



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Natural and
Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe
Lefapha la Disaense tša Tlhago le Temo

Departmental Handbook

Geology Department

Guidelines for Current and Prospective Students

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1 Introduction

1.1 About this Document

This document, the **Departmental Handbook**, is to be used in conjunction with the University of Pretoria's regulations, the Faculty of Natural and Agricultural Science's yearbook, and the individual module study guides. A separate document, the **Postgraduate Handbook**, is available with information for masters and doctoral students. Note that §1-5 are copied verbatim between these two documents.

Additional information is available on the departmental homepage at www.up.ac.za/geology. The contents of this document, however, apply to all individual modules and the contents throughout the undergraduate and honours studies, unless stipulated otherwise in the respective module study guide.

This document is updated continuously, and students are required to obtain the latest version:



Homepage:

www.up.ac.za/geology

Select:

About Us

Select:

I am looking for...

1.2 About the Department

Welcome to the [Department of Geology](#). We are housed in the Faculty of Natural and Agricultural Sciences on the Hatfield Campus of the University of Pretoria. Offices of lecturers and support staff are mainly situated in the Mineral Sciences Building, Natural Sciences 2 Building, and Stoneman Building. An [interactive campus map](#) is available on the University's homepage for directions.

Energy, water and environment – these are the challenging topics for geoscientists in the 21st century on a regional to global scale. South Africa's energy and mineral resources need to be addressed in the context of global resource management to ensure sustainability.

Career options are mostly focused around the two broad fields of mining and mineral processing, and environmental resilience and sustainable development. Within these themes, careers are possible in a variety of disciplines and industries.

Our research focus areas of the Department are:

- Engineering Geology and Hydrogeology
- Carbon Capture and Storage
- Precambrian Geology and Sedimentology
- Igneous Petrology, Volcanology and Geochemistry
- Structural Geology
- Natural Hazards
- Unconventional and Renewable Energy Resources.

Geology

Geology as an academic pursuit is concerned with the formation of the Earth and the evolution of the natural world. Geology is an empirical science at heart, concerned with making observations on all scales from microscopic through macroscopic to continental scale, and makes use of chemistry,

physics and mathematics in striving to understand the world around us. Geology is split into a host of sub-disciplines, including, but not limited to, mineralogy (the study of rock-forming minerals), petrology (the study of rock formation), sedimentology (the study of water-based systems of sediment transport), and structural geology (the deformation and behaviour of rock under stress).

Mining Geology

Many geologists work for large mining companies across the globe. A mining geologist is responsible for both short-term and long-term operations on the mine. From day to day, the geologist will work to identify geological hazards (through visiting the working areas or examining borehole cores), ensure the correct material is being mined, and liaise with both the miners and the senior executives on the mine. A geologist is also involved in the long-term planning for the mine, estimating the available resources and planning the best way to exploit these resources. Some mine geologists become specialists in ore resource estimation, while others may eventually work as mine managers.

Exploration Geology

Before a mine can be built, an ore deposit must be located and assessed. The exploration geologist is responsible for identifying potential ore deposits, assessing their economic value and planning the exploitation of such deposits. A variety of techniques are used in exploration geology, including geophysical and geochemical surveys, but most exploration involves a large amount of time out exploring the wilderness on foot. Once a potential deposit has been located, borehole drilling and other methods are used to investigate the deposit, and the ore resource is modelled statistically. Some exploration geologists specialise in only one part of the process, whereas others are involved at all stages. With the recent developments around unconventional and renewable energy resources, novel career opportunities in exploration geology may become increasingly prominent.

Engineering Geology

Engineering Geology is somewhat different to applied geology in that additional knowledge, education and training is required in the problems of the ground for engineering works, site investigation methods and the classification and behaviour of soils and rocks in relation to civil engineering, and therefore includes practical knowledge of soil mechanics, rock mechanics and hydrogeology (fluid mechanics). Applications of engineering geology generally relate to construction on and in (i.e. founding or excavation) or with (i.e. construction materials) geological materials, as well as the influences of geological, geomorphological and hydrological processes on construction and development.

Hydrogeology

Groundwater hydrology or geohydrology refers to the occurrence, distribution and movement of water below the Earth's surface, whereas hydrogeology is that subdivision of hydrology referring to water below the Earth's surface with the emphasis on the geological aspects. The study of groundwater, therefore, should incorporate both the fluid (water) and the medium through which it is flowing (rock, soil or any other geological material). Groundwater – as opposed to surface water – refers to all the water occupying all the voids in the subsurface and is subdivided into the saturated or phreatic zone and the unsaturated, aeration or vadose zone. The relevance of the study of groundwater is generally quantitative (e.g. water supply, safe abstraction, influences of pumping) and qualitative (e.g. contamination, remediation, drinking water).

Environmental Geology

Environmental geology is a generic term related to two distinct subdisciplines. Firstly, environmental can be seen to indicate the interaction between processes and Man, and include, for instance, risk

induced by subsidence, slope movements, seismic events, hydrometeorology, and so forth. A second possible definition of environmental relates more to the field of contaminant transport and focuses around chemical, physical, microbiological, radioactive, endocrine disruptive, organic and other forms of water and soil contamination. Specialisation in these fields are offered within the context of Engineering Geology or Hydrogeology, and often involves specialist input from Geology (e.g. quantitative mineralogy, economic geology, etc.), the Water Institute (surface hydrology, soil science, meteorology, zoology, ecology, virology, etc.) and the UP Natural Hazard Centre (e.g. risk assessment, geostatistics, seismology, etc.).

Engineering Hydrogeology and Vadose Zone Hydrology

A developing strength in the department is focused around unsaturated or vadose zone hydrology. The area between the Earth's surface and the groundwater table is characterised by pore spaces occupied with both air and water, and these dual-flow systems influence the movement of contaminants to the aquifer, water seepage through buildings and excavations, and govern the important interaction between surface water and groundwater as a fundamental component of the water cycle. Although included in the separate fields of engineering-, hydro- or environmental geology, the tendency is towards considering these as new disciplines focused around the application of water-air systems to development and the environment.

Natural Hazards

Natural hazards include all geophysical, hydrological, meteorological, climatological events as well as wildfire phenomena that can cause harm to the environment, humans and infrastructure due to the events' location, severity, and frequency. Geological hazards include earthquakes and earthquake-triggered phenomena such as tsunamis and liquefaction, landslides, avalanches (snow or rock), mudflows, volcanic eruptions, lahars and ash falls and pyroclastic flows. Natural hazard assessments provide information on the probability of the location, the severity, and the possible time frame of when to expect the occurrence of a dangerous phenomenon. These studies rely heavily on interdisciplinary scientific information including in-depth geologic, geomorphic and soil studies; climate and hydrological data; and topographic maps, aerial photographs, and satellite imagery.

Other Options

Geologists often work in many other fields. Some forensic scientists are geologists by training, as are some metallurgists and mineralogists. Banks and insurance companies use geologists as risk analysts for business loans and policies, and some geologists end up working as stock brokers at the stock exchange. Geology at its core is about evaluating evidence and making the best logical decision based on the evidence, and this skill can be transferred to many other fields. But in general, geologists are present everywhere in the professional world. Imagine a world without energy resources, water, building materials and without mining! All of these needs geologists and other geoscientists.

1.3 About our Qualifications

1.3.1 Bachelor's degrees

The following bachelor's degrees are offered in the Department of Geology:

BSc in Geology (code 02133023)

BSc in Engineering and Environmental Geology (code 02133043)

These amount to at least 140 credits per year over three years (i.e. 1 400 notional hours per year).

The following doctoral degrees are offered in the Department of Geology:

PhD in Geology (code 02260521)

- GLY 990 Thesis: Geology 990 (360 credits)

PhD in Engineering and Environmental Geology (code 02260542)

- IGL 990 Thesis: Engineering Geology 990 (360 credits)

PhD in Engineering and Environmental Geology (Hydrogeology) (code 02260522)

- GTX 990 Thesis: Hydrogeology 990 (360 credits)

360 credits translates to 3 600 notional hours. For a 45-week academic year with 40 hours per week, the minimum period of enrolment for a Doctoral degree is two years and completion is expected within three years, irrespective of whether studies are full-time or part-time.

1.4 Macro-alignment

The Department of Geology acknowledges the vision of the University of Pretoria and aims to train students at all levels to be internationally competent and locally relevant. The Department therefore focuses on a strong fundamental background applied to global and local issues of relevance.

1.4.1 Academic benchmarking

The South African Qualifications Authority (SAQA) published “*Level Descriptors for the South African National Qualifications Framework*” (November 2012), summarised for the bachelor’s, honours, master’s and doctoral qualifications in **Table 1**. The bachelor’s degrees offered in the Department are level 7 according to the South African Qualification Authority’s (SAQA’s) Higher Qualification and Education Sub Framework (HQESF). The honours programmes are level 8, master’s programmes level 9, and doctoral programmes level 10.

Table 1. Criteria used to assess NQF level (SAQA).

CRITERIA
Scope of knowledge
Knowledge literacy
Method and procedure
Problem solving
Ethics and professional practice
Assessing, processing and managing information
Producing and communicating information
Context and systems
Management of learning
Accountability

1.4.2 Professional recognition

All degrees offered prepare the student for the honours degrees in Geology or Engineering and Environmental Geology.

The bachelor’s degrees offer in the department prepare the students for entry into the honours degrees in Geology, Engineering Geology, Environmental Geology, or Hydrogeology. All these honours degrees comply with the academic requirements of the South African Council for Natural Scientific Professions ([SACNASP](#)), allowing for eventual professional registration as natural scientists (PrSciNat)

on proving vocational competence. Registration is in the fields of Geological Sciences or Earth Sciences.

Students are advised to be cautious of BSc Hons degrees offered in faculties other than the Science Faculty, seeing that postgraduate qualifications in other faculties should be professionally registered with their professional bodies. BSc Honours degrees not offered in Science Faculties do not comply with the academic requirements for professional registration as natural scientists, and will also typically not be adequate for registration in the professional bodies of the faculties offering the degree programmes as well. Honours programmes in Applied Science, Metallurgy and Mining Engineering are, for instance, offered by the Engineering Faculty. Note that these do not allow for eventual professional registration with SACNASP, and will very likely also very likely not allow for professional registration with ECSA (Engineering Council of South Africa).

Always keep a copy of your honours project's abstract as the department do not have a repository for this. This will need to be submitted together with your academic transcripts and degree certificates for registration as candidate, and supplemented by work experience reports and referee reports for professional registration.

We are actively involved in voluntary associations and professional bodies, aiming continuously to promote the professional standing of our qualifications and the visibility of our graduates. These are also the associations promoting competence and ethics through facilitating between SACNASP, academic institutions, and the profession. We encourage membership of, for instance:

- Geological Society of South Africa (www.gssa.org.za)
- Ground Water Division of the Geological Society of South Africa (www.gwd.org.za)
- South African Institute of Engineering and Environmental Geologists (www.saieg.co.za)
- South Africa National Chapter, International Association of Hydrogeologists (www.iah.org.za)

1.4.3 Industry collaboration

Apart from continuous interaction with the voluntary societies and professional associations, we also pride ourselves in our relationship with industry in general. Consultants and professionals frequently give guest lectures and colloquia, either online or in person, to highlight the vocational experience to our students.

Royal Bafokeng

A collaborative agreement between the Department of Geology and Royal Bafokeng Platinum (RBPlat, western Bushveld) allows some of our honours students to benefit from tools for practical activities and to actively interact with RBPlat exploration geologists and mine management employees through meetings and discussions. Such collaboration represents an ideal training ground on the understanding of the mining industry and the requirements of the job market.

The agreement includes a four days field trip to the mine, where the students can follow the main operations visiting a drilling rig, the concentration plant and being involved in an exciting underground tour.

A final activity, called 'RBPlat challenge', is organized as a corollary of the field trip, where the students are asked to work as teams on a business case to be presented in front of a panel of investors/mine managers/legal experts, sourced from RBPlat and other private companies. The aim is to provide the students with a broader understanding of the context in which geologists can operate in a business environment, challenging their thinking on applicable decision making through a specific business case

1.5 Graduate Attributes

The University of Pretoria aspires to produce graduates with attributes that will enable them to develop further as individuals, members of different communities of practice and citizens of their own countries and the world. The depth of student engagement and the level of a qualification will influence the degree to which attributes are realised. At the highest level, the following are aspirational characteristics of University of Pretoria graduates:

- **Basic values, skills and orientation to the world**

University of Pretoria graduates:

- Conduct themselves ethically and with integrity
- respect the humanity and dignity of others and eschew all forms of unfair discrimination
- value cultural diversity, social equality, social justice and social responsibility
- value transformation for the betterment of society
- respect the environment and value the sustainable use of environmental resources
- are adaptable self-directed lifelong learners, who function autonomously and confidently as individuals and take responsibility for their own decisions and development
- have an entrepreneurial orientation to life

- **Social skills**

University of Pretoria graduates:

- have good interpersonal skills
- are able to communicate well with a range of people and communities in diverse social and cultural settings
- are able to work collaboratively and cooperatively in teams

- **Cognitive skills**

University of Pretoria graduates:

- are creative problem-solvers, displaying critical thinking and multi-disciplinary approaches in pursuit of solutions to problems
- are cyber literate and able to find, evaluate and use information appropriately

- **Career-related skills**

University of Pretoria graduates:

- have a sound foundational knowledge of their field of specialisation
- are able to use work-related technology effectively and can efficiently adjust to and use new technologies
- are able to assume leadership roles in the workplace
- can work productively under pressure
- promote and adhere to high standards of professional conduct
- can work collaboratively and co-operatively in multidisciplinary and multicultural team contexts
- use and provide opportunities to develop individuals, teams and networks

1.6 Educational Approach

In the educational policy of the University it is accepted that "... a student should undergo an academic-scientific moulding as to later be able in professional context to function as an independent scientist and to contribute to the creative development of the chosen profession... In effect this refers to a purposeful and pro-active education approach which brings with it a change in emphasis from the traditional lecturer-centred teaching approach to a more dynamic student-centred learning

approach.” (A new approach, Tukkie-onderrig, Vol. 1(2), 1986). A syllabus for this programme has accordingly been developed as worded in this study guide.

1.7 Responsibilities of the Student

The Department expects you, the student, to attend contact sessions and to participate in classroom activities. You are to arrive to classes prepared and should respect the other students and their rights to attend classes.

Each individual module will detail expectations in terms of self-study and compulsory sessions. You should adhere to the requirements to pass the module in terms of individual effort and attendance.

2 Administrative Information

ClickUP and the appropriate notice boards in the foyer to the Mineral Sciences Building will be used for official communication.

Student matters are handled by the departmental administrator, Mrs Lucia Moyo, in room 3-51 of the Mineral Sciences Building. All queries can be directed to her during her office hours.

Note that all queries regarding SWK and SGM modules have to be directed to the EBIT Faculty.

General queries regarding University life and study programmes can be directed to the Student Service Centre (ssc@up.ac.za, or housed in the Humanities Building ground floor level).

2.1 Lecturing Staff

Details and short curriculum vitae of all lecturing staff are available on the departmental homepage under Staff. Contact details and field of expertise are listed in **Table 2**. Staff members are available only by appointment made via email, or at the times stipulated on their office doors for consulting.

Table 2. Lecturing staff.

STAFF MEMBER	OFFICE *	EMAIL	DESCRIPTION
Prof Adam Bumby	MS 4-24	adam.bumby@up.ac.za	Head of Department Structural Geology
Prof Louis van Rooy	NS II 4-25	louis.vanrooy@up.ac.za	Engineering Geology & Rock Mechanics
Prof Matthys Dippenaar	NS II 4-34	matthys.dippenaar@up.ac.za	Engineering Geology & Hydrogeology
Prof Nils Lenhardt	MS 4-38	nils.lenhardt@up.ac.za	Physical Volcanology & Sedimentology
Dr Roger Diamond	NS II 4-28	roger.diamond@up.ac.za	Hydrogeology & Geochemistry
Dr Lorenzo Milani	MS 3-50	lorenzo.milani@up.ac.za	Economic Geology
Dr James Roberts	MS 4-41	james.roberts@up.ac.za	Igneous & Metamorphic Petrology
Dr Ansie Smit	MS 4-39	ansie.smit@up.ac.za	Geostatistics
Ms Mampho Maoyi	NS II 4-32	mampho.maoyi@up.ac.za	Rock Mechanics & Engineering Geology
Mr Zakhele Nkosi	MS 4-25	zakhele.nkosi@up.ac.za	Earth History & Mineralogy
Vacant post			

* MS – Mineral Sciences Building; NS II – Natural Sciences 2 Building

2.2 Part-time Lecturers, Demonstrators and Tutors

Demonstrators and tutors and temporary and contract lecturers are used to improve contact during practical sessions. For a given module, the demonstrators and tutors compliment the functions of the lecturer and all work covered form part of the learning outcomes for the course.

These are available by appointment only, or during contact sessions stipulated in the study guide.

Details for temporary and guest lecturing staff are shown in **Table 3**

Table 3. Temporary and guest lecturing staff.

STAFF MEMBER	OFFICE *	EMAIL	DESCRIPTION
Mr Igor Željko Tonžetić	MS 4-24	igor.zeljko@gmail.com	

2.3 Course Coordinators, Class Guardians and General Queries

Lecturers can be contacted directly regarding modules presented. All contact details are available under Staff on the departmental homepage. Class Guardians for the respective years of study are:

- | | |
|---|-------------------|
| • First year Geology | Dr RE Diamond |
| • Second year Geology | Dr L Milani |
| • Third year Geology | Mr Z Nkosi |
| • Engineering faculty students (civil & mining) | Prof JL van Rooy |
| • Engineering and Environmental Geology Honours | Prof MA Dippenaar |
| • Geology Honours | Dr RJ Roberts |
| • MSc's and PhD's | Dr RE Diamond |

Specific queries related can be communicated to the following persons:

- | | |
|---|-------------------|
| • Overall curriculum coordinator | Dr RJ Roberts |
| • Academic queries: Geology | Dr RJ Roberts |
| • Academic queries: Engineering and Environmental Geology | Prof MA Dippenaar |
| • Prerequisites | Dr RJ Roberts |
| • Dean's exams | Prof MA Dippenaar |
| • Second year mapping module | Dr L Milani |
| • Third year mapping module | Prof N Lenhardt |
| • Microscopy laboratories | Dr RJ Roberts |
| • Hard copy and digital maps | Prof MA Dippenaar |
| • Field equipment | Prof AJ Bumby |
| • Hydrogeological equipment | Dr RE Diamond |
| • Engineering geological equipment | Prof JL van Rooy |
| • This document (Departmental Handbook) | Prof MA Dippenaar |
| • Department colloquia and research seminars | Dr RE Diamond |
| • Department homepage | Prof MA Dippenaar |
| • Research output | Prof N Lenhardt |

2.4 Timetable and Contact Sessions

Timetables and lecture venues are available for each individual module. It is your responsibility to ensure that there are no timetable clashes.

The provisional undergraduate programme, honours programme and special dates is shown in APPENDIX A. These dates may change during the course of the year. Any changes will be communicated.

In certain instances, the system assigns practical sessions, not allowing you to make your own selection. As this is done to minimise chances of clashes, the department will not intervene with motivations to shift sessions centrally assigned.

Lecturers provide study material and guidance, but expect, especially at honours level, students to participate more actively. During later years of study, it becomes your prerogative to communicate

issues and concerns with the lecturers and to discuss course content with the class and lecturer at prearranged times. Discussions should be the student's incentive and not the lecturer's duty.

The lecturer is there to provide course contents, to guide you through self-study, and/ or to supervise research project work.

2.5 Online Teaching

Online teaching through Collaborate, Zoom, Skype, Google Meet, Hangout, etc. may be scheduled from time to time. Online sessions are compulsory sessions and you are expected to discuss any reasons for absence (including connectivity or data issues) with the lecturer.

In instances of campus closure (such as during 2016's Fees-Must-Fall or 2020's Covid-19 pandemic), these online sessions may completely replace one-on-one contact sessions. While the University will attempt to assist you to make this possible, these conditions may require some harder effort in the form of self-study and online assignments from your side.

2.6 Class Representatives

It is the duty of the class as a whole to elect (by majority vote of those present) a class representative to act as mediator between the lecturer and the class. Communication is preferred through this pathway and the class representative will serve to communicate important notifications during lecture sessions.

The class representative will be appointed based on evaluation of their academic record. It is expected that a class representative performed academically and has, at the time of appointment, passed all previous academic semester modules, and has registered for all geology modules within a given academic year (e.g. all 100, 200 or 300 level modules) within the same calendar year.

2.7 Code of Conduct

As a department, we do not only facilitate the learning in a module; we are also preparing you for a career in geoscience that requires professional and ethical conduct. As such, we expect you to adhere to the code of conduct as elaborated below.

2.7.1 *Communication via email*

When you send an email to your lecturer, you have to use a respectful tone and include all the following aspects:

- A clear and explanatory subject line (e.g. "Submission of sick note – P Mduli")
- Your full name and surname at the end of the mail
- Your student number
- The module involved
- Short and clear message.

2.7.2 *Compliments and complaints*

You are more than welcome to express your appreciation to your lecturer or tutor and supply feedback about aspects of the course that you enjoy and find valuable.

If you have a query or complaint, you have to submit it in writing with specifics of the issue or the nature of the complaint. It is imperative that you follow the procedure outlined below in order to resolve your issues:

- i) Consult the *lecturer* concerned about your complaint/concerns. If the matter has not been resolved:
- ii) Consult the *class representative* (the primary function of the Class Representative is to serve as a two-way communication channel between the class and the lecturer). If the matter has not been resolved:
- iii) Consult the *class guardian* (academic staff member in charge of the relevant academic year). If the matter has not been resolved:
- iv) Consult the *Head of Department*. If the matter has still not been resolved:
- v) Consult with the *Dean of the Faculty*.

2.7.3 Ethical conduct

It is expected from students to behave in an ethical and considerate manner. For this purpose, the following should be noted:

- Lecturers supply their personal contact details for communication pertaining to the study programme. Standard office hours apply and no telephone calls will be answered outside of these times or when the lecturer is not available. No text messages or instant messages will be answered and only telephone calls at reasonable times will be responded to.
- Email is still the preferred mode of communication. Given present technology, response via email can be traced and can be within reasonable time. All queries should be directed to the lecturer's official University of Pretoria email address and reasonable time should be allowed for response.
- Lecturers will not be available for consultation directly prior to tests, seminars or other official meetings. Ample time is available for interaction and last-minute queries may result in bias with respect to the other students in the class. Lecturers should not be contacted at night and no rude comments about non-response will be tolerated.
- Students are under no circumstances allowed to mention or post comments or images of lecturers or fellow students on the internet or on any social medium (e.g. Facebook, Twitter, LinkedIn, YouTube, etc.). Failure to comply with this will be acted on as it may compromise the image of the individuals or the University in general. The UP Social Media Policy (Rt 38/14) states that "personal use of social media must be conducted in a manner that indicates no link or association with the University. For this reason personal use is not covered in this policy..." and that the "... University will ... take necessary steps should users make use of social media in a manner that has a direct, indirect or potential impact on the University's reputation or interests.
- The only instance in which lecturers may be recorded during any contact sessions is when done so by themselves for the purpose of online supplementary media. Students are not allowed to record or photograph the lecturer without written consent.
- Any other ethical misconduct, including for instance prejudice or plagiarism, will be submitted to the University's office responsible for conflict resolution and they will decide the outcome.
- Grievances can be aired to the class guardian or course programme supervisor. This will be escalated to the head of the department if required, who will guide the student regarding the proper channels towards resolution.

2.7.4 Disruptions and access to campus

In order to finish the degree programme within the timeframes, illegal disruptions cannot be tolerated. In the event that campus is being closed for students, alternative arrangements will be made to move lectures off-site. By enrolling for this course, the student abides by this principle and is required to be available for possible off-campus contact self-study and increased online lecturing and assessment.

In the event of closure of campus due to legitimate and/ or legal reasons, arrangements will be made to move important contact sessions and/ or assessments, if applicable.

3 Student Support

3.1 Personal Information

You are requested to supply emergency contact details, medical conditions, and other important personal information. This is notably for field work to ensure that the department has the required information to increase safety during these important teaching events. You are requested to complete the form in APPENDIX B and return to the appropriate lecturer.

3.2 University Services

The University of Pretoria supports you in various ways free of charge. For academic support contact the tutors allocated to the module (see section 2.1), and/or the Faculty Student Advisor (see section 2.1). Please download a QR code reader on your cell phone. To download a QR code reader open your mobile app store (App Store, Google Play or Windows Marketplace) and search for QR code readers.

	Academic support		
	Goal setting & motivation	Individual consultations and workshops about	
Faculty student advisors	Adjustment to university life	- time management	
	Test/Exam preparation	- study methods	
	Stress management		
	Career exploration		
FLY@UP:	Think carefully before dropping modules (after the closing date for amendments or cancellation of modules).	www.up.ac.za/fly@up	
The Finish Line is Yours	Make responsible choices with your time and work consistently.	email: fly@up.ac.za	
	Aim for a good semester mark. Don't rely on the examination to pass.		

For e-learning support

Report a problem you experience to the Student Help Desk. Approach the assistants at the help desks (adjacent to the Student Computer Laboratories in IT Building, NW2, CBT, etc). Visit the open labs in the Informatorium Building to report problems at the offices of the Student Help Desk.

Call 012 420 3837 or email studenthelp@up.ac.za

Safety in the evening: Green Route

From 18:00 till 06:00 Security Officers are available to escort you (on foot) to and from your residence or campus anywhere east of the Hatfield campus through to the LC de Villiers terrain. Departure point

is between the Merensky Library and Old Chemistry Building. Phone the Operational Management Centre if you need a Security Officer to accompany you from your residence to campus.

Student Counselling Unit	Provides counselling and therapeutic support to students.	012 420 2333	
Student Health Services	Promotes and assists students with health and wellness.	012 420 5233 012 420 3423	
The Careers Office	Provides support for UP students and graduates as they prepare for their careers.	careerservices@up.ac.za 012 420 2315	
Department of Security Services	24-hour Operational Management Centre 24-hour Operational Manager cell Crisis Line	012 420-2310 012 420-2760 083 654 0476 0800 006 428	
Department of Student Affairs	Enquiries concerning studies, accommodation, food, funds, social activities and personal problems.	012 420 2371/4001 Roosmaryn Building, Hatfield campus	
Centre for Sexualities, AIDS and Gender	Identifies and provides training of student peer counsellors.	012 420 4391	
Disability Unit	Ensure an integrated and inclusive learning experience for students with disabilities.	012 420 2064	
Fees and funding	http://www.up.ac.za/enquiry www.up.ac.za/fees-and-funding	012 420 3111	
IT Helpdesk	For student IT related queries	012 420 3051 studenthelp@up.ac.za	

4 Study Material and Purchases

Prescribed and recommended textbooks form the basis of most of the relevant course contents. It is your prerogative to acquire these vital references or to peruse the materials in the library.

Class notes are a privilege offered by the lecturing staff. You should realise that it is your duty to take notes and to use the prescribed and recommended study materials to compliment lecture presentations, and to take notes during the contact sessions, even if the lecture presentations are not made available. Lecturers by no means are required to make lecture presentations available and are free to deviate from prepared lectures to better cover topics of interest or areas of concern raised by students. A student cannot expect to study solely from the lecture presentations, and the lecturer has the right to examine topics covered in the formal contact sessions that is not provided in lecture notes.

You should ensure that you have access to a word processing computer. Additional software may be required. If not within the standard suite of MS Office or similar, it is your duty to discuss software licenses with the appropriate lecturer.

Standard geology materials for field work have to be obtained by you, the student. These include, for instance, a geological hammer (pick), magnifying glass and tape measure. Compasses and handheld GPS devices are available in the department.

The textbook published jointly by the GSSA and the CGS on “The Geology of South Africa” supplies vital background to all students enrolled for programmes in the department.

For MSc and PhD students, this should be discussed between you and your supervisor, and is dependent on the scope and requirements for your project. Note that the university is not responsible to cover your costs, nor are they responsible to supply computers, transport or accommodation. In some instances, project costs, language editing or tuition may be covered through other channels. However, covering of costs remain the responsibility of the student. You should ensure that your fees, living expenses, language editing, printing and binding, and other relevant costs can be covered prior to enrolment.

5 Outcomes and Assessment

5.1 Assessment Objectives

The characteristics of the cognitive domain (according to DS Bloom’s *Taxonomy of Educational Objectives* and DR Krathwohl’s *Taxonomy of educational objectives*. Handbook 1. Cognitive domain) lists assessment sequentially as (1) remembering, (2) understanding, (3) applying, (4) analysing, (5) evaluating, and (6) creating (**Figure 1**).

Teaching and assessment are based on these cognitive domains, where you are expected to progressively grow from remembering, understanding and possibly applying at the first academic years, through analysing, evaluating, and even creating at the later years. Where the expectation at first year level is on new knowledge, assessment at honours level may require in-depth analyses and interpretation of data towards sensible solutions (creation), whereas it becomes the creation of new knowledge at masters and doctoral level.

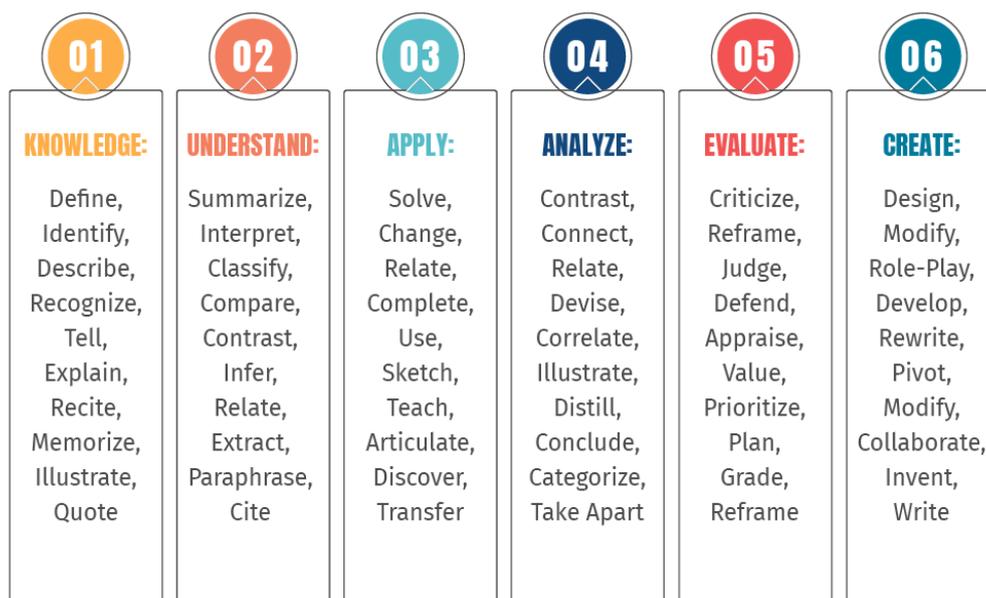


Figure 1. Characteristics of cognitive domains (Bloom's taxonomy) (teachthought.com).

5.2 Assessment Criteria (BSc and BSc Hons)

In terms of module tests and examinations, answers should be relevant, concise and properly formulated. Guidelines on answering of mathematical problems, short theory questions and essays are supplied below. The percentage contributions should only serve as an indication and lecturers may change the criteria or weightings as deemed fit.

Assessment of larger projects are typically based on the criteria shown in APPENDIX C.

5.2.1 Mathematical problems

- An applicable method was applied.
- The steps are clearly shown and are logical.
- The answer is correct to the indicated significance.
- The units are correct and correctly indicated.
- The graphical representation is correct and labelled.
- The correct deductions or conclusions are made.
- It is presented in a legible, comprehensible manner.

5.2.2 Short theory questions

- The answer is relevant to the question.
- The answer is factually correct.
- The answer is short, concise and realistic with respect to the allocated maximum marks.
- There are no redundant, irrelevant, contradictory or incorrect statements in the answer.
- The verb in question was addressed, i.e. discuss, list, define, draw, elaborate, etc.

5.2.3 Essay questions

- The essay is opened with an introductory paragraph.
- The essay ends with a conclusion paragraph which does not introduce any new data.
- The body of the essay structured into logical paragraphs with core concepts.
- The language, grammar and punctuation are proper, readable and of acceptable standard.
- The contents of the essay are relevant to the question asked as well as correct.
- The verb in question is addressed, i.e. discuss, list, define, complete, elaborate, etc.

- The answer is presented in a legible, comprehensible manner.
- The answer is short, concise and realistic with respect to the allocated maximum marks.
- Figures, schematic diagrams and/ or tables are used appropriately.
- The answer supplied is in the student's own words and is not plagiarised.
- Generally for essay questions - ~70% for answer; ~10% for grammar and language; ~10% for structure of the essay; ~10% for addressing the topic.

5.2.4 Addressing the question

Note the verb in question as per the following definitions from Google.com:

- **Assess:** evaluate or estimate the nature, ability, or quality of
- **Calculate:** determine (the amount or number of something) mathematically
- **Define:** state or describe exactly the nature, scope, or meaning of
- **Describe:** give an account in words of (someone or something), including all the relevant characteristics, qualities, or events
- **Determine:** ascertain or establish exactly, typically as a result of research or calculation
- **Discuss:** talk or write about (a topic) in detail, taking into account different ideas and opinions
- **Distinguish:** perceive or point out a difference; recognize or treat ... as different
- **Elaborate:** involving many carefully arranged parts or details; detailed and complicated in design and planning
- **Evaluate:** form an idea of the amount, number, or value of; assess
- **Explain:** make (an idea, situation, or problem) clear ... by describing it in more detail or revealing relevant facts or ideas; account for (an action or event) by giving a reason as excuse or justification
- **Outline:** give a summary of (something)
- **Relate:** give an account of (a sequence of events); narrate
- **Summarize:** give a brief statement of the main points of (something).

5.3 Assessment Criteria (MSc and PhD)

For postgraduate research at MSc and PhD level, you have to surpass the lower levels of Bloom's taxonomy, and reach the higher levels of analysis, evaluation and creation. This is proven by being able to publish your research outcome in accredited international journals.

Assessment of dissertations and theses will be by internal and external examiners and excludes the promotor/ supervisor. The student may not be supplied the details of the examiners and the promotor/ supervisor has no contribution to the final mark.

The supervisor is responsible for the title registration and for nomination of the examiners. The student should ensure that the title is formalised well in advance and used on the dissertation or thesis exactly as it is typed on the title registration form.

At least one scientific paper should be submitted to an accredited, internationally recognised, peer-reviewed journal. Proof of acceptance for review should be submitted with M.Sc. dissertations and proof of publication should be submitted with Ph.D. theses together with examination copies. Only journals accepted for subsidy by the Department of Higher Qualifications will be acknowledged.

In some instances, an oral defense has to be scheduled for PhD candidates before the candidate can be allowed to pass.

Assessment is typically by two or more examiners of which at least one is external, and possibly even international. Their results are final, and they will typically supply one of the following as outcome:

- **Pass in current form:** this happens very rarely, as the examiners are very specifically selected to provide valuable input into improving the body of work. In this instance, they will assign a mark as a percentage for the MSc, or they will simply recommend a pass for the PhD.
- **Pass with minor revision:** in this instance, the examiner will give a mark, pending approval of minor edits by the supervisor. The supervisor will have to sign off that these edits have been done satisfactorily, after which the awarded marks are finalised.
- **Pass with major revision/ Pass with re-examination:** in this instance, one or more of the examiners require to verify the edits they recommended prior to awarding of a mark. If this is required, you have to submit a detailed description of edits as a separate file with new examination copies. They will award their marks on completion of re-examination
- **Fail:** in this instance, the examiner deem the work unsuitable for the degree, and cannot possibly supply advise on how to improve the quality of the work.

5.4 Policy on Plagiarism

Plagiarism is a serious form of academic misconduct. It involves both appropriating someone else's work and passing it off as one's own work afterwards. Thus, you commit plagiarism when you present someone else's written or creative work (words, images, ideas, opinions, discoveries, artwork, music, recordings, computer-generated work, etc.) as your own. Only hand in your own original work. Indicate precisely and accurately when you have used information provided by someone else. Referencing must be done in accordance with a recognised system. Indicate whether you have downloaded information from the Internet. For more detail, see APPENDIX D and visit <http://www.library.up.ac.za/plagiarism/index.htm>.

Plagiarism for written assignments is evaluated through Turnitin. Turnitin is a powerful antiplagiarism tool, but it does require some thought in using it properly. Basically, the system runs a piece of work against its database, and highlights all cases where a sequence of words matches a previously published work (the length of the sequence can be set by the user – default is 3 words in a row). The system then collates the number of words taken from a certain work, and compares this word count to the total word count in the paper to calculate a percentage (i.e. 300 words out of 3000 words = 10% for that source). The system will then calculate a gross plagiarism score, the Similarity Index, from the sum of all the different sources. Thus, 50 different sources each with 1% plagiarised will yield a Similarity Index of 50%, but so will 2 sources of 25% each. A lecturer cannot simply make judgements based on the Similarity Index- the plagiarism counts for individual sources must be examined.

Therefore the following values will be used to judge plagiarism in the Geology Department:

- Turnitin will be set to look for matching sequences of 3 or more words
- The bibliography/references will be excluded from the match
- The student may be allowed to run each piece of work through Turnitin ahead of the submission date, according to the lecturer's discretion.
- No individual source may contribute more than 3% to the total
- The overall similarity index must be 25% or less, unless all individual sources contribute less than 1% each to the total.

Contravention of these guidelines will result in legal action. In the event that legal action is avoided and that a zero mark is not awarded, resubmission prior to the newly established deadline will result in a maximum mark of 50%.

5.5 Online Assessment

Don't be misled by the idea of online and/ or open-book assessments. You will not have time to search for the answers in the book or notes during the test, and you will not be able to have all the content covered within your reach during the test.

Google is not always correct, and finding an answer in very limited time is very hard if you do not have the necessary understanding and background knowledge. You will have to learn the same amount as always, if not more, because open book assessments place an information overload on you during a time you are already stressed. Open book assessments are not easier. Don't cut corners. Learn as you would have and don't be overly reliant on the internet, notes and book. Remember: you want to do this, so rather do it right.

Please take note of the University's updated policy, whereby the University of Pretoria commits itself to produce academic work of integrity. You, in submitting anything, affirm that you are aware of and have read the Rules and Policies of the University, more specifically the Disciplinary Procedure and the Tests and Examinations Rules, which prohibit any unethical, dishonest or improper conduct during tests, assignments, examinations and/or any other forms of assessment. You further agree that you are aware that no student or any other person may assist or attempt to assist another student, or obtain help, or attempt to obtain help from another student or any other person during tests, assessments, assignments, examinations and/or any other forms of assessment.

5.6 Referencing Norms

Unless noted otherwise or discussed with the relevant lecturer(s), the following are almost always considered unacceptable references:

- Class notes
- Google search and Wikipedia results
- Any other improperly referenced website
- Verbal communication from persons who are not an expert related to the topic
- Unpublished and/ or anonymous reports
- Topical textbooks (i.e. your first year textbooks)
- Technical consulting reports (although these are allowed in special circumstances)
- News items and popular media (i.e. newspapers, magazine, Discovery Channel, etc.).

Note also that, when specific referencing requirements are given, the following definitions apply:

- **Recent publications** refer to those published in internationally recognised journals within the past 5 years.
- **Classical texts** incorporate fundamental concepts from the most important defining literature sources (typically the first important concepts defined by the first scientist in that particular subdiscipline, and not merely generic collation of principles of a topic).
- **Topical textbooks**, on the other hand, supply broad, generic overviews of a subdiscipline, often inadequate for postgraduate purposes, and typically as prescribed or recommended for undergraduate courses.

6 Admission and Re-registration

The following definitions apply:

- **Admission:** into the programme, following completion of secondary education, as per University and Faculty requirements

- **Re-registration:** into the same programme in a subsequent calendar year for the same or following academic year
- **Progression:** into the same programme in a subsequent calendar year for the subsequent academic year (e.g. from 200-level to 300-level).

6.1 Admission

6.1.1 BSc programmes

Admission procedures are documented in regulation G.1 and are administrated by the Faculty front desk and the Student Service Centre. On successful registration, the student will be informed on the arrangements and schedules for the first meetings.

The Department has no authority over admissions into the first year of the programmes.

6.1.2 BSc (Hons) programmes

Entry requirements for the honours programmes, as per Faculty Yearbook, are detailed below. Note that spaces available are maximum and fewer students may be allowed into the honours programmes in the events of staff shortages, inadequate academic performance of the applicants, and other reasons as may be relevant. More detail on prerequisites are discussed in §10.

BSc (Hons) Geology: A BSc degree in Geology with an average of 60% for all the geology modules on third year level. In the selection procedure the candidate's complete undergraduate academic record will be considered. The positions available are limited to 25 and candidates who have progressed faster through their undergraduate degree will take preference. Outside applicants and those with unusual degree structures may be admitted after examination of their academic records and at the discretion of the head of department.

B.Sc. Hons. Engineering and Environmental Geology including the options in **Engineering Geology** and **Hydrogeology:** A BSc degree in Geology or Environmental and Engineering Geology with an average of 60% for all the modules in applied geology at third year level. These prerequisite modules should preferably include the topics of soil mechanics, engineering geology, rock mechanics, and hydrogeology. For hydrogeology, chemistry or mathematics may be considered in lieu of soil mechanics, but the other noted modules are compulsory. Candidates will not be considered for engineering geology without all stipulated prerequisite modules. In the selection procedure the candidate's complete undergraduate academic record will be considered. The positions available are limited to 15 and candidates who have progressed faster through their undergraduate degree will take preference. Outside applicants and those with unusual degree structures may be admitted after examination of their academic records and at the discretion of the head of department.

6.2 Re-registration and Repetition

Admissions (first registrations) and re-registrations are not the prerogative of the Department of Geology. These matters are referred to the Student Service Centre or the Faculty of Natural and Agricultural Sciences.

Should repetition of one or more modules be allowed, all aspects of such a module need to be repeated (Regulation G.11.2.a) and no exemption will be granted and no absence from contact sessions will be tolerated. The same applies to the project module, for which all the credits need to be repeated. Given that failure to pass a module proves lack of thorough understanding of the module contents, no exemption to class attendance, tests, assignments, practicals, field excursion or other components of study will be granted.

UP General regulation G3.2 under the heading “Renewal of registration” states that re-registration is permitted only “...in the case of full-time students, if the student completes the degree for which he or she is still registered within the prescribed minimum period plus two years and, in the case of after-hours students, distance education students and students who follow an approved extended programme, if such students still complete their studies within the prescribed minimum period plus three years: provided that faculty boards may stipulate other requirements for progress that students must comply with in order to be readmitted.”

6.2.1 BSc programmes

Re-registration is permitted only “... if the student has passed at least the equivalent of four semester modules in a particular year of study...” (regulation G.3.2.a) and “... if the student completes the degree for which he or she is still registered within the prescribed minimum period plus two years...” (regulation G.3.2.b). This implies that you will not be allowed to re-register for a programme in the Department of Geology if:

- Four semesters or eight quarters weighted according to the credits of the annual geology modules are not passed in a given year (i.e. 64 at 100-level or 96 at 200-level in a given academic year)
- You fail to be promoted to a subsequent academic year following the fifth year of enrolment (given the generic first year, academic performance from all programmes within the Faculty of Natural Sciences and EBIT will be considered), including the extended programme.

6.2.2 BSc (Hons) programmes

If allowed, a maximum of 35 combined module credits may be repeated. Note that only one such an opportunity will be allowed and that failing any of the relevant modules a second time will result in no further admission into any part of the honours programme. Modules repeated will also have to be taken in the year directly following the year of failure.

Given the integrated approach followed in the course, failure of more than 35 credits will result in the student being failed the complete honours course. In exceptional circumstances, the student may be allowed to enrol for the entire programme for the following year. However, readmission is competitive with the new enrolments, and a student having failed more than 35 credits may be refused re-entry into the honours programme as strong candidates obtaining bachelor’s degrees with all prerequisites in place have the preferential right to programme positions.

6.2.3 Repetition of modules passed

You are not permitted to repeat modules that they have already passed. This applies also to the instances where module codes have changed. You cannot repeat modules to attempt to achieve higher marks; the GPA will still be calculated using the first mark obtained in the module. You can also not repeat the same content, even if under different module codes and descriptions, to make up for additional credits.

6.3 Academic Progression

Additional to being allowed to re-register into the study programme, you will only be allowed to promote to the following academic year if passing more than 100 credits for a particular year of study (Faculty yearbook regulation Sc. 3) as well as all core modules of the preceding year.

Lack of prerequisites and poor academic performance may result in reapplications being denied. In the event that courses are oversubscribed, students with poor academic records and continuous poor academic performance will not be allowed back into a particular year of study.

Should you fail to progress to a subsequent year of study for any reason whatsoever (including failure to re-register, failure of modules, non-compliance with minimum requirements), you are considered to have interrupted your studies and forfeit the right to continue studies according to the regulations and requirements set in the first year of study. Such students may be expected to redo any modules no longer offered or in which the content has changed without credit to modules no longer accepted in the programme (regulation G.5).

You will not be informed of your marks, allowed perusal, or have the credits allocated, if you cannot provide proof of registration and/ or if tuition fees are outstanding (Faculty yearbook regulation 5).

You will, furthermore, be refused to progress academically if any study materials are outstanding, including but not limited to: library materials, lecturer's books or articles, maps, GPSs, and so forth.

6.4 Class Attendance

According to University policy, "... a student may register for a module only if the official class timetable allows the student to attend all the classes..." (regulation G.2.3). Clickers, roll call, practical submissions, or other means may be employed to guarantee acceptable class attendance.

Lecture and practical attendance is compulsory. For this reason, no lectures or practical sessions will be repeated as this negatively impacts on the rest of the students in the class. Absence from lectures and practical sessions without proper reason will require from you to obtain the information and announcements from the relevant session. Timetable clashes will not be acceptable as an excuse.

Saturdays are also available for academic purposes and you may be expected to be available on weekends.

All field schools, field trips and excursions are compulsory and will comprise the majority of the practical components of the modules covered and will integrate practical knowledge with field knowledge.

Online sessions should be seen as formal contact sessions. Absence from these will be handled similar to absence from contact sessions, and these online sessions will affect your class attendance.

You should not query whether appointments are compulsory, nor should your work (if you work part-time for any reason) interfere with attendance of compulsory sessions. All field schools, field trips and excursions are compulsory and will comprise the majority of the practical components of the modules covered and will integrate practical knowledge with field knowledge.

Practicals for large groups are allocated automatically on registration. The Geology Department does not have the authority to support requests for alternative practical sessions for modules in other departments.

Each credit allocated to a module amounts to ten hours of learning. This implies that all modules require extensive self-study as well as preparation for tests and examinations.

The teaching environment is created to the benefit of students in attendance. Arriving late is to the detriment of their learning environment and will therefore not be tolerated.

6.5 Timetable Clashes

In the event of timetable clashes due to, for instance, repetition of modules or choices of electives, you will be expected to prioritize lower level academic major subjects at the expense of higher level subjects or electives. Courses offered during the same timetable sessions cannot be enrolled for simultaneously as no exemption or alternative sessions will be arranged.

6.6 Prerequisites

Prerequisites are enforced rigidly and under no circumstances will you be allowed to progress to a subsequent module or year of study when all prerequisites are not met. Apart from the lack of adequate understanding of principles when such modules are failed, the work load becomes too high and compromises academic performance in other modules. For this reason, the "... dean may ... cancel the registration of a student or the registration for a module during an academic year if the student fails to comply with the minimum requirements determined by the faculty board with regard to tests, examinations or any other work..." (regulation G.4).

6.7 Completion

Final marks will be submitted following the final examinations. You are required to ensure that you are (a) enrolled for the correct academic programme and (b) registered for the appropriate modules making up the required credit requirements prior to commencement of the examination. Lecturers or academic administration cannot accept any responsibility for mistakes in enrolment, and final marks will not be submitted in the event that an examination was completed for a module that the student is not registered for. The degree can only be awarded if the appropriate modules were completed as per annual yearbook.

7 Absence and Late Submission

Where applicable, the following applies to absence from scheduled contact sessions and evaluation opportunities and will be applied strictly and without exception.

7.1 Documents Proving Absence

If you are absent as a result of illness, a medical certificate must be handed in within 72 hours after the test or practical. If you are absent for other legitimate reasons, the reasons must be provided in the form of an affidavit or sworn statement within 72 hours of the formal test date. Note should, however, be taken that a medical certificate is the only accepted reason for absence according to the University of Pretoria's regulations and any other reasons are within the prerogative of the lecturer and Head of Department, or the Dean of the Faculty concerned. Learners are urged to not miss tests for any reason other than illness, or to discuss other issues not relating to health with the lecturer prior to the test date.

Medical certificates and sworn statements (affidavits) may require supplementary evidence before being accepted. You are urged to ensure that you have the case number and such other required documentation in place prior to submitting your reason for absence.

Valid original sick notes are accepted if issued by a medical doctor registered at the Health Professions Council of South Africa (HPCSA). The only other type of sick note that is accepted are those issued by an Advanced Practice Nurse (a registered nurse with a postgraduate qualification) as determined by the South African Nursing Council who has a BHCF practice number, provided that the diagnosis falls only within their specific field of specialisation.

An affidavit will only be accepted if supported by substantiating documentation, e.g. case report or criminal charge with case number obtained from a police station, valid medical certificate for injuries, a death certificate for a funeral, etc. Please note that submission of fraudulent sick notes and affidavits is a criminal offense, which will lead to disciplinary action and may result in dismissal.

7.2 Absence from Module Tests and Practical Tests

Official test dates are set in the test timetable, study guides, or are announced during lectures and/or practicals.

In the event of semester or module tests, documents (§7.1) have to be submitted to the departmental administrator and not the lecturer within 72 hours of the scheduled test time. A decision will then be taken whether the reason is valid and a time for the re- or sick test will be set for the group as a whole. If the reason for absence is not accepted by the lecturer, the decision is final and no alternative arrangements will be made.

In the event of more than one module or practical tests in a given module, it is acceptable that the lecturer offers a single opportunity following the second test. In the event of absence from both tests, this sick test will count towards the test contributing the greatest proportion to the final module mark. In such instances, a zero mark will be allocated for the other test missed.

7.3 Absence from Mapping Camps, Excursions and Practical Field Days

No excuses will be accepted for absence from the excursion and practical field days as attendance of these sessions are vital to the contents of the relevant course. In the event of absence from any of these compulsory activities, the prerequisites for passing the module will not be met and the excursions and/or practical field days will have to be repeated in a later year. Note that weekends form part of the academic week and students are expected to arrange availability on such days.

The field modules (GLY 266 and GLY 368) are offered only once per academic year during the June or October recess. Various modules contribute to field time at honours level. If enrolled for these modules, you have to attend. No excuses or alternative submissions will be accepted for absence. In the event of the Honours Mapping Camp (geology) and Honours Field School (engineering geology and hydrogeology) at the beginning of the academic year, students not registered in time will need to attend in the following years to allow for timely finalisation of marks without reregistration.

As geology requires a substantial knowledge of field relationships, alternative options cannot be considered as the exposure to field geology is fundamental in establishing the knowledge for the qualification.

You will not be allowed to graduate with a degree in from the Department of Geology without attendance of both the undergraduate field modules. Marks from these modules may also be used in determining the average mark for the degree, for consideration of special examinations, and for admission into the honours programme.

7.4 Absence from the Exam Period

Documents (§7.1) have to be submitted to the Faculty Administration directly as the lecturer cannot approve sick exams or supplementary exams. No sick exams will be granted by the Faculty Administration unless the documentation was submitted to the Faculty directly within 72 hours of the official exam period. The lecturer does not have the right to grant supplementary exams and this has to be discussed with the Faculty. The lecturer also will not mediate between the learner and the Faculty regarding these matters. As per University regulations, no supplementary or ancillary examinations will be granted on sick exams.

7.5 Absence from Online Assessments

Absence from online assessment is subject to the same rules as for any other assessment, and you will have to provide appropriate reasons for absence. In the event that these reasons are not due to health

(e.g. internet connectivity; hardware or software failure), the conditions in §7.1 apply and you may be required to provide additional evidence.

7.6 Absence from Other Tests and Examinations

Other tests and examinations here refer to sick, aegrotat, special (including Dean's), and deferred tests and examinations. No excuses will be accepted for absence from any second opportunities of assessment. Given that all of these represent second opportunities, absence from these assessments will not be discussed or reconsidered.

7.7 Late Submissions of Written Assignments

Late submissions (if applicable) are inexcusable as ample time is supplied for timeous submission. Late submissions will result in a zero mark for this component. The deadlines supplied for written assignments should be viewed as the absolute latest submission time, and learners are urged to submit assignments well in advance as unforeseen circumstances such as power outages, theft, transport problems may affect submission.

7.8 Absence of Lecturer

In the event that a lecturer – due to unforeseen circumstances known in advance – is not able to present a lecture or practical session, this will be made known via ClickUP before 16:00 on the day prior to the contact session. If the lecturer is not able to attend such contact sessions at short notice, a replacement lecturer will be arranged if possible, or alternatively the class representative will be informed of the cancellation of the lecture or practical. It is then the responsibility of the class representative to announce this at the beginning of the contact session or to post a notice at the entrance to the venue. Where possible and necessary, the lecturer will arrange for an additional session to catch up on the lost course contents.

The class representative will have the lecturer's contact details to ensure continuous communication in such instances.

8 Marks and Examination

8.1 Submission of assignments

The lecturer will specify the format of submissions for assignments. Unless specified otherwise, the following are acceptable formats of submission (all in accordance with general reporting guidelines of the department):

- Hard-copy printed and stapled or ring-bound
- Electronic emailed or submitted via ClickUP as a Word document with an extension ".docx" (not ".dot", ".doc", ".rtf", ".txt", or any other format)
- Portable digital file emailed or submitted via ClickUP with an extension ".pdf".

Give your electronic files sensible names, e.g.:

- MODULE_YEAR_SURNAME_ASSIGNMENT (e.g. GLY369_2021_Smith_Prac03)
- MODULE_YEAR_STUDENTNUMBER_ASSIGNMENT (e.g. GLY369_2021_01234567_Prac03)
- MODULE_YEAR_GROUP_ASSIGNMENT (e.g. GLY155_2021_Group03_Prac03)

Refrain from using generic file names such as DOCUMENT1, ASSIGNMENT1 or GLY369 as duplicate names make assigning of assignments difficult. If these requirements are not met, the assignment will not be assessed.

In the event of submitting Word documents, refer to the style sheet and formatting guidelines used in the department. It is important to align all images with the text (i.e. do not place in front of the text) and to compress all images prior to submission.

8.2 Class/ Module Marks

Calculation of class/ module marks will be documented in the relevant module study guides. You cannot contest these marks after the last day of the module. Lecturers cannot and will not change any marks, even if mistakes were made, as these have to be finalised during the course of a module. It is your duty to ensure that marks released on ClickUP are correct during the term. You should also ensure that marks in your Grade Centre, or those made available by the Faculty are correct before commencement of subsequent modules or examinations.

8.3 Examinations

Examination dates are set and no dates will be moved. No alternative dates will be made where clashes occur or where more than one paper is written on the same day.

You are not allowed to register for modules where clashes in the timetable occur, and examination dates will not clash if students register early on. No notes from other lecturers will be accepted as reason to grant special examinations at other dates and times, and no extracurricular activities will be acceptable reason for absence.

You can only pass a given module if both the year (module) mark and the examination mark are above 40% and if the final mark, calculated as per relevant module study guide, is above 50% (Faculty regulation 6.2).

Entrance to examinations may be refused without, but not limited to: (1) proof of a valid student card, (2) failure of prerequisites (e.g. prerequisite module not passed), and/ or subminimum requirements (e.g. practical marks, module marks, absence from excursions). The following module mark subminima have to be met in order to sit for an examination:

- 100-level year 1st semester (e.g. GLY 155) – 30%
- 100-level 2nd semester; all 200-level and 300-level modules – 40%
- 700-level (honours) modules – 40%
- Practical marks of 50% for all modules
- Acceptable class attendance (at least 90%) based on spot roll calls, using clickers, and/ or other communicated means, throughout the module.

8.4 Sick, Aegrotat, Special and Deferred Tests and Examinations

Entry into sick tests are subject to §7, unless noted otherwise in the module study guide.

Entry into **sick examinations** is approved by the Faculty based on timeous submission of required documentation (i.e. medical certificate within 72 hours of official exam time). The mark calculated in the event of a sick examination takes into consideration the module mark, and the sick exam covers the exact same content as the initial exam. If you sat for an examination, you are not allowed to sit for a sick or special examination based on (a) undisclosed illness at the time of the examination, (b) having been underprepared, or (c) any other undisclosed special circumstances (Regulation G12.7).

Entry into **special examinations** (including supplementary, ancillary, aegrotat and/ or re-) is approved by the Faculty and/ or Department and is based on marks obtained for the preceding assessment of the module (i.e. examination). A maximum final mark of 50% can be achieved (Faculty yearbook regulation 6.5).

Supplementary examinations are usually written and cover the same subject matter as for the examination. Examination marks are submitted to the Faculty and the student will be informed of a supplementary examination by the Faculty. Module marks are not taken in consideration for supplementary examinations.

Ancillary examinations are used to adjust examination marks and such examinations are taken prior to submission of the marks to the Faculty. The final mark is based on the adjusted examination mark and the module mark.

Where sick or special examinations are not made known by the Faculty, you will be informed directly by the lecturer regarding the time, date and scope. This information is also fixed and cannot be debated. You should follow up with the lecturer as soon as possible.

Absence from any sick or special exam results in a zero mark and no alternatives are available.

Requirements for supplementary and ancillary examinations are as follows:

- 100-level modules – final mark between 40% and 49% AND module and practical marks above the subminimum of 40% (or 30% for GLY 155)
- 200-level, 300-level and honours (700-level) modules – final mark between 45% and 49% AND 40% subminimum for the module mark AND 50% subminimum for the practical component.

8.5 Special Dean's (and Chancellor's) Examinations

In certain instances, a student can sit for a **Dean's special examination**. A written request can be submitted via the Department of Geology to the Faculty Administration regarding such Dean's special examinations. These have to be confirmed by the relevant lecturers, supported by the Head of Department, and approved by the Dean.

The following conditions apply for all the modules applied for:

- Together they amount to 36 or less credits combined
- You were enrolled for these modules in the final year of study
- You sat for those exams in the year you applied for the special exam
- You had final marks of 40-49% for these modules.

Applications will be rejected if the total credits required to graduate exceed 36, if you did not sit for examination in these modules in the same year that you apply for the Dean's examination, and if you final marks were below 40%. In the event that a Dean's examination has been granted in the past, the department will not support your application for another Dean's examination.

A single date is scheduled during the following January for all such examinations for GLY modules. For all modules offered in the Department of Geology (i.e. all GLY-modules), these exams will be written on the third Monday of the following year at 09:00 in room 4-24 of the Natural Sciences II Building. No alternative dates will be offered, even if you do comply with the requirements following the June examination period. You should attend this session even if approval has not yet been obtained. Forms can be finalized before this date or, in exceptional circumstances, on this date.

It is your responsibility to contact Prof Dippenaar or Dr Roberts well in advance regarding their intention to sit for a Dean's special examination. This should be done before 15 December of the relevant year in order to sit for this exam during January of the following year.

Students sitting for more than one module in the Dean's examinations for geology will write all during the same special session. In the event that one of the field modules are outstanding, the special exam will not be supported by the department, given that the degree cannot and will not be awarded without having attended these field modules.

8.6 Contesting of Marks

The lecturer(s), tutor(s) and demonstrator(s) will not enter into discussions related to improving poor marks, remarking assignments or scripts, or adjusting marks without discreet proof of error in assessment. You may only contest marks if it can be proven – at the hand of model answers, memoranda, lecture notes, textbooks or counting errors – that a mistake was made in the calculation of the mark. Where mistakes are encountered, the complete script may be subjected to remarking.

8.7 Perusal and Remarking

You have the right to perusal of examination scripts within the period announced by the relevant lecturer. Minor mark changes will not be submitted to the Faculty. Only the following result changes will be submitted:

- Exam mark below 40% becoming 40%
- Exam mark below 50% becoming 50%
- Exam mark below 75% becoming 75%
- Mark changes resulting in a final pass mark as opposed to a fail or a special exam
- Mark changes resulting in granting a special exam as opposed to a fail
- Mark changes resulting in final cum laude mark
- Mark changes resulting in a final mark of 60% as required for entry into the honours or masters programmes.

Should you wish to have minor changes submitted to Faculty, or if you are still not content with the marks, a remark can be requested from the Faculty where an independent lecturer (moderator) will remark the script.

Note that a single perusal session will be announced and that no alternative arrangements will be made, regardless of reason for absence from perusal.

Given the privilege of being able to contest marks, you should acknowledge that the lecturer reserves the right to submit lower marks to the Faculty as well following perusal or remarking. Both perusal and remarking open re-evaluation of marks to all parties, and you are not allowed to contest lower marks submitted by the lecturer or moderator.

Rules for perusal are the same as for examinations. No stationary or mobile phones are allowed; no extension will be given to perusal outside of announced sessions; and these sessions do not serve to contest marks.

Requests for remarking have to be submitted to the Faculty within 14 calendar days of commencement of the following semester, accompanied by proof of payment of the prescribed fee (Faculty regulation 6.4).

9 BSc Programmes

The BSc Geology progresses to a BSc (Hons) Geology. The BSc Engineering and Environmental Geology, which requires an additional major in mechanics, continues in BSc (Hons) Engineering and Environmental Geology (Engineering Geology) or BSc (Hons) Engineering and Environmental Geology (Hydrogeology) with options in BSc (Hons) Environmental Soil Science (Figure 2). See §1.4.2 for important information about professional recognition of honours degrees.

Given the vocational opportunities, students are exposed to a minimum of one year of fundamental science (mathematics, chemistry and physics) and three years of geology as a major. A second major is recommended in chemistry, mathematics, physics, statistics or engineering mechanics (offered through the EBIT Faculty), or in exceptional circumstances, geography, soil science, geoinformatics or any other module relevant to geology. With the opportunities for a double major at third year level, interested students should explore possible alternative honours possibilities during the undergraduate programme to ensure that they comply with the required prerequisites.

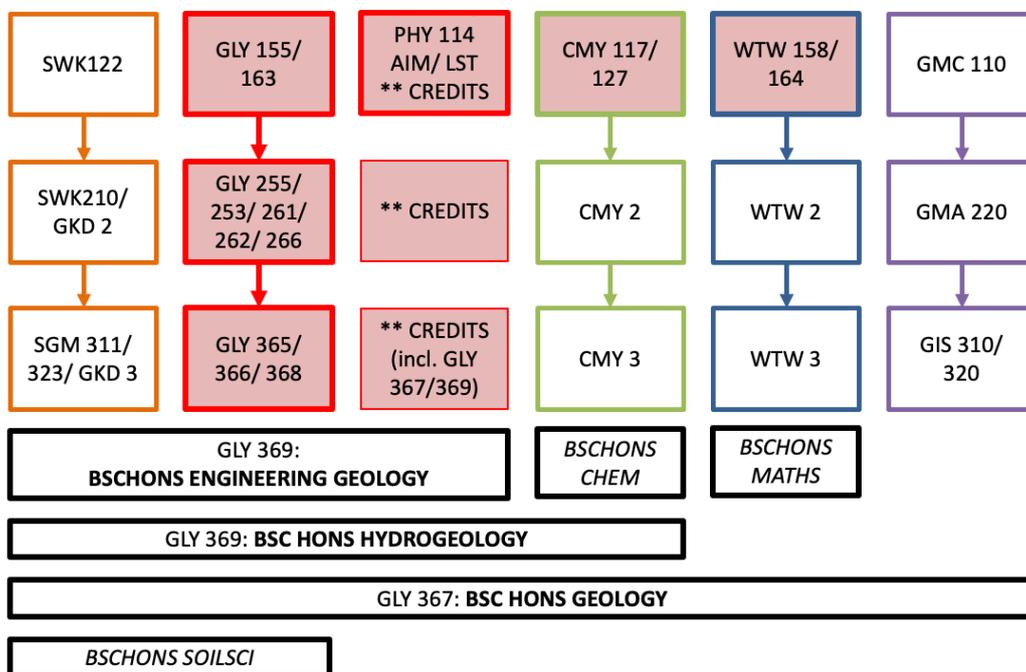


Figure 2. Honours exit routes and undergraduate prerequisite modules.

9.1 Annual Learning Outcomes

Annual learning outcomes based on the cognitive domains (Figure 1) are simplified in Table 4.

Table 4. Annual expected learning outcomes.

STUDY COMPONENT	GLY 100	GLY 200	GLY 300
Outcomes	Introducing geological concepts	Integrating fundamental science	Integrating sub-disciplinary & fundamental content
Theory	Defining	Explaining	Appraising
Practical	Identifying	Deducing	Assessing
Understanding	Conceptual	Detailed	Applied
Thinking	Fundamental	Integrated	Holistic
Knowledge	Knowing	Understanding	Interpreting
Assessment	Single word or sentence	Essays, calculations	Debate data

9.1.1 First year – GLY 100

GLY 100 gives you a broad theoretical background of the subject of geology and its most fundamental sub-disciplines. Concepts of physical geology, stratigraphy, mineralogy, petrology and environmental geology are taught at a first-principles basis with applications to the South African context, where ever possible. Following completion of the first year, you should know what geology is, how the planet works, how minerals and rocks are formed and identified from hand specimens, how geological maps and stratigraphic sequences work, and should be able to collate these principles into a generic understanding of geology as a subject.

9.1.2 Second year – GLY 200

GLY 200 provides detailed theory and practical assessment of specific sub-disciplines in geology. GLY200 involves integrating the chemistry, physics and mathematics learnt in first year within a geological framework. The second year focuses on the chemical-mineralogical topics of crystal optics, mineralogy, and sedimentary, igneous and metamorphic petrology. Following successful completion of the second year, you should be able to appraise theoretical topics in-depth and understand the intricate reasons for the behaviour of the Earth as a whole and to integrate concepts from fundamental science into understanding of geological subject matter.

9.1.3 Third year – GLY 300

GLY 300 forms the applications of geology and includes Structural Geology, Hydrogeology, Engineering Geology and Rock Mechanics, and Economic Geology. All these modules are applicable to notably the mining environment and supply very important developing applications of geology and prepare students for the honours-level expectations. Following the third year, you should be able to integrate knowledge from the preceding modules as well as all elective modules into in-depth discussions on the applications of geology in given environments such as mining, infrastructure development, natural hazards and so forth.

9.2 Core Module Descriptions

The core geology modules are shown in **Figure 3**. Both the undergraduate programmes in Geology and Engineering and Environmental Geology require fixed electives. These modules are compulsory for all students in the Department and under no circumstances can the bachelor’s degree in Geology or in Engineering and Environmental Geology be completed without successful completion of all modules. The only exception is the option between GLY 367 and GLY 369 in semester two of the third year. Taking both of these simultaneously is, however, possible and highly advisable.

QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	GUARDIAN
GLY 155 Introduction to Geology Prof Dippenaar/ Prof Bumby		GLY 163 Earth History Mr Nkosi/ Prof Lenhardt		YEAR 1 Dr Diamond
GLY 255 Fundamental & Applied Mineralogy Mr Nkosi	GLY 253 Sedimentology Prof Lenhardt	GLY 263 Igneous and Metamorphic Petrology Dr Roberts		YEAR 2 Dr Milani
		GLY 266 Geological Field Mapping		
GLY 365 Structural Geology Prof Bumby	GLY 366 Groundwater Dr Diamond	GLY 367 Economic Geology Dr Milani		YEAR 3
GLY 368 Advanced Geological Field Mapping		GLY 369 Engineering Geology and Rock Mechanics Ms Maoyi/ Prof Van Rooy/ Prof Dippenaar		Mr Nkosi

Figure 3. Lecturers, class guardians, and modules in the Geology Department.

More detail is supplied in APPENDIX E, showing the entire undergraduate programme in **Table 8** and module descriptions for the modules presented in the NAS and EBIT Faculties in **Table 9** and **Table 10**.

Elaborations on module descriptions and expected outcomes are detailed in the relevant module study guides. Presentation times are fixed according to the year book and timetable, unless a notice is posted on the notice board in the foyer of the Mineral Sciences building.

GLY 266 and GLY 368 are compulsory modules in field mapping presented in the second and third years respectively. These modules are reserved only for students studying geology or engineering and environmental geology with the prospect of an honours degree in Geology, Engineering Geology or Hydrogeology. Students taking geology as an elective are not admitted. Honours applications will not be considered without successful completion of both these modules. As they are presented only once a year during recess periods, you should ensure that you are able to attend. For these modules, attendance is compulsory, implying that absolutely no excuses can be accepted, and the two modules cannot be completed in the same calendar year.

Note that the official online yearbook and information are more accurate and should be used above those presented in this section.

10 BSc (Hons) Programmes

The Department of Geology offers two programmes at honours level. The honours programmes consist of theoretical modules as well as substantial practical and project work components, as well as an introductory workshop on academic writing and professional matters.

Entry into honours depends on rate of academic progression during the undergraduate degree (3-4 years), appropriate electives, and academic performance notably at third year level. Subject requirements for consideration into the honours programmes are shown in **Figure 2**.

Note that entry into the BSc (Hons) Engineering Geology, Environmental Geology and Hydrogeology options will not be considered if you did not do GLY 369 (or GLY 363 and GLY 364). Similarly, entry into the BSc (Hons) Geology degree will not be considered if you did not do GLY 367. You are strongly encouraged to do a double geology second semester in the third year.

Field or mapping modules and excursions at honours level should be considered compulsory. Absence will result in a zero mark with no alternative assessment opportunity.

10.1 Geology

The honours degree in **Geology** (code 02240141) follows on the undergraduate study programme in Geology and employment is generally within the mining industry with additional options in forensic geology, exploration geology and **analytical** services. The geology honours programme is shown in APPENDIX F.

10.2 Engineering Geology and Hydrogeology

The **Engineering Geology** and **Hydrogeology** options for specialisation of the honours degree **Engineering and Environmental Geology** follow on the undergraduate study programme in Engineering and Environmental Geology. Two fields of specialization are offered within the honours programme, namely **Engineering Geology** (code 02240370) and **Hydrogeology** (code 02240373). Employment is generally within private consulting firms supplying services to governmental departments, municipalities, mine houses, oil companies, town planners, engineers and private developers. Employment may also be directly into the government sector (e.g. Department of Water

and Sanitation) or parastatal institutions (e.g. Council for Geoscience; Council for Scientific and Industrial Research). There is presently a strong demand in both the engineering geology and hydrogeology fields for graduates in the mining, groundwater as well as in the construction/ civil engineering sectors. The engineering geology, environmental geology and hydrogeology honours programmes are shown in APPENDIX G.

10.3 Academic Writing and Professional Matters

An Introduction to Technical Reporting and Scientific Writing course will be presented to all honours student sin the department. The successful completion of this part of the course is compulsory. The content of this short course is also required for successful completion of subsequent modules, notably project modules.

You are encouraged to take this course seriously, to attend all sessions, to put effort into preparation of assignments, and to transfer the knowledge gained to the other modules presented during the honours year.

The style sheet, policy on plagiarism and proper English reporting skills will be addressed in detail during this week.

An example of a typical project assessment rubric that may be used is shown in APPENDIX C.

APPENDIX A. PROGRAMME AND CALENDER

HONOURS PROGRAMME:

WEEK	UNDERGRAD	GEOLOGY HONS	ENGGEO HONS	HYDROGEO
		Honours Orientation (all staff)	Admin&Reporting	Admin&Reporting
2021/03/08	Orientation	Fieldtrip- Kuthaba (all staff)	Field GTX728	Field GTX728
2021/03/15	Q1	GLY 704- AJB	GTX714	GTX714
2021/03/22	Q1	GLY 704- AJB	GTX714	GTX714
2021/03/29	Q1	GLY 704- RJR	GTX714	GTX714
2021/04/05	Q1	GLY 704- RJR	GTX714	GTX714
2021/04/12	Q1	GLY704 Exam Mon 12th; GLY701- NL Tues 13th	GTX714 exam	GTX714 exam
2021/04/19	Q1	GLY 701- NL	GTX716	GTX716
2021/04/26	Q1	GLY701- RJR	RECESS	RECESS
2021/05/03	Q1	GLY701- RJR	GTX725	GTX725
2021/05/10	RECESS	GLY701 Exam Mon 10th; GLY701/704 Field Trip (RJR/AJB); 11th-16th	GTX725	GTX725
2021/05/17	Q2	GLY715- AS	GTX725	GTX725
2021/05/24	Q2	GLY715- AS	GTX716	GTX716
2021/05/31	Q2	GLY715- IT	GTX725	GTX725
2021/06/07	Q2	GLY715- IT	GTX725 exam	GTX725 exam
2021/06/14	Q2	GLY 715- Extra Week+ Exam on Friday 19th	GTX728	GTX728
2021/06/21	Q2	Recess	GTX716 exam	GTX716 exam
2021/06/28	Q2	Recess	GTX718 MAD	GTX722
2021/07/05	Q2	GLY710 Project Time + GLY716	GTX718 MAD	GTX722
2021/07/12	EXAMS	GLY710 Project Time + GLY716	GTX718 MP	GTX722
2021/07/19	EXAMS	GLY710 Project Time + GLY716	GTX718 MP	GTX722
2021/07/26	SUPPS	GLY710 Project Time + GLY716	GTX718 exam	GTX722 exam
2021/08/02	RECESS	Recess	RECESS	RECESS
2021/08/09	RECESS	Recess	RECESS	RECESS
2021/08/16	Q3	GLY713	GTX713	GTX713
2021/08/23	Q3	GLY713	GTX713	GTX713
2021/08/30	Q3	GLY713	GTX715	GTX723
2021/09/06	Q3	GLY713	GTX715	GTX723
2021/09/13	Q3	GLY713+ Exam on Friday 17th	GTX715	GTX723
2021/09/20	Q3	GLY710 Project Time + GLY716	GTX715	GTX723
2021/09/27	Q3	GLY710 Project Time + GLY716	GTX715 exam	GTX723 exam
2021/10/04	Q3	GLY710 Project Time + GLY716	RECESS	RECESS
2021/10/11	Q4	GLY710 Project Time + GLY716	GTX728	GTX728
2021/10/18	Q4	GLY710 Project Time + GLY716	GTX728	GTX728
2021/10/25	Q4	GLY710 Project Time + GLY716	GTX713	GTX713
2021/11/01	Q4	GLY710 Project Time + GLY716	GTX713	GTX713
2021/11/08	Q4	GLY710 Project Time + GLY716	GTX713	GTX713
2021/11/15	Q4	Honours Presentations + End	GTX713 submit	GTX713 submit
2021/11/22	Q4			
2021/11/29	EXAMS			
2021/12/06	EXAMS			
2021/12/13	EXAMS			
NOTE	All departmental supplementary examinations provisionally to be scheduled for January 2022			

UNDERGRADUATE TIMETABLES:

Table 5. Provisional undergraduate timetable for Quarter 1.

TIME	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac
07:30	GLY255 IT2-24									
08:30	GLY365 HB3-24		GLY255 IT2-24		GLY255 IT2-24 GLY365 HB4-14					
09:30							GLY155 HB4-15 GLY365 HB4-24		GLY255 IT2-24	
10:30			GLY155 HB4-15 GLY365 HB3-24	GLY255 IT4-2	GLY155 HB4-15					
11:30	GLY155 HB4-15						GLY155 NS2 4-1			
12:30										
13:30										
14:30		GLY155 NS2 4-1		GLY365 HB3-24			GLY365 HB3-24		GLY255 IT4-2	
15:30										
16:30										

Table 6. Provisional undergraduate timetable for Quarter 2.

TIME	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac
07:30	GLY253 HB3-14									
08:30			GLY253 HB3-14		GLY253 HB4-9 GLY366 HB4-14					
09:30	GLY366 HB3-24						GLY155 HB4-15 GLY366 HB4-14		GLY253 HB4-8	
10:30			GLY155 HB4-15 GLY366 HB3-24	GLY253 HB4-9	GLY155 HB4-15					
11:30	GLY155 HB4-15						GLY155 NS2 4-1			
12:30										
13:30							GLY366 HB3-24			
14:30		GLY155 NS2 4-1		GLY366 HB3-24			GLY366 HB3-24		GLY253 HB4-9	
15:30								GLY366 HB3-24		
16:30										

Table 7. Provisional undergraduate timetable for Quarter 3 and Quarter 4.

TIME	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		
	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac	Lecture	Prac	
07:30							GLY263 IT2-24				
08:30										GLY263 IT2-24	
09:30											
10:30	GLY369 AgrAnn		GLY263 IT4-2 GLY367 AgrAnn				GLY369 AgrAnn	GLY163 NS2 4-1			
11:30	GLY367 AgrAnn		GLY369 AgrAnn	GLY263 GreyLab		GLY163 NS2 4-1		GLY163 NS2 4-1 GLY369 AgrAnn			
12:30	GLY263 IT4-2 GLY367 AgrAnn										
13:30										GLY369 AgrAnn	GLY163 HB4-12 GLY367 AgrAnn
14:30		GLY367 AgrAnn		GLY163 NS2 4-1 GLY369 AgrAnn	GLY163 Cent5 GLY369 AgrAnn				GLY163 HB4-12		
15:30						GLY163 Cent5					GLY367 DEPT
16:30											
17:30											

IMPORTANT DATES AND TIMETABLE CHANGES:

Quarter 1: 15 March - 7 May

- Thursday 25 March (Monday timetable)
- Wednesday 28 April (Monday timetable)

Quarter 2: 17 May - 5 July

- Monday 5 July (Wednesday timetable)

Quarter 3: 16 August - 5 October

- Monday 20 September (Wednesday timetable)
- Tuesday 21 September (Friday timetable)

Quarter 4: 11 October - 26 November

APPENDIX B. STUDENT PERSONAL INFORMATION

Year:		Student No:	
Surname:			
Full Names:			
Preferred Name:		Nationality:	
Address while at UP:			
Email:			
Mobile No:		Contact No (next of kin):	
Medical Aid Fund:		Medical Aid No:	
Allergies and Medical Conditions (if any):			
Special Dietary Requirements (if any):			
Bursar (if any):		Bursar Contact No:	
Driver's License:	<input type="checkbox"/> yes / no <input type="checkbox"/>	Own Vehicle:	<input type="checkbox"/> yes / no <input type="checkbox"/>
		UP Licence:	<input type="checkbox"/> yes / no <input type="checkbox"/>

Document	Attached hereto (or reason if not)
Identity document/ passport	
Driver's license and/ or UP license	
Student card	
Medical aid card	
Academic transcript proving degree	
Registration form	
Other (e.g. field school payments)	

<p>I, the undersigned, herewith declare at the University of Pretoria (Hatfield, South Africa) that:</p> <p>i. The abovementioned information relates to me personally and that the information is true, accurate and correct at the date noted below, and that I will update my information and details in the event that it changes during the course of enrolment.</p> <p>ii. I consent to contact sessions and assessment off campus.</p> <p>iii. I have been informed of the departmental and university policies on plagiarism, that I accept those contents, and that those contents apply to all submissions for the duration of this course and this academic year.</p> <p>iv. I have been made aware of the Departmental Handbook and/ or Postgraduate Handbook, and all administrative matters contained therein.</p>	
Signature of student detailed above:	Date:
Signature of duly authorized lecturer:	Date:

APPENDIX C. PROJECT ASSESSMENT CRITERIA (EXAMPLE)

* Note that this is just an example of an assessment rubric and that the examiner or assessor can use any other criteria.

Assessment:		Date:	
Module:		Code:	
Name:		No.:	
Topic:			
Assessor:			

	<i>Unacceptable</i>					<i>Below expectation</i>					<i>Average</i>					<i>Above expectation</i>					<i>Excellent</i>					Mark	Max
Oral Presentation:	0	2	4	6	8	10	12	14	16	18	20													20			
Oral Presentation: Seminar	0	1	2	3	4	5	6	7	8	9	10													10			
Oral Presentation: Discussion	0	1	2	3	4	5	6	7	8	9	10													10			
Written Presentation:	0	2	4	6	8	10	12	14	16	18	20													20			
Written Presentation	0	1	2	3	4	5	6	7	8	9	10													10			
Grammar & Language	0	1	2	3	4	5	6	7	8	9	10													10			
Technical Soundness:	0	3	6	9	12	15	18	21	24	27	30													30			
Materials & Methods	0	1	2	3	4	5	6	7	8	9	10													10			
Literature & Referencing	0	1	2	3	4	5	6	7	8	9	10													10			
Data & Analysis	0	1	2	3	4	5	6	7	8	9	10													10			
Scientific Soundness:	0	3	6	9	12	15	18	21	24	27	30													30			
Analyses & Modelling	0	1	2	3	4	5	6	7	8	9	10													10			
Interpretation	0	1	2	3	4	5	6	7	8	9	10													10			
Problem Statement & Conclusions	0	1	2	3	4	5	6	7	8	9	10													10			
TOTAL (REPORT ONLY)*																							80				
TOTAL (REPORT AND ORAL PRESENTATION) OR TOTAL (RECALCULATED TO %)																							100				
COMMENTS																											

Presentation	Technical Soundness	Scientific Soundness
Oral Presentation <ul style="list-style-type: none"> ○ Level of use of language ○ Level of verbal skills, projection, conversation and explanation ○ Level of transferring information within allotted time (time management) ○ Ability to discuss and debate topic 	Materials & Methods <ul style="list-style-type: none"> ○ Adequate description of existing methods and/ or study area ○ Inclusion of state-of-the art methodology ○ Inclusion of recent (ca. 5 years) advances ○ Appropriateness of methods 	Analysis & Modelling <ul style="list-style-type: none"> ○ Correct analyses ○ Constraints of methods ○ Statistical reliability of data addressed ○ Applicable conceptual model ○ Applicable model (e.g. analytical geochemical, numerical,)
Written Presentation <ul style="list-style-type: none"> ○ Effort in preparation of report ○ Visual appearance and formatting ○ Relevance and appropriateness of text tables and figures applied ○ Style sheet usage ○ Logical sequence of report ○ Addressing all relevant content 	Literature & Referencing <ul style="list-style-type: none"> ○ Adequate description of existing and state-of-the-science literature ○ Inclusion of recent (ca. 5 years) advances ○ References supplied in-text ○ Extent of bibliography ○ Relevance of authors cited 	Interpretation <ul style="list-style-type: none"> ○ Relevance of the information ○ Placing data in context ○ Thoroughness of addressing topic ○ Correctness of content ○ Appropriateness of results ○ Ability to debate outcomes
Grammar & Language <ul style="list-style-type: none"> ○ Correctness of grammar, spelling and punctuation ○ Level of writing ○ Level of readability 	Data & Analysis <ul style="list-style-type: none"> ○ Proper depiction of data ○ Relevance of data ○ Grouping of associated data 	Problem Statement & Conclusions <ul style="list-style-type: none"> ○ Clear objectives of the project ○ Proper title ○ Level of addressing of topic ○ Conclusions addressing objectives

APPENDIX D. DECLARATION ON PLAGIARISM

The Department of Geology (University of Pretoria) places great emphasis upon integrity and ethical conduct in the preparation of all written work submitted for academic evaluation. While academic staff teaches you about referencing techniques and how to avoid plagiarism, you too have a responsibility in this regard. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted.

You are guilty of plagiarism if you copy something from another author's work (e.g. a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-for-word (verbatim), but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it. You are not allowed to use work previously produced by another student. You are also not allowed to let anybody copy your work with the intention of passing it off as his/her work.

Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Disciplinary Committee (Students) for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University.

The declaration, which follows, must accompany all written work submitted while you are a student of the Department of Geology (University of Pretoria). No written work will be accepted unless the declaration has been completed and attached.

I, the undersigned, declare that:

- i) I understand what plagiarism is and am aware of the University's policy in this regard.
- ii) I declare that this assignment (e.g. essay, report, project, assignment, dissertation, thesis, etc.) is my own original work. Where other people's work has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with Departmental requirements.
- iii) I have not used work previously produced by another student or any other person to hand in as my own.
- iv) I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.
- v) I understand the Department of Geology's policy on plagiarism and the criteria set for using Turnitin by the Department.
- vi) I acknowledge that I am allowed to use Turnitin to evaluate my own work prior to submission.

Full names:

Student number:

Date submitted:

Topic of work:

Signature:

Supervisor:

Table 9. Description of undergraduate modules presented in the Department of Geology.

MODULE	YEAR BOOK DESCRIPTION (PREREQUISITES)	CREDITS
GLY 155 Introduction to Geology (Prof Dippenaar & Prof Bumby)	<i>Solar system; structure of solid matter; minerals and rocks; introduction to symmetry and crystallography; important minerals and solid solutions; rock cycle; classification of rocks. External geological processes (gravity, water, wind, sea, ice) and their products (including geomorphology). Internal structure of the earth. The dynamic earth – volcanism, earthquakes, mountain building. Geological processes (magmatism, metamorphism, sedimentology, structural geology) in a plate tectonic context. Interaction between the above internal and external forces of the earth and field practicals as well as practicals in geological maps and mineral and rock specimens are part of this course.</i>	16 (Q1+Q2)
GLY 163 Earth History (Prof Lenhardt & Mr Nkosi)	<i>This module will give an overview of earth history, from the Archaean to the present. Important concepts such as the principles of stratigraphy and stratigraphic nomenclature, geological dating and international and South African time scales will be introduced. A brief introduction to the principles of palaeontology and evolution will be given, along with short descriptions of major fossil groups, fossil forms, ecology and geological meaning. In the South African context, the major stratigraphic units, intrusions and tectonic/metamorphic events will be detailed, along with related rock types, fossil contents, genesis and economic commodities. Practical work will focus on the interpretation of geological maps and profiles. (Prerequisite is GLY 155/ GLY 151/ special exemption to 2nd year Biological Science students)</i>	16 (Q3+Q4)
GLY 253 Sedimentology (Prof Lenhardt)	<i>Introduction to sedimentology; composition, textures and classification of sedimentary rocks; flow dynamics and behaviour of sediment particles in transport systems; description and genesis of sedimentary structures; diagenesis; modern and ancient depositional environments and their deposits; economic sedimentology; field data acquisition from sedimentary rocks and writing of reports; sieve analysis; Markov analysis; analysis of palaeocurrent trends; interpretation of sedimentary successions from outcrops and boreholes. (CMY 117, CMY 127, GLY 155, GLY 163, WTW 114/WTW 158 and PHY 114)</i>	12 (Q2)
GLY 255 Fundamental and Applied Mineralogy (Mr Nkosi)	<i>Fundamental concepts in mineralogy, and practical applications of mineralogy, including: the basics of crystal structure; the crystallographic groups; the rules of atomic substitution; phase transitions and phase diagrams; the structure and uses of olivine, pyroxene, feldspar, amphibole, mica, aluminosilicates, garnet, cordierite, and more uncommon mineral groups such as oxides, sulphides and carbonates; the calculation of mineral formulae from chemical analyses using various methods. Practical sessions: the basics of optical mineralogy and the use of transmitted light microscopy for thin section examination of minerals and rocks; the practicals will develop mineral identification skills for the minerals covered in the lectures, and cover basic textural identification. (CMY 117, CMY 127, GLY 155, GLY 163, WTW 158 and PHY 114 OR SWK 211)</i>	12 (Q1)
GLY 263 Igneous and Metamorphic Petrology (Dr Roberts)	<i>Classification and nomenclature of igneous rocks. The nature of silicate melts; physical and chemical factors influencing crystallisation and textures of igneous rocks. Phase diagrams, fractional crystallisation and partial melting. Trace elements and isotopes, and their use in petrogenetic studies. Global distribution of magmatism and its origin. Mid-oceanic ridges, active continental margins, intraplate magmatism. Classification of metamorphic rocks. Anatexis, migmatite and granite; eclogite. Metamorphic textures. PT-time loops. Metamorphism in various plate tectonic environments. (GLY 255)</i>	12 (Q3+Q4)
GLY 266 Geological Field Mapping	<i>Introduction to field mapping techniques. (CMY 117, CMY 127, GLY 155, GLY 163, WTW 158 and PHY 114/ SWK 122)</i>	6 (October Recess)
GLY 365 Structural Geology (Prof Bumby)	<i>Integrated theoretical and practical course dealing with the principles of rock deformation and analysis of deformed rocks. Stress, strain and rheology, joints, experimental rock deformation, fault systems and Anderson's theory of faulting. Folds and interference folding, tectonic fabrics, shear zone, progressive deformation. Stereographic projection and structural analysis. (Three of the second-year modules: GLY 255, GLY 261, GLY 262, GLY 253)</i>	18 (Q1)
GLY 366 Groundwater (Dr Diamond)	<i>Origin and classification of groundwater; classification of aquifers; groundwater movement; equations for groundwater flow into boreholes; the La Place equation and solutions for pump tests; execution and interpretation of pump tests; contaminant transport; low temperature aqueous geochemistry; groundwater exploration and management. (Three of the second-year modules: GLY 255, GLY 261, GLY 262, GLY 253)</i>	18 (Q2)

MODULE	YEAR BOOK DESCRIPTION (PREREQUISITES)	CREDITS
GLY 367 Economic Geology (Dr Milani)	<i>This module details the genesis and exploitation of major ore deposits, with an emphasis on South African examples. The processes through which ore deposits are formed and modified will be discussed, highlighting the relevance of sedimentary, metamorphic and igneous processes in the genesis of world-class ore bodies. The module will also address the methods of mining commonly used, and the international commodity market, including a brief introduction to ore reserve estimation and the evaluation of potential ore deposits. (GLY 365 and GLY 366)</i>	36 (Q3+Q4)
GLY 369 Engineering Geology and Rock Mechanics (Prof van Rooy & Ms Maoyi)	<i>Definition and scope of engineering geology; engineering geological properties and problems of rocks and soils within different stratigraphic units and climatic regions in southern Africa. Strength and failure modes of rock material and rock failure criteria. The characteristics of joints in rock. Joint line surveys and interpretation of data. Characteristics of a rock mass, rock mass classification and determination of strength. Slope stability in surface mines. Induced seismicity due to deep mining and rock bursts. This is in support of United Nations Sustainable Development Goals dealing with clean water, sanitation, infrastructure development. (GLY 365)</i>	36 (Q3+Q4)
GLY 368 Advanced Geological Field Mapping	<i>Advanced field mapping techniques. (GLY 266; Three of the second-year modules: GLY 255, GLY 261, GLY 262, GLY 253)</i>	6 (July Recess)

Table 10. Description of modules presented in the EBIT Faculty.

MODULE	YEAR BOOK DESCRIPTION (PREREQUISITES)	CREDITS
SWK 122 Mechanics	<i>Equivalent force systems, resultants. Newton's laws, units. Forces acting on particles. Rigid bodies: principle of transmissibility, resultant of parallel forces. Vector moments and scalar moments. Relationship between scalar- and vector moments. Couples. Equivalent force systems on rigid bodies. Resultants of forces on rigid bodies. Equilibrium in two and three dimensions. Hooke's law. Trusses and frameworks. Centroids and second moments of area. Beams: distributed forces, shear force, bending moment, method of sections, relationship between load, shear force and bending moment. (WTW 158)</i>	16 (Q3+Q4)
SWK 210 Strength of Materials	<i>Stresses, strains and the mechanical properties of materials: normal stress and shear stress, tension and compression, equilibrium in shear, factor of safety, design, shear strain, stress/strain diagram, Hooke's law, Poission's ratio and the shear stress/ strain diagram. Axial loads: elastic deformation, displacements, statically determinate and indeterminate structures and thermal effects. Torsion: torsion of circular bars and power transmission beding of straight members and composite beams. Transverse shear: shear in straight members and shear flow. Combined loads: thin walled pressure vessels and stresses as a results of combined loads. Stress transformation: plane stress transformation, principle stresses, maximum values and stress variation in prismatic beams. Strain transformation: plane strain transformation, principle strains, maximum values, strain gauges and rosettes and the relationship between E, G and u. Design of beams from section characteristics. Deflection of beams: the elastic curve integration method, Macauly's method and superposition. (SWK 122; WTW 168/ WTW 128)</i>	16 (Q1+Q2)
SGM 311 Soil Mechanics	<i>Introduction to soil mechanics. Introduction to clay mineralogy. Mass, volume relationships and phases of soil. Groundwater flow and permeability. Effective stress principles. Suction pressures in saturated as well as partially saturated soil. The Mohr circle and stresses at a point. The Mohr-Coulomb strength theory and the stress-strain properties of soil. The Boussinesq theory. Consolidation theory and soil settlement. (SWK 210)</i>	16 (Q1+Q2)

APPENDIX F. GEOLOGY HONOURS

The honours degree in Geology (code 02240141) follows on the undergraduate study programme in Geology and employment is generally within the mining industry with additional options in forensic geology, exploration geology and analytical services. **Table 11** shows the honours curriculum.

Table 11. BSc Hons Geology modules.

MODULES		CDTS	OPTION	NOTES
CORE MODULES		135		
GLY 701	Petrology and Geochemistry	20	Geology	
GLY 704	Crustal Evolution 704	20	Geology	
GLY 707	Mapping Camp 707	10	Geology	
GLY 710	Honours Project 710	35	Geology	
GLY 713	Economic Geology 713	20	Geology	
GLY 715	Modern Analytical Methods & Sampling Theory 715	20	Geology	
GLY 716	Trends in Geoscience 716	10	Geology	

APPENDIX G. ENG GEO & HYDROGEOLOGY HONOURS

The honours degree is awarded as Baccalaureus Scientiae Honores Engineering and Environmental Geology (option: Engineering Geology) or Baccalaureus Scientiae Honores Engineering and Environmental Geology (option: Hydrogeology); a specialization option therefore needs to be selected within the programme.

Both these fields of study involve the interaction between Man and the geological environment, the latter comprising rock, soil, water and all the surface and subsurface processes forming the Earth. Safe, cost-effective, environmentally acceptable and sustainable development are at the core of Engineering Geology and Hydrogeology, and understanding the inherent risks posed on Man and development by geological processes and materials are fundamental.

COURSE OUTLINE:

The programme is focussed around the principles of geomechanics and fluid mechanics – i.e. the behaviour of and interaction between rock, soil and various fluids (whether air, water or non-aqueous liquids). Additional emphasis is placed on geochemistry of earth materials and aqueous geochemistry.

Field work and practical examples are incorporated throughout the honours study programme to ensure optimal exposure to different scenarios and applications of the study material. **Table 12** shows the honours curriculum.

Table 12. BSc Hons Engineering Geology and Hydrogeology honours modules.

MODULES		CDTS	OPTION	NOTES
CORE MODULES		95		
GTX 713	Site Investigation Project 713	30	Both	
GTX 714	Engineering Geology of South Africa 714	20	Both	
GTX 716	Environmental Management & Risk Assessment 716	15	Both	
GTX 725	Fluid Mechanics in Geological Media 725	20	Both	
GTX 728	Applied Geological Field Methods 728	10	Both	
ELECTIVE MODULES		40		
GTX 715	Environmental Geochemistry 715	20	Hydrogeology	
GTX 718	Hydrogeological Modelling 718	20	Hydrogeology	
GTX 722	Rock Engineering 722	20	Engineering Geology	
GTX 723	Engineering Applications 723	20	Engineering Geology	

MODULES:

GTX 713 Site Investigation Project 713 (30 credits; managed by Prof Dippenaar)

Field work which includes mapping, soil and rock description, joint surveys, borehole testing, water sampling, interpretation of laboratory test results and compilation of site investigation reports. Larger projects of at least two months of fieldwork and report writing which involves surface and underground studies, mapping, drill core logging, discontinuity surveys, rock mass classification, stability analyses, interpretation of laboratory tests or pollution studies including water and/or soil sampling, interpretation of laboratory tests, development of a rehabilitation plan or groundwater model and compilation of a report. Compulsory attendance at conferences, short courses, specialist lectures, visits to construction sites and fields excursions. (* Assessment will be based on a single research report and oral seminar. There will be no exam for this module and the class mark will be the final mark.)

GTX 714 Engineering Geology of South Africa 714 (20 credits; Prof van Rooy)

Overview of site investigation phases; site investigation techniques; soil profiling and rock core description. Literature study and compilation of reports on the stratigraphy of South African rock types and engineering problems of rocks and soils within different stratigraphic units and climatic regions.

GTX 715 Environmental Geochemistry 715 (20 credits; Dr Diamond)

Principles of low temperature geochemistry; geochemistry and origin of acid mine water; acid-mineral reactions; industrial effluents, remediation methods, waste disposal, environmental sampling and data analysis; geochemical modelling.

GTX 716 Environmental Management and Risk Assessment 716 (15 credits; Dr Diamond)

Principles of integrated environmental management; environmental impact assessment; environmental management systems (ISO 14000 series), water resource management; environmental legislation; site investigation guidelines; natural hazard risk assessment; seismicity; project management and professional business practice. Geological models and software.

GTX 718 Hydrogeological Modelling 718 (20 credits; Prof Dippenaar & External)

Finite-difference methods, numerical solution of the flow and transport equations, spatial and temporal discretization, stability criteria, development of conceptual models, introduction to PMWIN/Modflow.

GTX 722 Rock Engineering 722 (20 credits; Ms Maoyi)

Mapping, description (core logging and discontinuity surveys) and classification of rock masses; engineering properties of rock masses including deformability, shear strength of discontinuities, in situ strength and permeability of rock masses; effects, theoretical derivation and practical measurements of in situ stresses.

GTX 723 Engineering Applications 723 (20 credits; Prof van Rooy)

The influence of geology on construction projects with specific reference to the requirements of dams, tunnels, slopes, waste disposal and urban development.

GTX 725 Fluid Mechanics in Geological Media 725 (20 credits; Prof Dippenaar)

Statics and dynamics of fluids, including water, aqueous phase liquids (saline water), non-aqueous phase liquids (petroleum hydrocarbons), gases (atmospheric air) and man-made fluids (grout) through natural and man-made porous media (eg soil, rock, concrete). Single phase flow and multiphase flow; saturated and unsaturated flow. Quantification of hydrological parameters. South African hydrostratigraphy. Drainage and dewatering.

GTX 728 Applied Geological Field Methods (10 credits; managed by Ms Maoyi)

Practical field-based investigation methods for engineering geological and hydrogeological application; geological mapping. (* Assessment will be based on individual or group assignments. There will be no exam for this module and the class mark will be the final mark.)

MONDAY MEETINGS:

All candidates are required to be present in the Engineering Geology Lecture and Project Room 4-24 (or the Hydrogeology Lecture and Project Room 4-22 in the event of simultaneous lectures) in the Natural Sciences II Building, on Mondays from 09:00 am. This time slot is a compulsory contact session during which time the lecturers may be consulted and where the programme for the week will be discussed. Additional literature studies and arrangements for site and field visits will be made during these sessions. If you cannot attend the session, a valid reason must be submitted to the responsible lecturer prior to the session or as soon as possible thereafter. The 09:00 Monday morning meetings is an opportunity for discussion and enquiry with regards to modules being presented, progress of practical modules, as well as all other administrative arrangements. Literature studies and discussions will also form part of most of the theory and project modules and will also be discussed during these meetings.

ORAL SEMINARS:

Students are expected to upload presentations between 08:30 and 08:50 on the day of the oral examination and project presentation as seminars commence at 09:00. No uploading will be allowed after 08:50 on the date noted. Hard-copy stapled reports have to be submitted before commencement of the seminars. A student's marks will be adjusted to the percentage of seminars attended in the event of absence for some of the presentations.

PURCHASES:

Unless noted otherwise, the following are required in order to conduct the work as required to obtain the B.Sc. (Hons.) degree:

- Valid driver's license and transport
- Valid passport
- Geological hammer, tape measure, camera, hand lens and other field equipment
- Personal protective equipment (PPE), especially steel tip safety boots
- Access to a word processing computer, Internet connection and printing facilities
- Valid email account and mobile phone number for communication
- Computer literacy re Microsoft Office© or LaTeX © and associated software
- Ability to learn geological and geoinformatic software packages
- Proper English language skills (verbal and written).
- Although laptops are not required to complete the programmes, students are encouraged to make use of any such facilities during lectures, provided that it is used solely for work relating to the course being presented.

Purchasing (or having access to) the following books is advised:

- Cashman PM, Preene M. (2013). *Groundwater Lowering in Construction: A Practical Guide to Dewatering*. 2nd Ed. CRC Press. Cornwall.
- Craig RF. (2004). *Craig's Soil Mechanics*. Taylor Francis. (or any other soil mechanics book, e.g. Das 2008; Knappett and Craig 2012)
- Dippenaar MA. (2014). *Vadose Zone Hydrology: Concepts and Techniques*. Water Research Commission TT 584/13.
- González de Vallejo LI, Ferrer M. (2011). *Geological Engineering*. CRC Press/Balkema. Leiden.
- Johnson Anhaeusser, Thomas. (2012). *The Geology of South Africa*. Geological Society of South Africa/ Council for Geoscience.
- Materials compiled under editorship of John Cherry at <https://gw-project.org>
- Materials compiled under commission of the Water Research Commission at www.wrc.org.za

ASSESSMENT:

Assessment at honours level is built strongly on:

- Formative assessment - various opportunities are provided to make up a strong class mark during presentation of the respective modules; provision of continuous feedback loops on outcomes of assessment to maintain involvement and to ensure you don't fall behind
- Summative assessment - a single assessment opportunity to evaluate the combined outcome of the module at the end of its presentation.

Final marks are calculated as shown in **Table 13** (subject to change).

Table 13. Calculation of final marks for engineering geology and hydrogeology honours modules.

MODULE	MODULE CODE (CREDITS)	MARK CALCULATION	NOTES
PROJECT	GTX713 (30)	Single final mark PROJECT = 100%	May include the written report, oral seminar, oral defence, and/ or any progress submissions as required by the project supervisor and external examiners
FIELD	GTX728 (10)	Single final mark 3 REPORTS = 100%	Field School Other opportunities (e.g. SAIEG profiling; GWD groundwater field school; other field trips)
THEORY	GTX714, GTX725 (20; all) GTX718 (20; HG) GTX722, GTX723 (20; EG)	Class (75%) + Exam (25%) = Final (100%)	Assess continuously during block; Exam at end of Week 5 of block Supplementary and sick exams at end of year
THEORY	GTX715 (20; HG)	Class (60%) + Exam (40%) = Final (100%)	Assess continuously during block; Exam at end of block Supplementary and sick exams at end of year
THEORY	GTX716 (15; all)	Class (72%) + Exam (28%) = Final (100%)	Assess continuously during block; Exam at end of block Supplementary and sick exams at end of year