UNSW SCIENCE

School of Maths and Statistics

Course outline

MATH5835

Advanced Stochastic Processes

Term 1, 2023

Staff

Position	Name	Email	Room
Lecturer-in-charge	Dr Feng Chen	Feng.chen@unsw.edu.au	RC-1031

Please refer to the Timetable

Pre-requisites: 24 units of level III mathematics (including 6 units in MATH3801 Probability and Stochastic Processes or MATH3901 Higher Probability and Stochastic Processes or an equivalent course) or a degree in a numerate discipline or permission of the Head of Department.

Course Aims

This course aims to introduce some of the basic ideas and tools of the theory of stochastic processes.

Course Description

The theory of stochastic processes deals with phenomena evolving randomly in time and/or space, such as prices on financial markets, air temperature or wind velocity, spread of diseases, number of hospital

Course Schedule

The course will include material taken from some of the following topics. This is should only serve as a guide as it is not an extensive list of the material to be covered and the timings are approximate. The course content is ultimately defined by the material covered in lectures.

Weeks	Topic	Reading (if applicable)
1	General notations of probability theory	Refer to Moodle Lecture notes
2	General notations of stochastic process	
3	Martingales	
4	Martingales continued	
5	Markov processes	
7	Markov processes continued	
8	Poisson process	
9	Brownian motion	
10	Stochastic integral and diffusion processes	

https://www.maths.unsw.edu.au/currentstudents/assessment-policies

The School of Mathematics and Statistics will assume that all its students have read and understood the School policies on the above pages and any individual course policies on the Course Initial Handout and Course Home Page. Lack of knowledge about a policy will not be an excuse for failing to follow the procedure in it.

Academic Integrity and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW.

The **UNSW Student Code** provides a framework for the standard of conduct expected of UNSW students with respect to

Additional Support

ELISE (Enabling Library and Information Skills for Everyone)

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Completing the ELISE tutorial and quiz will enable you to:

analyse topics, plan responses and organise research for academic writing and other
assessment tasks
effectively and efficiently find appropriate information sources and evaluate relevance
to your needs
use and manage information effectively to accomplish a specific purpose
better manage your time
understand your rights and responsibilities as a student at UNSW
be aware of plagiarism, copyright, UNSW Student Code of Conduct and Acceptable Use of
UNSW ICT Resources Policy
be aware of the standards of behaviour expected of everyone in the UNSW community
locate services and information about UNSW and UNSW Library

Some of these areas will be familiar to you, others will be new. Gaining a solid understanding of all
the related aspects of ELISE will help you make the most of your studies at UN (tsol)-13 Tw 4f(ec)4.3 (t)3.9 (ed)Ţ(