

## University of Pretoria Yearbook 2017

## Functions of several variables and vector calculus 251 (MAT 251)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	20.00
Prerequisites	MAT 152
Contact time	2 discussion classes per week, 4 lectures per week
Language of tuition	Module is presented in English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 1

## Module content

Parametric equations, vector functions, space curves and arc lengths. Quadric surfaces, calculus of multivariable functions, partial derivatives, directional derivatives. Extrema and Lagrange multipliers. Multiple integrals, polar, cylindrical and spherical coordinates. Line integrals and the theorem of Green. Vector calculus: Surface integrals and the theorems of Gauss and Stokes

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