

University of Pretoria Yearbook 2020

Stochastic partial differential equations 846 (WTW 846)

Qualification	Postgraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	0.00
Prerequisites	Functional analysis, Measure theory, Partial differential equations at honours level. Knowledge of Probability theory is advised but not required
Contact time	1 lecture per week
Language of tuition	Module is presented in English
Department	Mathematics and Applied Mathematics
Period of presentation	Semester 1 or Semester 2

Module content

*Consult with the Head of the Department of Mathematics and Applied Mathematics about the availability of this master's module in a particular year.

Generalities on probability theory (random variables, conditional expectations); Martingales; stochastic integrals; Markov processes; existence and uniqueness results for ordinary stochastic differential equations; Sobolev spaces, Aubin-Dubinsky-Simon compactness theorem; convergence of probability measures: Prokhorov and Skorokhod theorems; existence and uniqueness of solutions of stochastic parabolic equations in divergence form: The Galerkin scheme; idea of renormalization group theory in turbulent flows modelled by Navier-Stokes equations with random forcing.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.