



University of Pretoria Yearbook 2022

Dynamical systems 382 (WTW 382)

Qualification Undergraduate

Faculty Faculty of Natural and Agricultural Sciences

Module credits 18.00

NQF Level 07

Programmes BCom (Statistics and Data Science)

BCom

BSc (Meteorology)

BSc (Actuarial and Financial Mathematics)

BSc (Applied Mathematics)

BSc (Chemistry)

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 Module is presented in English

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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