



University of Pretoria Yearbook 2022

Numerical analysis 383 (WTW 383)

Qualification Undergraduate

Faculty Faculty of Natural and Agricultural Sciences

Module credits 18.00

NQF Level 07

Programmes BCom (Statistics and Data Science)

BCom

BSc (Computer Science)

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 Economic and Management Sciences

Faculty of Humanities

Prerequisites WTW 114, WTW 123 WTW 124 and WTW 211

Contact time 1 practical per week, 2 lectures per week

Language of tuition Module is presented in English

Department Mathematics and Applied Mathematics

Period of presentation Semester 2

Module content

Direct methods for the numerical solution of systems of linear equations, pivoting strategies. Iterative methods for solving systems of linear equations and eigenvalue problems. Iterative methods for solving systems of nonlinear equations. Introduction to optimization. Algorithms for the considered numerical methods are derived and implemented in computer programmes. Complexity of computation is investigated. Error estimates and convergence results are proved.



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