ACTL30005 Models for Insurance and Finance

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Three hours of lectures and/or tutorials per week Total Time Commitment: Estimated total time commitment of 170 hours.
Prerequisites:	For students who started their degree in 2007 or earlier: BOTH of: # **ACTL30006 Financial Mathematics III (../../view/current/actl30006)** # **MAST20005 Statistics (../../view/current/mast20005)** AND either: # 620-113 Applied Mathematics (Advanced Plus) or; # 620-123 Applied Mathematics (Advanced). For students who started their degree in 2008 or later: BOTH of: # **ACTL30006 Financial Mathematics III (../../view/current/actl20006)** # **MAST20005 Statistics (../../view/current/mast20005) . (../../view/current/mast20005)**
Corequisites:	None
Recommended Background Knowledge:	Please refer to Prerequisites and Corequisites.
Non Allowed Subjects:	Student may not gain credit for both **ACTL30005 Models for Insurance and Finance (../../view/current/actl30005)** and 300-332 Modelling in Insurance and Finance II.
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Prof Daniel Dufresne
Contact:	**dufresne@unimelb.edu.au (mailto:dufresne@unimelb.edu.au)**
Subject Overview:	Topics include: probability concepts; martingales in actuarial studies and finance; applications of Brownian motion, geometric Brownian motion and the lognormal distribution; stochastic calculus; models for financial time series; applications of Monte Carlo simulation in insurance and finance.
Learning Outcomes:	• Have an understanding of some probability concepts to solve problems using sigma-algebras, probability measures, random variables, distributions and expectations of random variables; • Describe conditional expectations and apply their properties to simplify calculations; • Construct and apply martingales in solving problems in insurance and finance; • Gain basic knowledge of Brownian motion and geometric Brownian motion.

	• Perform calculations with stochastic integrals and Ito's formula.
Assessment:	A 2-hour end of semester examination (80%) and up to three assignments totalling not more than 20 pages (20%).
Prescribed Texts:	You will be advised of prescribed texts by your lecturer.
Recommended Texts:	Information Not Available
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2015/B-ARTS)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2015/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2015/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# High level of development: written communication; problem solving; statistical reasoning; application of theory to practice; synthesis of data and other information.