



University of Pretoria Yearbook 2020

Dynamical systems 382 (WTW 382)

Qualification Undergraduate

Faculty [Faculty of Natural and Agricultural Sciences](#)

Module credits 18.00

Programmes [BCom](#)

[BCom Statistics](#)

[BCom Statistics and Data Science](#)

[BSc Actuarial and Financial Mathematics](#)

[BSc Applied Mathematics](#)

[BSc Geology](#)

[BSc Mathematical Statistics](#)

[BSc Mathematics](#)

[BSc Physics](#)

Service modules Faculty of Engineering, Built Environment and Information Technology

Faculty of Education

Faculty of Economic and Management Sciences

Prerequisites WTW 218 and WTW 286/264

Contact time 1 tutorial per week, 2 lectures per week

Language of tuition Afrikaans and English are used in one class

Department Mathematics and Applied Mathematics

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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