Introduction
This is a 12.5 point subject, with two lecture hours and one tutorial hour per week. The subject will be reasonably intensive and you are advised that you must keep up-to-date with work. In particular, you should complete tutorial questions on a weekly basis and make a genuine attempt at all parts of the assessment.

Students who perform at a suitably high level in the end of semester exams in both this subject and subject ACTL 30001, Actuarial Modelling I, will be recommended for exemption from the professional subject of the Institute of Actuaries of Australia, CT4 Models.

Subject structure
This subject contains four units. These four units will be covered as shown in the table below.

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Unit Name</th>
<th>Topics Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>Exposed-to-Risk Methods</td>
<td>Estimation of mortality rates from crude data, concept of rate interval, mortality investigation.</td>
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<tr>
<td>4 and 5</td>
<td>Hypothesis Testing</td>
<td>Statistical tests for assessing whether the mortality experience of a life office accords with published life tables.</td>
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<tr>
<td>6 to 8</td>
<td>Methods of Graduation</td>
<td>Techniques for smoothing crude mortality rates: Whittaker-Henderson, graphical, mathematical formula, standard table and cubic splines.</td>
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<tr>
<td>9 to 12</td>
<td>Markov Chains</td>
<td>Introduction to Markov Chains: definitions, classification of states, equilibrium distributions. Applications to no claims discount (NCD) systems.</td>
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</tbody>
</table>

Teaching personnel
The lectures for this subject will be conducted by Dr. Enrique Calderín.

Dr. Enrique Calderín
Email: ecalderin@unimelb.edu.au
Office: FBE Building Room 314
Phone: 90358176

The weekly office hour for students enrolled in this subject will be announced in class.

Assessment
The subject will be assessed by two group assignments and one final examination. The assignments will be worth 10% each. Assignment questions will be available in LMS together with cover sheets. You should follow the instructions on the cover sheets closely. The final examination will be worth 80%.
Lecture Times
Monday 10:00am - 11:00pm Th: FBE-G06 (Prest Theatre)
Wednesday 2:15pm - 3:15pm Th: FBE-G06 (Prest Theatre)
Friday 3:15pm - 4:15pm (13th Mar, 1st May and 22nd May) Th: FBE-G06 (Prest Theatre)

Reading Items
A course workbook has been prepared. You should buy this. It contains the lecture notes with space for you to complete exercises etc. during the lectures, tutorial material, progress check questions with solutions, an optional practice set, a specimen exam paper, a challenge exam paper, some additional non-examinable material for interested students and the statistical tables that will be provided on the back of the final exam paper in this subject.

The reading guide is colour coded as follows:

- Lecture Notes: white
- Tutorial Questions: blue
- Progress Check Questions: blue
- Specimen/Challenge Exam: blue
- Non-Examinable Material: yellow
- Statistical Tables: white

This subject has an LMS page.

On that page, you will find solutions to tutorial exercises, put up after the final tutorial in the week where the material is covered and you will also find spreadsheets related to the subject there. Solutions to the specimen and challenge exams will be made available on the LMS page after the final lecture for the subject. Announcements relating to course administration etc. will also be put up on the subject LMS page. You should refer to it frequently throughout the semester.

Class Tests
There is no mid-term test in this subject. However, in order to provide you with feedback on your progress throughout the subject, we will have two OPTIONAL class tests held in Weeks 8 and 11. These will most likely be held on Fridays at 3:15pm in the Prest Theatre, however a formal announcement regarding the time and venue of these tests will be made in lectures and on the LMS page. The tests will NOT count towards your assessment in this subject. Detailed solutions will be provided at the end of each test and you can mark your work by yourself. Test questions and solutions will also be available on LMS after each test.

Software
You will be expected to make use of MS Excel, which is available at the undergraduate computer laboratories.

Other resources
The website of the Institute of Actuaries and Faculty of Actuaries contains past exam papers and solutions for Subject CT4 and Subjects 103 and 104. There is a link to this page from the Centre’s homepage. There is a summary on the LMS page of which questions from these exams are relevant to your preparation for the final exam in this subject.
Audio recordings of lectures delivered in this subject will be made available for review in the days following each lecture. Audio recordings of lectures allow you to revise classes during the semester, or to review lecturers in preparation for the end of semester exam. You can access recorded lectures by clicking on the Lecture Recordings menu item in the LMS page for this subject. Please note that the recordings are not a substitute for attendance; rather they’re designed for revision. On rare occasions the recording system can fail to record the lecture due to technical reasons. In such cases, the seminar recording will not be made available.

I hope that you find this course both challenging and rewarding.