



# University of Pretoria Yearbook 2016

## Dynamical systems 382 (WTW 382)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	Faculty of Natural and Agricultural Sciences
<b>Module credits</b>	18.00
<b>Programmes</b>	BCom Statistics BSc Actuarial and Financial Mathematics BSc Applied Mathematics BSc Chemistry BSc Environmental and Engineering Geology BSc Environmental Sciences BSc Geography BSc Geoinformatics BSc Geology BSc Mathematical Statistics BSc Mathematics BSc Meteorology BSc Physics
<b>Service modules</b>	Faculty of Education Faculty of Economic and Management Sciences
<b>Prerequisites</b>	WTW 218 and WTW 286 or WTW 264
<b>Contact time</b>	1 tutorial per week, 2 lectures per week
<b>Language of tuition</b>	Double Medium
<b>Academic organisation</b>	Mathematics and Applied Maths
<b>Period of presentation</b>	Semester 1

### Module content

Matrix exponential function: homogeneous and non-homogeneous linear systems of differential equations.  
Qualitative analysis of systems: phase portraits, stability, linearisation, energy method and Liapunov's method.  
Introduction to chaotic systems. Application to real life problems.



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