

# University of Pretoria Yearbook 2021

## Stochastic partial differential equations 846 (WTW 846)

<b>Qualification</b>	Postgraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	1.00
<b>NQF Level</b>	09
<b>Prerequisites</b>	Functional analysis, Measure theory, Partial differential equations at honours level. Knowledge of Probability theory is advised but not required
<b>Contact time</b>	1 lecture per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mathematics and Applied Mathematics
<b>Period of presentation</b>	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.

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