



MACQUARIE UNIVERSITY  
DIVISION OF ECONOMIC AND FINANCIAL STUDIES  
UNIT OUTLINE

## ACST355 Contingent Payments 2

### SECOND SEMESTER 2007

**Unit convenor:** Leonie Tickle  
**Prerequisites:** ACST344 (P) or ACST354 (P)

Students in this unit should read this unit outline carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult the unit convenor.

#### ABOUT THIS UNIT

This unit develops models for the analysis of cash flows depending on uncertain events (ie. payments contingent on uncertain events, hence “contingent payments”).

In particular, we will look at payments under policies involving two lives, models of competing risks, multiple decrement models and the valuation of benefits and contributions under superannuation plans. We will develop expected cash flow models and profit test models for various life insurance products, and will consider the effect of the pricing and policy value basis on the emergence of profit. We will begin by considering factors affecting mortality, types of selection, and issues around risk classification.

A good knowledge of the material covered in ACST255 and ACST354 is essential. You should revise these units as soon as possible if necessary.

#### TEACHING STAFF

Leonie Tickle is the unit convenor and will be taking all of the lectures in this unit.

Ruoyin Wang is the teaching administrator for this unit. Administrative questions *that are not covered in this unit outline* should be directed to the Administration Inquiries account via the Private Mail facility of the website. If the questions are of interest to everyone in the unit, the question and the reply will be posted to the Discussion Board, so you should specifically request if you want your message to remain private.

Questions about unit content should be sent to the Discussion Board of the website or raised during lectures or tutorials.

#### CLASSES

Lectures are held Tuesday 11 – 1 in C5CT2 and Friday 9 – 10 in E7BT2.

There will be three concurrent tutorials on Friday 10 – 11. Tutorial allocations and rooms will be posted on the website. Tutorials start in week 1.

Any alterations to the tutorial times or locations will be advised in lectures and via the website.

## CLASS ETIQUETTE

Mobile phones should be switched off during all lectures and tutorials. If there is an important reason for you to keep your phone on you should request to be allowed to do so before the start of the class.

Lectures commence at 5 minutes past the hour and you are expected to be punctual.

You are expected to keep talking to a minimum during classes so as not to disrupt your fellow students (and the lecturer!).

## REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

### Optional text

The ActEd CT5 notes are an optional text for this unit. Those who completed ACST255 in 2006 should already have these notes. Others should contact ASSOC to arrange for purchase of the notes – they are not available from the Co-op bookshop.

Those who want to view a copy of the ActEd CT5 notes should send a query to the Administrative Inquiries mailbox using Private Mail in the ACST355 website. Arrangements will be made for you to view them in the Actuarial Studies Department. The notes are not available in the library. **This reference copy of the notes cannot under any circumstances be photocopied.**

### Lecture notes

Lecture handouts (ie. notes with gaps) for the first six sections of work, are available for purchase from the Co-op bookshop. Lecture handouts for the remainder of work will be available later in the semester.

Complete notes including solutions to lecture exercises will be made available for downloading from the ACST355 website at 10 am on the Friday on which the relevant section of work is completed (eg. if we complete Section 1 in week 1, the complete notes will become available at 10 am Friday of week 1). Solutions to section exercises will be made available at 10 am on the following Sunday. **This schedule is fixed and will not be varied for individual students unless the formal grounds for Special Consideration or Equity Support are met.**

It is highly recommended that you read the optional reading from the ActEd notes in advance of the lecture. During the lecture you can then work through the lecture handout, which will cover similar ground as the ActEd notes but expressed in a different way.

### 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 various weeks 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. **It is important that you do the Tables Tasks and that you keep up-to-date with them so that you can use your tables to answer questions throughout this unit.**

## UNIT WEB PAGE

To access the website, go to <http://online.mq.edu.au> and login using your usual login and password. You will then have access to the websites for all the units in which you are enrolled. If you have any trouble logging in (e.g. you have forgotten your password), please contact the Library Information Customer Service Desk.

Before logging in to the ACST355 site, you should follow the link labelled “Technical Information” and read all the information there, including the Information Technology Security Policy and Rules and the Information Technology Usage Rules. This technical information also mentions a number of “plugins” that may be required. Of those listed, in this unit you will only need Acrobat Reader.

Remember to close your browser when you have finished using the site. If you don't, another person can use the still running browser to access the website with your account.

The web site will be used as an integral part of this unit. The main components of the website are:

### Unit Outline

You can download this unit outline from here.

### Discussion

You should use the Discussion facility, along with the tutorial time, as your resource for asking questions about the content of the unit. Please address your questions to your fellow students – if there is no response or an incorrect response from the class the teaching staff will post a response. You are encouraged to post answers to other students' questions – this is one of the most effective ways to clarify your own understanding of the material. You should consult the Discussions frequently, to contribute to questions and see answers to queries.

The Discussion Board will also be used to make general administrative announcements and to advise of any changes to class times, assessment requirements so on. It is your responsibility to make sure that you check the board frequently so that you are aware of these important announcements.

### Private Mail

You should use Private Mail to send administrative queries to the Administrative Inquiries account. Staff will also use Private Mail to contact you individually, if necessary. You may also use this facility to contact your fellow students. Check your mailbox regularly for messages.

### Unit Notes

Complete notes including solutions to lecture exercises, and solutions to section exercises will be posted here for downloading.

### Tests and exams

Previous examinations and tests for ACST345 are available here. (ACST355 was offered for the first time in 2006. ACST345 was offered until 2005 and covered some of the same content as ACST355.)

### Revision exercises

Any additional revision exercises will be made available here.

### Mortality Tables

Data for the Tables Tasks is available here.

It is your responsibility to check the website regularly to make sure that you are up-to-date with announcements and with messages sent to your Private Mail address.

## LEARNING OUTCOMES

The learning objectives of this unit are summarised at the start of each section of work. You should revise these after each week to ensure your understanding of the material.

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop students' generic skills in a range of areas. One of the aims of this unit is that students develop their skills in the following: *Critical analysis skills; Problem-solving skills.*

## TEACHING AND LEARNING STRATEGY

The unit material is covered in the three hours of lectures each week. The tutorial is an opportunity for you to attempt questions for each section of work, or to ask the tutor questions. You should also use the Discussion Board to ask questions or discuss concepts covered in the unit.

Week	Week Beginning	Topic Covered
1	30 July	1. Mortality indices
2	6 August	2. Mortality risk factors and selection
3	13 August	3. Simple annuities and assurances involving two lives
4	20 August	4. Contingent and reversionary benefits
5	27 August	5. Competing Risks
6	3 September	<b>Test 1</b> , Friday is a public holiday
7	10 September	6. Multiple decrement tables
<b>STUDY BREAK</b>	17 September	
	24 September	
8	1 October	6. Multiple decrement tables (cont) and 7. Superannuation funds
9	8 October	7. Superannuation funds (cont)
10	15 October	8. Profit testing
11	22 October	<b>Test 2</b> and 8. Profit testing (cont)
12	29 October	9. Determining provisions using profit testing
13	5 November	Revision

This is only a preliminary outline, and may be adapted as the semester proceeds. Any alterations will be advised in lectures and via the website.

It is likely that computer lab sessions will be scheduled sometime during the weeks beginning October 15, 22 and 29. Details will be provided in lectures and via the website.

## RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES

This unit is assessed using two class tests, a series of short assignments and a final examination. This is suitable given the problem-solving and technical nature of the unit.

### Class tests

Each test is worth 7.5% of the final assessment for the unit.

- Test 1 will be held Tuesday 4 September at 11 am. and will cover sections 1 to 4 inclusive.
- Test 2 will be held Tuesday 23 October at 11 am. and will cover sections 5 to 7 inclusive.

The class test dates, times and coverage may be subject to change – any alterations will be advised on the web site.

Marked tests will be returned to ERIC.

Rules relating to the class tests are outlined below.

If you are affected by illness or unavoidable disruption at the time of the tests, you should contact the unit convenor immediately to discuss this and to make alternative arrangements. Applications for special consideration for the class test due to documented illness or unavoidable disruption **must** be made on the “Advice of Absence or other Circumstances” form. This is available from <http://www.reg.mq.edu.au/Forms/USSAbsence.pdf> and should be submitted to the Student Enquiry Service on Level 1 of the Lincoln Building (not direct to the unit convenor). See below for rules relating to applications for special consideration.

### **Exam**

The final examination is worth 75% of the final assessment for the unit. It will be a three-hour written paper with ten minutes reading time. The final examination may include multiple-choice questions. You should ensure that you bring several 2B pencils and an eraser to the examination.

The University Examination period in Second Half Year 2007 is from 14 November to 30 November. You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations from <http://www.timetables.mq.edu.au/exam>.

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. Information about unavoidable disruption and the special consideration process is available at <http://www.reg.mq.edu.au/>.

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the end of the official examination period.

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, that is the final day of the official examination period.

### **Assignments**

The assignments will be worth a total of 10% of the final assessment for the unit. Further details will be provided in classes.

### **Rules regarding tests and examinations**

Normal examination rules apply to the conduct of class tests and the final examination. These rules are set out under the heading “Conduct of Examinations” in the Student Information–Assessment section of the current Macquarie University Handbook of Undergraduate Studies. Students are responsible for familiarising themselves with these rules prior to the class tests and the final examination.

You should ensure that your handwriting in the class tests and in the final examination is legible. Sections of work that are not legible will not be marked. For true/false questions, answers that are not clearly legible as either T or F will be assumed to be wrong and marked accordingly.

You are permitted to bring to the class test and the final examination, **ONE** A4 sheet of paper containing reference material printed on both sides. The sheet may be handwritten, typed or photo-reduced.

Any mortality or statistical tables that you require will be provided for you in the class tests and the final examination.

Academic Senate has resolved that mobile phones should not be used in classrooms or be brought into examination rooms. Communication devices, including but not restricted to mobile phones, text message receivers, pagers and wireless-equipped calculators, may not be brought into the class tests or exam. If a student is found to have brought such a device into the examination room, the argument that the device was turned off will NOT be regarded as an acceptable excuse.

Calculators will be allowed in the class tests and the final examination but a clear indication of the steps involved in every calculation must be shown. Any machines that have a text-retrieval capacity, whether or not they have a full alphabet on the keyboard, are not allowed. Calculators may be checked at the commencement of the class tests and final exam, and the make/model may be recorded.

Dictionaries will not be permitted in the class tests or the final examination.

Applications based on medical grounds (whether for the class tests or final examination) must be accompanied by the Professional Authority Form. Applications omitting this form (such as those which only supply a doctor's certificate) will be ignored.

## **EXEMPTIONS**

The units ACST255 and ACST355 together correspond to the professional subject CT5. The exemption will be recommended if and only if a SNG of at least 60 is achieved in both units and the average SNG is at least 65.

## **PLAGIARISM**

The University defines plagiarism in its rules: "Plagiarism involves using the work of another person and presenting it as one's own." Plagiarism is a serious breach of the University's rules and carries significant penalties. You must read the University's practices and procedures on plagiarism. These can be found in the *Handbook of Undergraduate Studies* or on the web at: <http://www.student.mq.edu.au/plagiarism/>.

The policies and procedures explain what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee.

## **USE OF COMPUTERS FOR COURSEWORK**

Please take careful note of the policy of the Department of Actuarial Studies regarding the use of computers, which follows.

### **DEPARTMENT OF ACTUARIAL STUDIES NOTICE TO STUDENTS RE USE OF COMPUTERS FOR COURSEWORK**

1. Computers do occasionally break down. This is a normal part of working life. When completing assignments, you should not leave computer work until the last moment, assuming the system will be available when you need it.

2. You are the person responsible for keeping backup copies of any data or files you create on a computer. If you fail to keep backup copies, loss of data or files, for whatever reason, is not an acceptable excuse for failing to complete an assignment on time.
3. You should have at least two backups. If you have only one backup disk, then a computer malfunction while you are updating your backups may simultaneously corrupt both the original version (on the hard disk or network) and your backup disk. Do not store your two backups together. Spread your risks.
4. If you are planning to write a document on one computer (eg. your home computer) and print it from a different computer, you should test well ahead of the due date that the second computer can print your document. This particularly applies if your documents incorporate graphs, tables, unusual fonts or special formatting.

## **UNIVERSITY POLICY ON GRADING**

Macquarie University uses the grades HD, D, Cr, P, PC and F for grading the achievements of students in units of study. The meaning of each symbol is explained in section 10 of the Bachelor Degree Rules in the current Macquarie University Handbook of Undergraduate Studies.

Academic Senate has a set of guidelines on the distribution of grades across the range from fail to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG).

The numerical marks resulting from assessment of your work in this unit will be used as an initial indicator of the quality of your learning and understanding. The use of these numerical marks is, however, only a starting point in determining the appropriate grade. In particular, note that the SNG ranges mentioned in the Handbook of Undergraduate Studies are not the raw marks. To obtain a grade you must satisfy the qualitative definition of that grade. Once your grade has been determined, you are allocated an SNG indicating your approximate position amongst students assigned that grade.

## **STUDENT SUPPORT SERVICES**

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au>.

### **ERIC**

The EFS Resource and Information Centre (ERIC) is located in room E4B106 and offers photocopying facilities, reading areas and reference material. Class tests will be returned to ERIC. Information about facilities and services is at [http://www.efs.mq.edu.au/student\\_support/eric](http://www.efs.mq.edu.au/student_support/eric).

### **ACSTINFO**

This ACSTINFO site is used to distribute information to all students majoring in actuarial studies. The information supplied may include administrative information and job advertisements. You will retain access to this site during the vacation following the end of this semester.

It is to your advantage to ensure you read information on this web site regularly. You should not assume that information posted there will also be repeated in lectures.

To access the site, login at: <http://online.mq.edu.au/> and the site should appear among your list of units. When you first login, please read the section labelled "How to use this site." This contains useful information which will help you determine when there is new information on the site which you should read.

## **ELECTRONIC COMMUNICATION AND YOUR STUDENT FILE**

Every business keeps a record of its correspondence with its customers. The University is no exception and it maintains a file for every student. Staff are required to ensure that copies of all correspondence with you are added to your file. Historically, “correspondence” meant letters, but nowadays it also includes electronic communication such as email. Staff have some discretion here and might not file copies of trivial emails, but it is difficult to define precise boundaries here, so it is safer to assume that any email you send to a staff member will be added to your file.

Some people regard email as more ephemeral than a letter and thus tend to take less care with issues such as clarity of expression, grammar and spelling. Before sending an email to a staff member, a good question to ask yourself is: “If a member of staff is reviewing my student file prior to writing a reference for me, and they see a copy of this email, would that staff member gain a favourable impression of my level of communication skills?”

In this context, email includes communications you send to staff with the mail tool in the unit’s web site. It does not normally include postings you make to the discussion area. However, in those very rare cases where a student makes an inappropriate posting to the discussion area, a copy of the posting would be added to that student’s file.

## **INSTITUTE OF ACTUARIES OF AUSTRALIA**

You should consider joining the Institute of Actuaries of Australia, if you haven’t done so already. There are advantages in joining while a full-time student. Please refer to

<http://www.actuaries.asn.au/AboutTheInstitute/Membership>

for membership information.