

This course is required for all first year students in the Faculty of Applied Science. It is a continuation of APSC-171* with an introduction to multivariate calculus and infinite series.

Textbook: *Calculus: Early Transcendentals*, 5th Edition
by J. Stewart (Brooks/Cole)
The Interactive Course Notes for APSC 172
Notes on Power Series by L. Jonker

Instructors: D. Aguilar, K. Bjerklov, M. Viola

Evaluation:	Final Examination	50%
	Midterm Examination	30%
	Homework	10%
	Quiz	5%
	Project	5%

Outline:

1. Interim projects
2. Vectors in three-space, the dot product, equations of lines and planes, surfaces in three-space
3. Parametric curves, vector functions and space curves, functions of several variables
4. Partial derivatives, tangent planes, linear approximations
5. The chain rule, directional derivatives, the gradient vector
6. Maxima and minima, double integrals over rectangles, double integrals over general regions
7. Moments and centers of mass, applications of double integrals, polar coordinates, double integrals in polar coordinates
8. Triple integrals, triple integrals in cylindrical coordinates
9. Power series, geometric series
10. The sum of a power series, the ratio test
11. The ratio test (continued), differentiation and integration of power series
12. Taylor series, Taylor polynomials