

# University of Pretoria Yearbook 2022

## Numerical analysis 383 (WTW 383)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	18.00
<b>NQF Level</b>	07
<b>Programmes</b>	<a href="#">BCom (Statistics and Data Science)</a>
	<a href="#">BCom</a>
	<a href="#">BSc (Computer Science)</a>
	<a href="#">BSc (Meteorology)</a>
	<a href="#">BSc (Actuarial and Financial Mathematics)</a>
	<a href="#">BSc (Applied Mathematics)</a>
	<a href="#">BSc (Chemistry)</a>
	<a href="#">BSc (Geology)</a>
	<a href="#">BSc (Mathematical Statistics)</a>
	<a href="#">BSc (Mathematics)</a>
	<a href="#">BSc (Physics)</a>
<b>Service modules</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
	<a href="#">Faculty of Economic and Management Sciences</a>
	<a href="#">Faculty of Humanities</a>
<b>Prerequisites</b>	WTW 114, WTW 123 WTW 124 and WTW 211
<b>Contact time</b>	1 practical per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mathematics and Applied Mathematics
<b>Period of presentation</b>	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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