620-302 Chance and Options Pricing

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week) and up to 12 one-hour practice classes (one per week) Total Time Commitment: 120 hours total time commitment.
Prerequisites:	*Stochastic Modelling*. Students with *Probability* and a strong mathematical background may be granted permission to enrol by the Head of Department.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of *Chance and Options Pricing*, 300-316, 300-332 (prior to 2005).
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Prof Konstantin Borovkov
Subject Overview:	This subject focuses on modern probability theory methods and modelling with a view to applications in science, finance and insurance. Students learn probability modelling by using the concepts of the theory of stochastic processes. They are introduced to the basic machinery of the theory, to the ideas of no-arbitrage pricing through simple binomial models, and then to stochastic calculus and to diffusion models in finance and biology. This subject demonstrates the importance of probability methods in the sciences and finance. Topics covered include basic methods in probability and distribution theory in discrete and continuous time, the concepts of no-arbitrage asset pricing and hedging, conditional expectations, integral transforms, random walks, martingales, Brownian motion process, stochastic calculus, diffusion processes and their applications. Applications include models in finance (such as the Black-Scholes model for asset pricing and diffusion models for interest rates) and biology (such as diffusion models in genetics and population dynamics).
Objectives:	.
Assessment:	Up to 50 pages of written assignments due during the semester (20%); a 3-hour written examination in the examination period (80%).
Prescribed Texts:	None
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/2009/D09)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)**

	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
Notes:	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BASc or a combined BSc course.
Related Majors/Minors/ Specialisations:	Mathematics & Statistics Major Mathematics and Statistics (Financial Mathematics specialisation) Mathematics and Statistics (Statistics specialisation)