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 one of the teaching staff in the unit.

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 ACST 255 / 859 is essential. You should revise this unit 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. Her consultation hours are Tuesday 2-3 and Friday 2-3 (other times are available by prior appointment).

Garreth Sweeney is the teaching administrator for this unit. Administrative questions that are not covered in this unit outline should be directed to him via the Private Mail facility of the website. If the questions are of interest to everyone, the question and the reply will be posted to the website, 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, tutorials or consultation hours.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

Optional text

The ActEd CT5 notes are an optional text. Those who completed ACST 255 / 859 in 2008 or first semester 2009 should already have these notes. It is 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.

Those who want to view a copy of the ActEd CT5 notes should send a query to the teaching administrator using Private Mail in the ACST 355 / 860 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) are available for purchase from the Co-op bookshop. Complete notes including solutions to lecture exercises will be made available for downloading from the ACST355 / 860 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.

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 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 / 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.

UNIT WEB PAGE

To access the website, go to [http://learn.mq.edu.au](http://learn.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, 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 (listed on the left hand side toolbar) are:

Course Content
- **Unit Outline**: You can download this unit outline from here.
- **Unit Notes**: Complete notes including solutions to lecture exercises, and solutions to section exercises will be posted here for downloading.
- **Data for Assessments**: Any data and templates that you need to complete the weekly quizzes or the four online assignments will be made available here.
- **Tables Tasks**: The data and shell spreadsheets you need to complete the Tables Tasks will be made available here.
- **Revision exercises**: Additional revision exercises will be made available here.
- **Tests and exams**: Previous examinations and tests for ACST345 and ACST355 / 860 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.)
- **Links**: Any web links you need to use will be made available here.

Assessments. Enter this section to submit your weekly quizzes and four online assignments.

Assignments. Enter this section to submit your answers to the long answer questions of Assignments 1, 2 and 3.
**Calendar.** The calendar will list the dates that some items of assessment become available; however it is your responsibility to familiarise yourself with all assessment requirements including those not listed on the calendar.

**Discussions.** 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.

**Mail.** You should use Private Mail to send administrative queries to the unit convenor or teaching administrator. Staff will also use Private Mail to contact you individually, if necessary. You may also use this facility to contact your fellow students. It is your responsibility to check the website regularly to make sure that you are up-to-date with messages sent to your Private Mail address.

**Search.** Use this tool to search the website.

**iLectures.** In 2009, the University is trialing a video capture feature in iLecture and ACST355 / 860 has been selected to participate. The recording captures video output from the lecturer’s PC and visualiser, and combines and synchronises the video with audio of the lecture. Video or audio of all lectures will be available on this tab. Before using iLecture, please read the important information at http://www.mq.edu.au/learningandteachingcentre/for_staff/technologies/ilecture_video_students.htm

**LEARNING OBJECTIVES AND OUTCOMES**

The learning objectives of this unit are summarised in the lecture notes at the start of each section of work. You should review these in advance of each lecture and after completing each section of work.

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.

**CLASSES AND TEACHING AND LEARNING STRATEGY**

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

**Lectures** are held Tuesday 11 – 1 in C5CT2 and Friday 9 – 10 in C5CT2. The unit material is covered in the three hours of lectures each week.

**Tutorials** are held Friday 10 – 11, commencing in week 1. You must attend the tutorial to which you have been allocated. The tutorial is an opportunity for you to complete additional questions that will be provided to those attending the tutorial, to attempt the section exercises given in the lecture notes at the end of each section, and to discuss problems with the tutor.

**Computer lab sessions** will replace some lecture and tutorial classes in weeks 10, 11 and 12. The Friday lab classes will be held across two rooms, E4B206 and E4B214. The Tuesday 3 November lab class will be held in room E4B214 only.

A preliminary outline of classes is given on the following page. This may be adapted as the semester proceeds. Any alterations to classes will be advised in lectures and / or via the website.
<table>
<thead>
<tr>
<th>Week</th>
<th>Week Beginning</th>
<th>Due Monday 5 pm</th>
<th>Tuesday 11-1 class</th>
<th>Friday 9-10 class</th>
<th>Friday 10-11 class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 August</td>
<td>-</td>
<td>Lecture: Section 1 <em>Mortality indices</em></td>
<td>Lecture: Section 1 (cont) and <em>Gapminder</em></td>
<td>Tutorial: Section 1</td>
</tr>
<tr>
<td>2</td>
<td>10 August</td>
<td>Quiz 1</td>
<td>Lecture: Section 2 <em>Mortality risk factors and selection</em></td>
<td>Lecture: Section 2 (cont) and <em>Historical mortality</em></td>
<td>Tutorial: Section 2</td>
</tr>
<tr>
<td>3</td>
<td>17 August</td>
<td>Quiz 2</td>
<td>Lecture: Section 3 <em>Simple annuities and assurances involving two lives</em></td>
<td>Lecture: Section 3 (cont)</td>
<td>Tutorial: Section 3</td>
</tr>
<tr>
<td>4</td>
<td>24 August</td>
<td>Quiz 3</td>
<td>Lecture: Section 4 <em>Contingent and reversionary benefits</em></td>
<td>Lecture: Section 4 (cont)</td>
<td>Tutorial: Section 4</td>
</tr>
<tr>
<td>5</td>
<td>31 August</td>
<td>Quiz 4</td>
<td>Lecture: Section 5 <em>Competing risks</em></td>
<td>Lecture: Section 5 (cont)</td>
<td>Tutorial: Section 5</td>
</tr>
<tr>
<td>6</td>
<td>7 September</td>
<td>Quiz 5</td>
<td>Lecture: Section 6 <em>Multiple decrement tables</em></td>
<td>Lecture: Section 6 (cont)</td>
<td>Tutorial: Section 6</td>
</tr>
<tr>
<td>7</td>
<td>14 September</td>
<td>Assignment 1</td>
<td>Lecture: Section 6 (cont)</td>
<td>Mock test</td>
<td>Tutorial: Mock test feedback; Section 6; Opportunity for questions</td>
</tr>
<tr>
<td></td>
<td>STUDY BREAK</td>
<td>21 September</td>
<td>Quiz 6</td>
<td>Assignment 2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>5 October</td>
<td>-</td>
<td>Test</td>
<td>Lecture: Section 7 <em>Superannuation Funds</em></td>
<td>Tutorial: Section 7</td>
</tr>
<tr>
<td>9</td>
<td>12 October</td>
<td>Assignment 3</td>
<td>Lecture: Section 7 (cont)</td>
<td>Lecture: Section 7 (cont)</td>
<td>Tutorial: Section 7</td>
</tr>
<tr>
<td>10</td>
<td>19 October</td>
<td>Quiz 7</td>
<td>Lecture: Section 8 <em>Profit testing</em></td>
<td>Lab: Section 8 (E4B206 and E4B214)</td>
<td>Lab: Section 8 (E4B206 and E4B214)</td>
</tr>
<tr>
<td>11</td>
<td>26 October</td>
<td>Quiz 8</td>
<td>Lecture: Section 9 <em>Determining provisions using profit testing</em></td>
<td>Lab: Section 9 (E4B206 and E4B214)</td>
<td>Lab: Section 9 (E4B206 and E4B214)</td>
</tr>
<tr>
<td>12</td>
<td>2 November</td>
<td>Quiz 9</td>
<td>Lab: Additional profit testing exercises (E4B214)</td>
<td>Lab: Additional profit testing exercises (E4B206 and E4B214)</td>
<td>Lab: Additional profit testing exercises (E4B206 and E4B214)</td>
</tr>
<tr>
<td>13</td>
<td>9 November</td>
<td>Assignment 4</td>
<td>Unit surveys, Exam information, Revision</td>
<td>Revision</td>
<td>Revision</td>
</tr>
</tbody>
</table>
CLASS ETIQUETTE

Mobile phones should be switched off during all lectures and tutorials. If there is a 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!).

RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES

This unit is assessed using a class test, regular short quizzes, a series of assignments and a final examination. (You will also be provided with non-assessable short questions to attempt during the tutorial, as well as section exercises to attempt during the tutorial and in your own time.) The assessment structure is suitable given the problem–solving and technical nature of the unit, and is also aimed at encouraging you to regularly review the material. An assessment schedule is given on the previous page and any changes to the assessment or assessment due dates will be advised in classes.

The quiz questions and short tutorial questions (and to some extent, the assignment questions) are aimed at helping you to understand the fundamental concepts, before moving on to more difficult material. They are not necessarily indicative of the difficulty of questions you could expect in the class tests and on the final exam (ie. they are mostly easier, to assist your initial learning).

Quizzes and Assignments

The nine quizzes are worth a total 5% of the final assessment for the unit. Each quiz is based on the material in one section of the unit (Quiz 1 is based on material in Section 1, Quiz 2 is based on material in Section 2, … Quiz 9 is based on material in Section 9) but may also use some earlier work.

The four assignments are worth a total of 12% of the final assessment for the unit.

Quizzes and assignments are to be submitted online by the due dates shown on the preliminary schedule. You should not leave the submission of quizzes or assignments to the last minute in case there are system problems that cause delays. (In the rare case of prolonged University-wide technology problems, allowances will be made for all students). You should ensure that you fully Submit each item of assessment and receive the acknowledgement “Thank you for submitting Quiz 1” etc. Feedback on each quiz and assignment will be available online once the assessment has been submitted and the deadline for the assessment has passed.

You must submit a quiz / assignment, in order to be able to access the questions and solutions throughout the semester. Quizzes and assignments cannot subsequently be made available to students who do not submit an attempt.

Please use quizzes 1 and 2 as early diagnostic tools to assess how well you are understanding the unit material and whether you need to revise pre-requisite material or to reconsider your enrolment in the unit. Please contact the unit coordinator if you need advice.

Class test

The test is worth 13% of the final assessment for the unit. It is scheduled for Tuesday 6 October at 11 am. and will cover Sections 1 to 6 inclusive. It will be a 75 minute written paper. The class test date, time, format and coverage may be subject to change.
Marked test papers including individual feedback will be returned to BESS. Class level results, marking guide and feedback on common errors will be provided on the website. It is intended that marked papers and feedback will be returned within two weeks of the class test date.

Exam

The final examination is worth 70% of the final assessment for the unit. It will be a three-hour written paper with ten minutes reading time held during the University Examination period.

The University Examination period in Second Half Year 2009 is from 18 November to 4 December. 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.

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.

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 test and 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.

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.

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.
SPECIAL CONSIDERATION FOR ASSESSMENTS AND EXAMS

Late submission of quizzes and assignments and rescheduling of class tests is not permitted. If illness or unavoidable disruption affects your ability to submit an assessment task or sit the test, you should contact the unit convenor immediately. Allowances will be made where a formal application for Special Consideration is approved.

The only exception to sitting an examination at the designated time is where an application for Special Consideration due to documented illness or unavoidable disruption is approved. By submitting a request for special consideration you are agreeing to be available to sit a Supplementary Examination if required. If a Supplementary Examination is granted as a result of the Special Consideration process then

- The examination will be scheduled after the conclusion of the official examination period.
- You do not have the right to request an alternative time, unless the scheduled time clashes with another Macquarie University supplementary exam that you are required to attend.
- Your performance in the Supplementary Examination replaces your performance in the original examination (if any). You do NOT have the right to subsequently request that your result be based on the original examination rather than the Supplementary Examination.
- If you fail to attend the Supplementary Examination you will be awarded the grade of “Fail – Absent”.

The form for applications for Special Consideration is available at http://www.reg.mq.edu.au/Forms/APScons.pdf. Applications for Special Consideration based on medical grounds 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.

EXAM VIEWING AND GRADE APPEALS

Second semester results are scheduled to be released at midnight at the start of Friday 18 December. Following the release of the results, some students ask to see their exam paper. The exam viewing day will be Tuesday 22 December. You will need to view the FBE web site at http://businessandeconomics.mq.edu.au/ immediately after the results are released to determine how to request to view your paper. There will be a very limited time to make this request.

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.
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.

EXEMPTIONS

The units ACST255 / 859 and ACST355 / 860 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.

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.

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.

BESS. The Business and Economics Student Centre (BESS) is located in room E4B106 and offers photocopying facilities, reading areas and reference material. Class tests will be returned to BESS. Information about facilities and services is at http://businessandeconomics.mq.edu.au/for/new_and_current_students/undergraduate/bess.

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://learn.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.

FEEDBACK

I would welcome your feedback on any aspect of the unit. If you see that something could be improved, don’t sit back and complain to your friends! Come and see me and let me know your ideas and if I agree that your ideas are good I will make changes. You can give me feedback in lectures or by posting to the website (anonymously if need be).

I have made significant changes to the unit in recent years in response to feedback, including changing the format of tutorials, introducing mock tests, introducing iLecture and introducing quizzes. I will discuss these changes in more detail in classes.

I hope not to see any feedback in the end-of-semester unit evaluations that I haven’t heard about already and therefore had the opportunity to incorporate to improve the unit. Please get involved in making this unit as useful and rewarding as possible.

Leonie Tickle
27 July 2009