# 620-302 Chance and Options Pricing

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| **Credit Points:** | 12.500 |
| **Level:** | Undergraduate |
| **Dates & Locations:** | 2008,<br>This subject commences in the following study period/s:<br>Semester 2, - Taught on campus. |
| **Time Commitment:** | Contact Hours: 36 lectures (three per week) and up to 12 practice classes (one per week) Total Time Commitment: 120 hours |
| **Prerequisites:** | 620-301. Students with 620-201 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 620-302, 300-316, [04]300-332. |
| **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:** | A/Prof K 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.<br>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). |
| **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 is a level 2 or level 3 subject and is not available to new generation degree students as a breadth option in 2008.<br>This subject or an equivalent will be available as breadth in the future.<br>Breadth subjects are currently being developed and these existing subject details can be used as guide to the type of options that might be available.<br>2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October. |
| **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 Course(s):** | Bachelor of Arts<br>Bachelor of Arts and Bachelor of Science<br>Bachelor of Arts and Sciences |

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