# ACTL90005 Life Contingencies

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| **Credit Points:** | 12.5 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | 2016, Parkville<br>This subject commences in the following study period/s:<br>Semester 2, Parkville - Taught on campus. |
| **Time Commitment:** | Contact Hours: A 2 hour seminar and a 1 hour workshop per week Total Time Commitment: Estimated total time commitment of 120 hours per semester |
| **Prerequisites:** | |
| **Corequisites:** | |

| Subject | Study Period Commencement: | Credit Points: |
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| ACTL90007 Life Insurance Models 2 | Semester 2 | 12.50 |

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| **Recommended Background Knowledge:** | Students should be competent in the use of Excel. |
| **Non Allowed Subjects:** | None |
| **Core Participation Requirements:** | For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a> |
| **Coordinator:** | Assoc Prof Shuanming Li |
| **Contact:** | Email: **shli@unimelb.edu.au (mailto:shli@unimelb.edu.au)** |
| **Subject Overview:** | This subject applies previous studies in the areas of financial mathematics, survival modelling, stochastic processes and graduation to life insurance and superannuation products. Specifically, the subject considers pricing and reserving for life insurance policies issued to single lives or to couples. Topics such as disability income insurance, joint-life products and superannuation are considered under a multiple state model framework. |
| **Learning Outcomes:** | On successful completion of this subject a student should be able to:<br># Define simple assurance and annuity contracts, and develop formulae for the means and variances of the present values of the payments under these contracts, assuming constant deterministic interest;<br># Describe practical methods of evaluating expected values and variances of the simple insurance contracts;<br># Describe and calculate, using ultimate or select mortality, net premiums and net premium provisions of simple insurance contracts;<br># Describe the calculation, using ultimate or select mortality, of net premiums and net premium provisions for increasing and decreasing benefits and annuities;<br># Describe the calculation of gross premiums and provisions of assurance and annuity contracts;<br># Define and use straightforward functions involving two lives;<br># Describe methods which can be used to model cashflows contingent upon competing risks; |

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| | # Describe the technique of discounted emerging costs, for use in pricing, reserving, and assessing profitability;<br># Apply knowledge of financial mathematics, survival modelling, stochastic processes and graduation to problems in life insurance.<br># Describe the principal forms of heterogeneity within a population and the ways in which selection can occur. |
| **Assessment:** | An assignment of up to 1,000 words (10%) One hour mid-semester test (20%) Two hour end of semester exam (70%) |
| **Prescribed Texts:** | Actuarial Mathematics for Life Contingent Risks. Dickson, Hardy and Waters, 2013 2nd edition. |
| **Breadth Options:** | This subject is not available as a breadth subject. |
| **Fees Information:** | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| **Generic Skills:** | High level of development:<br># Written communication;<br># Problem solving;<br># Statistical reasoning;<br># Application of theory to practice;<br># Synthesis of data and other information. |
| **Related Course(s):** | Graduate Diploma in Actuarial Science<br>Master of Actuarial Science |