

University of Pretoria Yearbook 2022

Probability models 780 (BHM 780)

Qualification Postgraduate

Faculty [Faculty of Engineering, Built Environment and Information Technology](#)

Module credits 16.00

NQF Level 08

Prerequisites No prerequisites.

Contact time 24 contact hours per semester

Language of tuition Module is presented in English

Department Industrial and Systems Engineering

Period of presentation Semester 1 or Semester 2

Module content

The objective of the module is that students be exposed to probability theory, learn the ability to follow fairly involved theoretical reasoning, continue to learn how to reason mathematically, and solve problems of a more practical nature.

It covers:

- Probability theory: Random variables and random vectors, Sequence of random variables, Transformation of Probability distributions
- Stochastic Processes: Examples of stochastic processes; various types of stochastic processes
- Poisson Processes: Homogeneous and non-homogeneous stochastic processes with examples
- Renewal Processes: Renewal functions; ordinary and delayed renewal processes; Regenerative stochastic processes
- Discrete-time Markov chains: continuous time Markov chains with focus on examples in Reliability, queuing and inventory models.

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