

# University of Pretoria Yearbook 2022

## Introduction to dynamic meteorology 263 (WKD 263)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Natural and Agricultural Sciences</a>
<b>Module credits</b>	14.00
<b>NQF Level</b>	06
<b>Programmes</b>	<a href="#">BSc (Meteorology)</a>
	<a href="#">BSc (Applied Mathematics)</a>
	<a href="#">BSc (Geography and Environmental Science)</a>
	<a href="#">BSc (Physics)</a>
<b>Prerequisites</b>	WTW 124
<b>Contact time</b>	1 tutorial per week, 4 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geography Geoinformatics and Meteorology
<b>Period of presentation</b>	Semester 1

### Module content

Mathematical methods for meteorology, second law of motion in spherical coordinates. Acceleration in rotating co-ordinates, fundamental forces, momentum equation. Three dimensional flow balance, conservation of mass, heat equation, thermodynamic energy equation. Introduction to finite difference methods. Numerical estimation of the geostrophic wind, vorticity and divergence. Advection of temperature. Development of a two-dimensional temperature advection model.

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