



# University of Pretoria Yearbook 2020

## Numerical analysis 383 (WTW 383)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 18.00

**Programmes** BCom

BCom Statistics

BCom Statistics and Data Science

BSc Computer Science

BSc Actuarial and Financial Mathematics

BSc Applied Mathematics

BSc Chemistry

BSc Geology

BSc Mathematical Statistics

BSc Mathematics

BSc Meteorology

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** Afrikaans and English are used in one class

**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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