

University of Pretoria Yearbook 2016

Calculus 143 (WTW 143)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	8.00
Programmes	BCom (M) Four-year programme BEd Intermediate Phase Teaching BEd Senior Phase and Further Education and Training Teaching HCert (Sports Science) Option: Education BSc Extended programme - Mathematical Sciences BSc Extended programme - Physical Sciences
Service modules	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Economic and Management Sciences Faculty of Health Sciences
Prerequisites	BSc and BCom students: WTW 133 and WST133 and must be taken concurrently with WTW143
Contact time	Foundation Course, MAMELODI, 1 tutorial per week, 3 lectures per week
Language of tuition	English
Academic organisation	Mathematics and Applied Maths
Period of presentation	Semester 2

Module content

Functions: exponential and logarithmic functions, natural exponential and logarithmic functions, exponential and logarithmic laws, exponential and logarithmic equations, compound interest. Limits: concept of a limit, finding limits numerically and graphically, finding limits algebraically, limit laws without proofs, squeeze theorem without proof, one-sided limits, infinite limits, limits at infinity, vertical, horizontal and slant asymptotes, substitution rule, continuity, laws for continuity without proofs. Differentiation: average and instantaneous change, definition of derivative, differentiation rules without proofs, derivatives of polynomials, chain rule for differentiation, derivatives of trigonometric, exponential and logarithmic functions, applications of differentiation: extreme values, critical numbers, monotone functions, first derivative test, optimisation.

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