ACST860

Contingent Payments 2

S2 Day 2014

Applied Finance and Actuarial Studies

Contents

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General Information

Unit convenor and teaching staff
Unit Convenor
Leonie Tickle
Contact via Dialogue tool on the teaching website or during consultation
E4A608
Monday 2-4 during teaching weeks, or other times by appointment

Lecturer
David Pitt
Contact via Dialogue tool on the teaching website or during consultation
E4A609
Wednesday 3-5 during teaching weeks, or other times by appointment

Credit points
4

Prerequisites
ACST859

Corequisites

Co-badged status
This unit shares lectures with ACST355

Unit description
Topics covered in this unit include: - multiple decrement models; - valuation of benefits and contributions under superannuation plans; - pricing and valuation of policies involving two lives; - cash flow and profit test models for life insurance products including traditional products, unbundled unit linked contracts and disability income products; - pricing and valuation for future contingent liabilities; and - the effect of the pricing and valuation basis on the emergence of profit. Students gaining a grade of credit or higher in both ACST859 and this unit may apply for exemption from subject CT5 of the professional exams of the Institute of Actuaries of Australia.

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:

Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.

Describe, develop, apply and analyse methods used to model cashflows contingent upon competing risks; construct and use multiple decrement service tables, and demonstrate understanding of the relationship with associated single decrement tables.

Describe, apply and analyse the technique of discounted emerging costs for use in pricing, reserving and assessing profitability, for superannuation funds and related multiple decrement tables, traditional life insurance contracts and unit linked policies.

Define, describe and illustrate the principal forms of heterogeneity within a population and the ways in which selection can occur.

Define, calculate and analyse the use of various single figure indices, explain the rationale behind the indices, and explain the advantages and disadvantages of the indices for summarising and comparing actual experience in different scenarios.

Demonstrate the ability to identify key unit concepts and to integrate them to solve, create and evaluate novel problems.

General Assessment Information

The following apply to the class test and the final examination:

- You are permitted ONE A4 page of paper containing reference material printed on both sides. The material may be handwritten or typed. The page will not be returned to you at the end of the final examination.
- Any mortality or statistical tables that you require will be provided for you.
- Calculators (no text-retrieval capacity) are permitted.
- Dictionaries are not permitted.
- For full marks, clear and complete working must be shown.

The following apply to the in-semester assessment tasks (assessed coursework, class test and assignment):

- No extensions will be granted. Students who do not attend the class test or submit the assessed coursework or assignment by the due date will be awarded a mark of 0 for the task, except in cases where the formal Disruption Policy applies.
- All individual assessment results will be made available under Grades on the website.
- For the test and assignment, class-level results, marking guide and feedback on common errors will be available from the website.

In relation to your overall result in this unit, please note that the Standardised Numerical Grade

(SNG) gives you an indication of how you have performed within the band for your descriptive grade. The SNG is not a mark, and you may not be able to work it out based on your raw examination and other assessment marks. Nor are you able to determine you are "one mark away" from a different grade.

Assessment Tasks

Name	Weighting	Due
Assessed coursework	10%	Sundays 11.59 pm
Class Test	10%	15 September 2014
Assignment	10%	9 November 2014
Final Examination	70%	University Examination Period

Assessed coursework

Due: **Sundays 11.59 pm**
Weighting: **10%**

Online quizzes

The online quizzes are worth 7% total. There are three short online quizzes - Quiz 1 (2.5%) is on Sections 1-3, Quiz 2 (3%) is on Sections 4-6 and Quiz 3 (1.5%) is on Sections 9-10. The quizzes are due Sunday (at 11.59 pm) on 24 August, 21 September and 9 November. You should not leave the submission of quizzes until the last minute in case there are system or other problems. (In the rare case of prolonged University-wide technology problems, allowances will be made for all students).

Please ensure that you answer all quiz questions with the specified rounding, and in the required format. **Marks cannot be reinstated for rounding or formatting errors so please do not request this**.

Feedback on each quiz will be made available automatically once the quiz has been submitted and the deadline for the quiz has passed.

Please note that the quizzes aim at assisting your initial learning of concepts, before moving on to more difficult material. They are not indicative of the difficulty of questions you could expect in a test or examination.

PeerWise

The PeerWise task is worth 3%.

You will be asked to create multiple choice questions (due 14 September 11.59 pm) and to attempt and evaluate questions created by other students (due 26 October 11.59 pm). Further details will be advised in classes.

You should not leave your submissions until the last minute in case there are system or other

problems. (In the rare case of prolonged University-wide technology problems, allowances will be made for all students).

On successful completion you will be able to:
- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.
- Describe, develop, apply and analyse methods used to model cashflows contingent upon competing risks; construct and use multiple decrement service tables, and demonstrate understanding of the relationship with associated single decrement tables.
- Describe, apply and analyse the technique of discounted emerging costs for use in pricing, reserving and assessing profitability, for superannuation funds and related multiple decrement tables, traditional life insurance contracts and unit linked policies.
- Define, describe and illustrate the principal forms of heterogeneity within a population and the ways in which selection can occur.
- Define, calculate and analyse the use of various single figure indices, explain the rationale behind the indices, and explain the advantages and disadvantages of the indices for summarising and comparing actual experience in different scenarios.
- Demonstrate the ability to identify key unit concepts and to integrate them to solve, create and evaluate novel problems.

Class Test

Due: **15 September 2014**
Weighting: **10%**

The class test will be a 75 minute written paper with no reading time, covering Sections 1 to 5 inclusive.

Marked test scripts will be returned via BESS. It is intended that marked papers and feedback will be returned within 10 working days of the class test date.

On successful completion you will be able to:
- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.
- Describe, develop, apply and analyse methods used to model cashflows contingent upon competing risks; construct and use multiple decrement service tables, and demonstrate understanding of the relationship with associated single decrement tables.

Assignment

Due: **9 November 2014**
Weighting: **10%**

The assignment will be a written report based mainly on Sections 7, 8 and 9. It will completed in groups. Further details will be provided in classes.

On successful completion you will be able to:
- Describe, develop, apply and analyse methods used to model cashflows contingent upon competing risks; construct and use multiple decrement service tables, and demonstrate understanding of the relationship with associated single decrement tables.
- Describe, apply and analyse the technique of discounted emerging costs for use in pricing, reserving and assessing profitability, for superannuation funds and related multiple decrement tables, traditional life insurance contracts and unit linked policies.
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- Demonstrate the ability to identify key unit concepts and to integrate them to solve, create and evaluate novel problems.

Final Examination

Due: **University Examination Period**
Weighting: **70%**

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

To be eligible to pass this unit, a pass is required in the final examination.

On successful completion you will be able to:
- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.
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and the ways in which selection can occur.

- Define, calculate and analyse the use of various single figure indices, explain the rationale behind the indices, and explain the advantages and disadvantages of the indices for summarising and comparing actual experience in different scenarios.
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Delivery and Resources

Classes

The timetables for classes can be found on the University website at: http://www.timetables.mq.edu.au. Tutorials will commence in week 1 of the session. All lecture classes for weeks 8, 9 and 10 will be held in the computer labs E4B118 and / or E4B214 (to be confirmed).

Required and recommended texts and / or materials

Optional text. Detailed lecture materials are provided and it is not envisaged that you will require a text. If you would like extra reading, the ActEd CT5 notes can be used as an optional text. They can be purchased from http://www.acted.com.au.

Lecture handouts. Lecture handouts are available for downloading from the website in advance of lecture classes. Print these (at 100% size) and bring them to the relevant lecture. It is expected that you will have these notes in all lectures.

Tables. The Formulae and Tables for Actuarial Examinations book is not required for this unit, and will not be provided in the examination. Instead, you will be asked to generate your own set of tables, based on up-to-date UK mortality tables. There will be Tables Tasks exercises set in the early weeks of the unit that will give you details of how to construct the tables and provide results to spot check your answers. In addition to generating results for your future use, the aim of these tasks is to help you to revise relevant results from ACST255/859. It is important that you keep up-to-date with the Tables Tasks so that you can use your tables to answer questions throughout this unit.

Technology used and required

You will be required to use the teaching website, Excel and Word. You may be required to use R and (in online quizzes) STACK.

Unit webpage

Course material is available on the learning management system (iLearn). To access the teaching website, go to http://ilearn.mq.edu.au and login using your usual login and password.

Teaching and learning activities

Lectures. The unit material is covered in the three hours of lectures each week.

Tutorials. The tutorial is an opportunity for you to discuss the exercises available for each section of work with your tutor. The tutorials will generally cover the lecture material from the same week - further details are given in the Unit Schedule. Tutorials commence in week 1.

Computer lab classes. These will replace all of the lecture classes in weeks 8, 9 and 10.

Material to bring to classes. You are expected to bring to all classes the relevant lecture handout printout for the current and previous weeks, blank paper to complete exercises, a calculator, and your completed Tables Tasks.

Unit Schedule

Week	Week Beginning	Lecture (Monday)	Lecture (Wednesday)	Lecturer	Tutorial (Wednesday)	Assessment (Sunday)
	4 August	Unit introduction and Section 1: Joint life and last survivor statuses	Section 1 (cont)	DP	Section 1	-
	11 August	Section 2: Simple annuities and assurances involving two lives	Section 2 (cont)	DP	Section 2	-
	18 August	Section 3: Contingent and reversionary benefits	Section 3 (cont)	DP	Section 3	Quiz 1
	25 August	Section 4: Competing risks	Section 4 (cont)	DP	Section 4	-
	1 September	Section 5: Multiple decrement tables	Section 5 (cont)	DP	Section 5 - I	-
	8 September	Section 6: Superannuation funds	Mock test	DP	Section 5 - II	PeerWise: Question creation
	15 September	Test	Section 6 (cont)	DP	Section 6	Quiz 2
	22 September	-	-	-	-	-

Week	Week Beginning	Lecture (Monday)	Lecture (Wednesday)	Lecturer	Tutorial (Wednesday)	Assessment (Sunday)
	29 September	-	-	-	-	-
	6 October	No class (public holiday)	Section 7: Profit testing - conventional business	LT	Section 7 - I	-
	13 October	Section 7 (cont)	Section 8: Profit testing - unit-linked business	LT	Section 7 - II	-
	20 October	Section 8 (cont)	Profit testing revision	LT	Section 8	PeerWise: Question attempts
	27 October	Section 9: Mortality risk factors and selection	Section 9 (cont)	LT	Section 9	-
	3 November	Section 10: Mortality indices	Section 10 (cont)	LT	Section 10	Quiz 3
	10 November	Revision and exam information	Revision	LT	Revision	-

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

Supplementary Examinations

Further information regarding supplementary exams, including dates, is available here

http://www.businessandeconomics.mq.edu.au/current_students/undergraduate/how_do_i/special_consideration

Graduate Capabilities

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.
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Assessment tasks

- Assessed coursework
- Class Test
- Assignment
- Final Examination

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.
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Assessment tasks

- Assessed coursework
- Class Test
- Assignment
- Final Examination

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Describe, apply and analyse the technique of discounted emerging costs for use in pricing, reserving and assessing profitability, for superannuation funds and related multiple decrement tables, traditional life insurance contracts and unit linked policies.
- Define, describe and illustrate the principal forms of heterogeneity within a population and the ways in which selection can occur.
- Demonstrate the ability to identify key unit concepts and to integrate them to solve, create and evaluate novel problems.

Assessment tasks

- Assessed coursework
- Assignment
- Final Examination

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Extend the techniques learned in ACST255/859 to permit the calculation and analysis of cashflows dependent upon the death or survival of either or both of two lives, and cashflows dependent upon a fixed term as well as age.

- Describe, develop, apply and analyse methods used to model cashflows contingent upon competing risks; construct and use multiple decrement service tables, and demonstrate understanding of the relationship with associated single decrement tables.

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- Assessed coursework
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- Assignment
- Final Examination

Changes from Previous Offering

There have been changes to the lecture and tutorial materials, the order of topics, the coverage of the class test, and the assessment.

Research and Practice

This unit uses research by Macquarie University researchers, as well as research from external sources (references are given in the unit notes).