

# University of Pretoria Yearbook 2023

## BScHons (Geology) (02240142)

**Department** Geology

**Minimum duration of study** 1 year

**Total credits** 135

**NQF level** 08

### Admission requirements

1. BSc (Geology) degree (or equivalent) **or** relevant bachelor's degree
2. A weighted average of at least 60% for the geology modules at third-year level

### General information

#### **University of Pretoria Programme Qualification Mix (PQM) verification project**

*The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.*

## Curriculum: Final year

Minimum credits: 135

### Core modules

#### Petrology and geochemistry 701 (GLY 701)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

##### Module content

Interpretation and application of advanced petrogenetic tools: the Rb/Sr and Sm/Nd isotopic systems, quantitative interpretation of binary and ternary phase diagrams, Harker type diagrams, assimilation-fractional crystallisation – partial melting. Geothermometers and geobarometers, PT-t loops. Abundance of elements in the crust, crust-forming models. Hydrous geochemistry. Recognition of geochemical anomalies. Analytical methods and the treatment of geochemical data. A one-week field trip to the Bushveld Complex.

#### Crustal evolution 704 (GLY 704)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

##### Module content

Precambrian crustal evolution. Precambrian plate tectonics. Precambrian evolution of the African plate (Eburnean, Kibaran and Pan-African events). Phanerozoic evolution to the African plate; global examples of tectonics as a continental crustal source. Determination of deformational history of crustal rocks; determination of palaeostress conditions in ancient crustal rocks. Practical experience of structural analysis and determination of deformational history. A one-week field trip to a tectonically complex area.

#### Mapping camp 707 (GLY 707)

Module credits	10.00
NQF Level	08



<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geology
<b>Period of presentation</b>	Year

#### **Module content**

Mapping and analysis of a geologically complex area using different techniques.

### **Honours project 710 (GLY 710)**

<b>Module credits</b>	35.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	5 practical sessions per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geology
<b>Period of presentation</b>	Year

#### **Module content**

Independent acquisition of geological field and/or laboratory data, treatment and interpretation thereof, and writing of an honours essay.

### **Economic geology 713 (GLY 713)**

<b>Module credits</b>	20.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geology
<b>Period of presentation</b>	Year

#### **Module content**

Basic remote sensing methods and their applications to geology; basic geophysical and geochemical exploration techniques; exploration target generation - philosophies and methods; professional geological practice; the SAMREC and similar codes; geologists in the business environment; case studies. Practical component (runs parallel to theory above) encompasses ore-microscopy; ore mineral identification; ore textures; analysis of ore assemblages; instrumental techniques applied to ores. Various short field trips to both opencast and underground mines.



## Modern analytical methods and sampling theory 715 (GLY 715)

<b>Module credits</b>	20.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geology
<b>Period of presentation</b>	Year

### Module content

Modern analytical methods, including X-ray Diffraction (XRD), X-ray Fluorescence (XRF), inductively coupled mass spectrometry (ICP-MS), methods of isotopic analysis, and electron beam methods (EPMA, SEM, CT). An introductory statistical course in sampling methods, treatment of data, statistical validity, and basic geostatistics.

## Trends in geoscience 716 (GLY 716)

<b>Module credits</b>	10.00
<b>NQF Level</b>	08
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Geology
<b>Period of presentation</b>	Year

### Module content

The field of Geology is rapidly evolving both in terms of industry requirements and the type of science done. This module includes short courses offered by staff and industry on a variety of topics, as well as a weekly departmental seminar on current research in the department. The content of this module is expected to vary year by year according to availability of internal and external lecturers.

## Regulations and rules

The regulations and rules for the degrees published here are subject to change and may be amended after the publication of this information.

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations

applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.

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