University of Pretoria Yearbook 2022

Stochastic processes 312 (WST 312)

Qualification	Undergraduate
Faculty	Faculty of Economic and Management Sciences
Module credits	18.00
NQF Level	07
Programmes	BCom (Statistics and Data Science)
	BCom
	BCom (Econometrics)
	BSc (Computer Science)
	BSc (Actuarial and Financial Mathematics)
	BSc (Applied Mathematics)
	BSc (Chemistry)
	BSc (Mathematical Statistics)
	BSc (Mathematics)
	BSc (Physics)
Service modules	Faculty of Economic and Management Sciences
	Faculty of Natural and Agricultural Sciences
Prerequisites	WST 211, WST 221, WTW 211 GS and WTW 218 GS
Contact time	1 practical per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1

Module content

Definition of a stochastic process. Stationarity. Covariance stationary. Markov property. Random walk. Brownian motion. Markov chains. Chapman-Kolmogorov equations. Recurrent and transient states. First passage time. Occupation times. Markov jump processes. Poisson process. Birth and death processes. Structures of processes. Structure of the time-homogeneous Markov jump process. Applications in insurance. Practical statistical modelling, analysis and simulation using statistical computer packages and the interpretation of the output.

this information.

The General Academic Regulations (G Regulations) and General Student Rules apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.