

# University of Pretoria Yearbook 2016

## 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>	12.00
<b>Programmes</b>	<a href="#">BSc Applied Mathematics</a> <a href="#">BSc Chemistry</a> <a href="#">BSc Environmental and Engineering Geology</a> <a href="#">BSc Environmental Sciences</a> <a href="#">BSc Geography</a> <a href="#">BSc Geoinformatics</a> <a href="#">BSc Geology</a> <a href="#">BSc Mathematical Statistics</a> <a href="#">BSc Mathematics</a> <a href="#">BSc Meteorology</a>
<b>Prerequisites</b>	WTW 126 and WTW 128 (students should simultaneously be enrolled for WTW 218).
<b>Contact time</b>	1 tutorial per week, 4 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Geography, Geoinf + Meteor
<b>Period of presentation</b>	Quarter 2

### Module content

Vector algebra, curl of a vector, total and partial derivatives, second law of motion. 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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