

University of Pretoria Yearbook 2021

Groundwater 366 (GLY 366)

Qualification	Undergraduate
Faculty	Faculty of Natural and Agricultural Sciences
Module credits	18.00
NQF Level	07
Programmes	BSc Chemistry BSc Engineering and Environmental Geology BSc Geology BSc Physics
Prerequisites	GLY 263
Contact time	2 practicals per week, 4 lectures per week
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Quarter 2

Module content

The hydrological cycle, water resources and water usage; porosity and permeability, heterogeneity and isotropy; the occurrence of groundwater, vadose and phreatic zones; aquifer types, relations and groundwater flow; hydrostratigraphy, surface water and groundwater interaction, springs; water balance, water flow, recharge and baseflow; Darcy's Law, hydraulic conductivity and subsurface flow; capillarity, hydraulics, Bernoulli's equation and the continuity principle; hydraulic parameters and their derivation from aquifer pumping tests, including Theis, Cooper-Jacob and other modifications; water quality, solubility, natural waters, ionic balance and plotting water chemistry data; groundwater mining, aquifer compaction and subsidence; saline intrusion, dryland salinity, pollution, NAPLs; site remediation and toxicology.

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