ACTL30006 Financial Mathematics III

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Two x 1-hour lecture during semester; An additional one hour lecture every 3rd week during semester; 1x1 hour tutorial per week commencing in second week of semester. Total Time Commitment: Estimated total time commitment of 170 hours.
Prerequisites:	The following: **Subject** / **Study Period Commencement:** / **Credit Points:** ACTL20002 Financial Mathematics II / Semester 2 / 12.50
Corequisites:	None
Recommended Background Knowledge:	Please refer to Prerequisites and Corequisites.
Non Allowed Subjects:	Students may not gain credit for both **ACTL30006 Financial Mathematics III (../../view/current/actl30006)** and either 306-331 Investments or **FNCE30001 (../../view/current/fnce30001) Investments (../../view/current/fnce30001)** .
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: http://services.unimelb.edu.au/disability
Coordinator:	Mrs Jane Joshi
Contact:	**jjoshi@unimelb.edu.au (mailto:jjoshi@unimelb.edu.au)**
Subject Overview:	This subject introduces actuarial students to stochastic asset liability modelling. It aims to expand the student's knowledge of basic actuarial principles in the fields of investments and asset management. Topics include: utility theory, stochastic dominance, measures of investment risk, portfolio theory, models of asset returns, asset liability modelling, equilibrium models, the efficient markets hypothesis, stochastic models of security prices and Brownian Motion and its application.
Learning Outcomes:	# Understand the objectives of Modern Portfolio Theory # Define mean-variance efficiency # Find efficient portfolios using Gaussian Elimination # Define and apply single- and multi- factor models for investment returns # Use expected utility theory to make investment choices # Use and critique the Capital Asset Pricing Model # Find portfolio expected returns using the Arbitrage Pricing theory

	# Distinguish differing methodologies for making investment choices in terms of the strengths of their assumptions # Make decisions regarding investment choice using a variety of mathematical techniques # Discuss market efficiency and rationality # Use stock price models across time to assess long-term risk in portfolios # Give an actuary's viewpoint on all these topics.
Assessment:	A 2-hour end-of-semester examination (80%) and up to three assignments totalling not more than 4500 words (20%).
Prescribed Texts:	You will be advised of prescribed texts by your lecturer.
Recommended Texts:	Introduction to Mathematical Portfolio Theory, Joshi, Paterson 2013
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/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; interpretation and analysis.