



University of Pretoria Yearbook 2019

Numerical analysis 733 (WTW 733)

Qualification Postgraduate

Faculty Faculty of Natural and Agricultural Sciences

Module credits 15.00

Programmes BScHons Applied Mathematics

BScHons Financial Engineering

BScHons Mathematics

BScHons Mathematics and Mathematics Education Algebra and Analysis

BScHons Mathematics and Mathematics Education Applied Analysis

BScHons Mathematics and Mathematics Education Differential Equations and Modelling

BScHons Mathematics of Finance

Prerequisites No prerequisites.

Contact time 2 lectures per week

Language of tuition Module is presented in English

Department Mathematics and Applied Mathematics

Period of presentation Semester 1

Module content

An analysis as well as an implementation (including computer programs) of methods are covered. Numerical linear algebra: Direct and iterative methods for linear systems and matrix eigenvalue problems: Iterative methods for nonlinear systems of equations. Finite difference method for partial differential equations: Linear elliptic, parabolic, hyperbolic and eigenvalue problems. Introduction to nonlinear problems. Numerical stability, error estimates and convergence are dealt with.

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