



# University of Pretoria Yearbook 2024

## Numerical analysis 383 (WTW 383)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 18.00

**NQF Level** 07

**Programmes** BCom

*BCom Statistics*

*BSc Actuarial and Financial Mathematics*

*BSc Applied Mathematics*

*BSc Chemistry*

*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** 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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### **General Academic Regulations and Student Rules**

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and may be amended after the publication of this information.

### **Regulations, degree requirements and information**

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

### **University of Pretoria Programme Qualification Mix (PQM) verification project**

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.