

# University of Pretoria Yearbook 2020

## Mathematical epidemiology 850 (WTW 850)

<b>Qualification</b>	Postgraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	0.00
<b>Prerequisites</b>	Dynamical systems, Ordinary differential equations (ODEs)
<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.

The spread of infections is modelled via dynamical systems defined by sets of differential equations.

Compartmental models of the spread of contagious infection (e.g. MSEIR) and models of vector borne diseases are considered. Methods of analysis of the local and global asymptotic stability of the disease free and endemic equilibria and their characterization in terms of the basic reproduction number. Reliable numerical simulations and sensitivity analysis with respect to the parameters of the models.

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