



University of Pretoria Yearbook 2016

Dynamical systems 382 (WTW 382)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	18.00
Programmes	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
Service modules	Faculty of Education Faculty of Economic and Management Sciences
Prerequisites	WTW 218 and WTW 286 or WTW 264
Contact time	1 tutorial per week, 2 lectures per week
Language of tuition	Double Medium
Academic organisation	Mathematics and Applied Maths
Period of presentation	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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