurance in all its contracts. There is a new CEO who wants to expand the business, and then IPO it, and he has arranged his remuneration so that on listing he will be given 10% of the shares. He has prepared a report to the Board and recommended expansion into all Australian states, but has not presented any financial projections. Prepare a very brief (3 page maximum) proposal to the Board that outlines how your consultancy would like to prepare an independent, more comprehensive report on the issues that should be taken into account. In particular, you should mention the major risks involved with this proposal as structured, any conflicts of interest, and the pricing differences in different states and the required return on the capital to be raised for the expansion.
This will be made available in July before the course begins.

4.8 Portfolio

The courses are a capstone for the part I actuarial courses. You are expected to be able to use what you have learnt in them in practical examples. In order to reflect on the Threshold Concepts\(^1\) in each of these, students will prepare a list of the concepts that they have learnt in each of their undergraduate courses, with a short explanation of why the concepts are important. Students will share and develop their lists within their assignment groups. The lists are intended to provide students with a portfolio that they can use to supplement their cv’s.

The portfolio (max 2000 words) is to be submitted on Turnitin at the end of week 12 of the first semester. At least two other students in the group are to confirm (in writing on your portfolio) that they have read it and are confident that you have come to understand the concepts listed there.

Rubrics for marking and reviewers will be put on Moodle.

4.9 Late Submission

Late submissions will not be marked. Students are referred to part B of the course outline for the School’s special consideration policy.

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.

5 COURSE RESOURCES

The required reading for this course is:


Other papers and resources that are considered relevant will be available on Moodle. [https://moodle.telt.unsw.edu.au/login/index.php](https://moodle.telt.unsw.edu.au/login/index.php)

\(^1\) See [http://www.ee.ucl.ac.uk/~mflanaga/thresholds.html](http://www.ee.ucl.ac.uk/~mflanaga/thresholds.html) for an explanation
The Moodle site for this course will contain the Course Outline, presentations made by lecturers, presentations made by students, 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 Moodle.

6 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. In this course, we will seek your feedback through end of semester CATEI evaluations.

Feedback from previous students indicated that they have most difficulty in understanding what is required of them in providing judgements where there is more than one acceptable answer. There are therefore no one model answer to exam questions that can be learnt and repeated. As a result of this feedback, the main innovation has been the introduction of the rewriting exercise, where students themselves create an answer that deserves full marks.

A further innovation this semester is the portfolio that will emphasise the holistic thinking required of actuaries.

7 COURSE SCHEDULE

The topics to be discussed and the reading will be:

<table>
<thead>
<tr>
<th>COURSE SCHEDULE SEMESTER 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week beginning</strong></td>
</tr>
<tr>
<td>Week 1 2 March</td>
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<tr>
<td>Week 2 9 March</td>
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<tr>
<td>Week 3 16 March</td>
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<tr>
<td>Week 4 23 March</td>
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<td>Week 5 30 March</td>
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<td>Week 6 13 April</td>
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<td>Week 7 20 April</td>
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<td>Week 8 27 April</td>
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<td>Week beginning</td>
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<td>Week 1 27 July</td>
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<td>Week 5 24 August</td>
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<td>Week 6 31 August</td>
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<tr>
<td>Week 7 7 September</td>
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<tr>
<td>Week 8 14 September</td>
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<tr>
<td>Week 9 21 September</td>
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**Mid-semeter break:** Saturday 26 September – Monday 5 October

<table>
<thead>
<tr>
<th>Week 10 11 May</th>
<th>Managing risk, stress tests and recovery plans</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 11 18 May</td>
<td>Professionalism and vocation [Guest lecture]</td>
<td>See Moodle</td>
</tr>
<tr>
<td>Week 12 25 May</td>
<td>Review</td>
<td>Revision</td>
</tr>
<tr>
<td>Week 13 1 June</td>
<td>Revision</td>
<td></td>
</tr>
</tbody>
</table>
8 Presentation Topics

Semester 1

<table>
<thead>
<tr>
<th>S1 Week 2</th>
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</thead>
<tbody>
<tr>
<td><strong>Topic 1</strong></td>
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<tr>
<td><strong>Topic 2</strong></td>
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<tr>
<td><strong>Topic 4</strong></td>
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<td><strong>Topic 5</strong></td>
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</tbody>
</table>

**General topic:** Outline the major services provided by retail banks to their customers, and identify how these services enable customers to move risks to the banks

<table>
<thead>
<tr>
<th>S1 Week 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic 1</strong></td>
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</tbody>
</table>

**General topic:** Describe the major institutions in the life insurance sector in Australia and the changes and trends in types of business written, with reasons why these have occurred.

---

**S1 Week 4**

**Topic 1**
In UOM chapter 1, the role of actuaries is described a solving problems. In UOM 4.1, it is suggested that role is to meet needs for financial security. Comment.

**Topic 2**
Comment on the products offered by Lloyds in Australia and why they are able to compete with Australian companies.

**Topic 3**
Contrast ways in which companies set their return on capital targets when pricing. (You may find Chap 11a of the first edition of the Control Cycle textbook helpful)

**Topic 4**
Contrast alternative methods of allocating overhead costs when determining expense loadings.

**Topic 5**
Why do Australian general insurers offer very little unemployment insurance?

**General topic:** Outline the major institutions in the general insurance sector in Australia and the changes and trends in types of business written, with reasons as to why these have occurred.

---

**S1 Week 5**

**Topic 1**
How much income do Australian pensioners receive from government and private sources respectively? Does this differ much in other countries?

**Topic 2**
What are the fiduciary duties that trustees owe to their members, and contrast these with the duties that financial advisors owe to their clients?

**Topic 3**
Comment on the major differences of the regulation of superannuation funds and other financial institutions in Australia.

**Topic 4**
Comment on the growth of the hedge fund business internationally and why this might have occurred.

**Topic 5**
Contrast the projected unit credit method with the aggregate method for DB superannuation benefit.

**General topic:** Outline the major types of superannuation funds in Australia and the changes and trends, with reasons as to why these have occurred. Contrast these with other countries.

---

**S1 Week 7**

**Topic 1**
Outline the major benefits provided by health insurers, and discuss the risks inherent in providing these types of benefits.

**Topic 2**
Compare the regulation of health insurers with that for general insurers, commenting as to the appropriateness of any differences.

**Topic 3**
Outline the major considerations you would take into account in pricing a new health insurance product.

**Topic 4**
Comment as to whether you consider the solvency standards applicable in Australia for health insurers and general insurers should be the same or not and why you have reached your conclusion.

**Topic 5**
Identify the advantages and disadvantages of community rating in health insurance and say whether you think it should be applied to other types of insurance.

**General topic:** Comment on the economic significance of health insurers in Australia.

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### S1 Week 8

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>What are the impacts of demography on the relative demand for life, general and health insurance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>Outline the role and responsibilities of the actuaries in the development of a new life insurance contract</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Compare the cycles in general insurance pricing cycle with credit losses on housing loans in Australia and the USA</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Outline the modelling you would use to assess the expected profitability of a new investment contract to be issued by a life insurer that guarantees minimum returns over 20 years of the cash rate</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Outline where you would get data to assist in the pricing of a new general insurance contract to cover damage to the environment, and what qualification you would put on the modelling results</td>
</tr>
<tr>
<td>Topic 6</td>
<td>What financial service products do you think are most needed for people in the post retirement phase?</td>
</tr>
</tbody>
</table>

**General topic:** What gaps can you see in the market for financial services in Australia? In Asia?

### S1 Week 9

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Identify the major types of risks faced by a general insurer offering both domestic and corporate insurances in Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>To what extent can the mortality risk of life annuities offset the risk of ordinary life insurance?</td>
</tr>
<tr>
<td>Topic 3</td>
<td>A risk manager for a major Australian bank has said &quot;if you can't quantify a financial risk, then don't take it on&quot;. Do you agree, and if so what would be the consequences of adopting this approach for a diversified financial conglomerate?</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Evaluate the usefulness of issuing longevity bonds for a pension fund to manage the risk of the pensions payable from the fund</td>
</tr>
<tr>
<td>Topic 5</td>
<td>What are the risks involved for a global insurer relative to a single economy insurer and identify how to manage the additional risks</td>
</tr>
<tr>
<td>Topic 6</td>
<td>Is reputational risk commensurate with personal integrity?</td>
</tr>
</tbody>
</table>

**General topic:** How does APRA classify risks in their prudential standards?

### S1 Week 10

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Describe the methods used to quantify &quot;operational risk&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>Compare the risks for the superannuation fund between a defined benefit and a contribution accumulation superannuation fund</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Why is it difficult to communicate uncertainty and risk?</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Outline as a regulator of the financial services sector in an economy like Australia the principles you would adopt in determining the minimum required capital that the various institutions should hold</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Outline the major risks faced by retail banks and how would you manage the risks</td>
</tr>
</tbody>
</table>

**General topic:** About which emerging risks should actuaries be most concerned?
| **Topic 1** | Discuss the alternative ways of determining risk margins in pricing and reserving |
| **Topic 2** | Companies do not really need capital. If they make losses they can go out of business and competitors take their place. Discuss |
| **Topic 3** | For a risk perspective, if you were already in the life insurance business offering predominately yearly renewable term insurances, how would you assess a proposal to enter the house building and contents insurance business |
| **Topic 4** | Outline the major types of reinsurances available in the general insurance market and the benefits of each for the risk management of the ceding insurer |
| **Topic 5** | How would you assess whether to issue as a disability insurer a relatively low price contract with relatively tight underwriting and policy conditions, or the alternative of a high price with relatively lax policy conditions? |

**General topic:** How do groups of financial institutions balance these conflicting criteria?
Semester 2

S2 Week 2

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Outline the link between the APRA regulation of life insurers and the Actuaries Institute Professional Standards and Guidance Notes and comment on the effectiveness of this approach to regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>How should APRA determine the acceptable probability of surviving?</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Outline the strengths and weaknesses of the prescriptive and the principles based approach to prudential regulation of a financial institution</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Describe and comment on the “enforcement pyramid” of “responsive regulation”</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Comment on the effect of “naming and shaming” in a recent example of a financial scandal</td>
</tr>
</tbody>
</table>

General topic: More or less regulation: who benefits?

S2 Week 3

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>What is the technical and ethical difference between profit and economic rent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>Describe how you would establish the profit for a financial year for a general insurer writing both short tail and long tail business</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Outline the policy you would adopt for APRA’s operational risk financial requirement in a DC superannuation fund</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Describe the processes you would introduce into a listed life insurer to manage profits as close as possible to targeted profit</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Why not use simple models for solvency?</td>
</tr>
</tbody>
</table>

General topic: If making a profit is the purpose of business, are not-for-profits businesses?

S2 Week 4

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Explain why data quality is a strategic issue, and how you think it should be addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>How would you use the ACC to assist with the management of a DC superannuation fund?</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Should “Zero tolerance” be tolerated?</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Contrast the role of assumptions in positive economics and in actuarial work</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Show how outliers can change the apparent nature of the relationship between data</td>
</tr>
</tbody>
</table>

General topic: What data should the Australian financial services industry be collecting?

---


5 Friedman, M. (1953) “The methodology of positive economics” Essays in Positive Economics
### S2 Week 5

**Topic 1**  
Outline the major components in the experience monitoring process you would put into place for a typical life insurer in Australia and comment on how you would identify a trend in experience.

**Topic 2**  
What are the major components of the experience monitoring process you would put into place for a contribution accumulation superannuation fund?

**Topic 3**  
What are the differences between model, parameter and random error and say how you would distinguish between them? Are there other sources of error?

**Topic 4**  
How would you go about monitoring the experience of long tailed CTP insurance to provide meaningful feedback to management for pricing of contracts?

**Topic 5**  
Should post retirement investments of DC funds be invested in equities?

**General topic:** What are obstacles prevent managers monitor experience?

### S2 Week 7

**Topic 1**  
From the perspective of the lender, what are the risks inherent in a fixed term, fixed rate mortgage contract, and how could you manage these risks?

**Topic 2**  
Should companies be allowed to hold less capital if they can show that they can respond to losses more rapidly than others?

**Topic 3**  
Does the use a corridor reduce the volatility of fluctuations in the contributions required for a DB retirement scheme?

**Topic 4**  
What are the risks of smoothing investment returns?

**Topic 5**  
What is the difference between policyholders’ reasonable benefit expectations and the guarantees in the contract?

**General topic:** What preparation is required for a general insurer to respond quickly to change?

### S2 Week 8

**Topic 1**  
Should there be an actuarial course on modelling catastrophes?

**Topic 2**  
Which of Elinor Ostrom’s principles are most relevant to global warming?

**Topic 3**  
What do actuaries need to know about extreme value theory?

**Topic 4**  
Explain why structured credit and credit derivatives have been blamed for the Global Financial Crisis

**Topic 5**  
Outline the major differences between securitisation and reinsurance programs for a general insurer issuing both short and long tail business, and where each would be appropriate

**General topic:** What types of extreme risks should the financial service industry be concerned about?

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6 See http://www.theactuary.com/features/2013/06/bridging-the-gap/

7 See http://onthecommons.org/magazine/elinor-ostroms-8-principles-managing-commmons
### S2 Week 9

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Outline how you would decide whether to use a deterministic model or a stochastic model in considering whether to introduce a new line of insurance business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>How can we test whether equity investments will protect real the real value of investments?</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Explain the model graveyard and its consequences for the reliability of models</td>
</tr>
<tr>
<td>Topic 4</td>
<td>How would you explain to a Board the model risk inherent in your estimates for the ROE for a new line of general insurance business where you expect low frequency and high severity payments?</td>
</tr>
<tr>
<td>Topic 5</td>
<td>How can superannuation funds use models to best communicate the uncertainty of longevity to pensioners?</td>
</tr>
</tbody>
</table>

**General topic:** How do we (personally and as profession) interpret the past to understand the future?

### S2 Week 10

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Are recovery and resolution plans a form of actuarial matching?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>Discuss dynamic hedging as a source of systemic risk</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Does international concentration of control create a systemic risk?¹</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Discuss the benefits of reverse stress tests and explain why they do not seem popular</td>
</tr>
<tr>
<td>Topic 5</td>
<td>How can one stress test liquidity risks for banks and life insurers? Is the playing field level?</td>
</tr>
</tbody>
</table>

**General topic:** How do we (personally and as profession) interpret the past to plan for the future?

### S2 Week 11

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>How would you adapt the ACC process to a mutual funds management business?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 2</td>
<td>Does Fred’s coffee shop provide a good illustration of the ACC?</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Can the ACC be applied to large one off projects?</td>
</tr>
<tr>
<td>Topic 4</td>
<td>How would you adapt the ACC process to assist in managing an investment bank that both deals on its own account and also acts as an intermediary for clients</td>
</tr>
<tr>
<td>Topic 5</td>
<td>How useful would the ACC be to a property developer?</td>
</tr>
</tbody>
</table>

**General topic:** How widely can we (personally and as profession) use the ACC?

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# 9 Actuaries' Institute Learning Outcomes

The following table indicates the Actuaries' Institute Learning Outcomes and in which lectures these are covered:

<table>
<thead>
<tr>
<th>Actuaries Institute Learning Objectives</th>
<th>Covered in Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss and Apply an Actuarial Control Cycle in a Variety of Practical Commercial Situations</td>
<td>S1: L1; S2: L11</td>
</tr>
<tr>
<td>Apply the Tests of Professionalism</td>
<td>S1: L2; S2: L4, 5, 7 &amp; 11</td>
</tr>
<tr>
<td>Relate the Main Features within the General Environment to Medium and Long Term Commercial Decisions</td>
<td>S1: L2 – 5 &amp; 7</td>
</tr>
<tr>
<td>Examine the Need for and Impact of Regulation and Government Policy on Medium and Long Term Commercial Decisions</td>
<td>S2, L2</td>
</tr>
<tr>
<td>Analyse the Main Features and Risks of Financial Products and Contracts, from the Point of View of Consumers and Providers</td>
<td>S1: L8 &amp; 9</td>
</tr>
<tr>
<td>Demonstrate an Understanding of Enterprise Risk Management and its Role in Organisational Management</td>
<td>S1: L10 &amp; 11; S2: L3 – 10</td>
</tr>
<tr>
<td>Apply a Risk Assessment Framework to Identify and Assess the Risks in a Range of Commercial Situations</td>
<td>S1: L9 - L11; S2: L2 – 10</td>
</tr>
<tr>
<td>Discuss and Apply the Process of Product Design</td>
<td>S1: L8</td>
</tr>
<tr>
<td>Select an Appropriate Model to Solve Client Problems</td>
<td>S2: L9</td>
</tr>
<tr>
<td>Recognise the Importance of Capital</td>
<td>S1: L11; S2: L2 &amp; 3</td>
</tr>
<tr>
<td>Apply Relevant Approaches and Techniques to the Valuation of Liabilities</td>
<td>S2: L1</td>
</tr>
<tr>
<td>Apply Appropriate Techniques to the Pricing of Products and Contracts</td>
<td>S1: L4 &amp; 11</td>
</tr>
<tr>
<td>Measure, Report and Manage Solvency</td>
<td>S2: L3</td>
</tr>
<tr>
<td>Measure and Report Emerging Profits and/or Costs</td>
<td>S2: L5 &amp; 6</td>
</tr>
<tr>
<td>Monitor and Assess Experience</td>
<td>S2: L5 &amp; 6</td>
</tr>
<tr>
<td>Manage the Business and Respond to the Experience</td>
<td>S1: L7; S2: L7 &amp; 10</td>
</tr>
</tbody>
</table>