

University of Pretoria Yearbook 2021

Introduction to dynamic meteorology 263 (WKD 263)

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| Qualification | Undergraduate |
| Faculty | Faculty of Natural and Agricultural Sciences |
| Module credits | 12.00 |
| NQF Level | 06 |
| Programmes | BSc Physics |
| Prerequisites | WTW 126 and WTW 128 (students should simultaneously be enrolled for WTW 218). |
| Contact time | 1 tutorial per week, 4 lectures per week |
| Language of tuition | Module is presented in English |
| Department | Geography Geoinformatics and Meteorology |
| Period of presentation | 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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