



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



## Honours Handbook

Department: Geology  
Departement: Geologie

**B.Sc. Hons.  
Engineering Geology and Hydrogeology**

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## Generic Information: Honours Programmes in the Department of Geology

### 1. Introduction

#### 1.1. Honours 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.

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 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.

#### 1.2. 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.

The honours degrees offered in the Department are level 8 according to the South African Qualification Authority's (SAQA's) Higher Qualification and Education Sub Framework (HQESF). Each programme comprises 135 credits amounting to 1350 notional hours.

These honours degrees allow for eventual professional registration with the South African Council for Natural Scientific Professions (SACNASP).

#### 1.3. About this Document

Note that the contents of this document (henceforth the *Honours Handbook*) apply to the complete honours programme for the year 2015. Individual versions are available for *B.Sc. (Hons.) Geology* and for *B.Sc. (Hons.) Engineering Geology and Hydrogeology*. The student should ensure that he/ she uses the correct version of the document.

All amendments hereto, including the contents of the *Introduction to Technical Reporting and Scientific Writing* course and all other study guides and study materials, should be used conjunctively with this document. The contents of this and other study guides will be enforced and students should ensure that they are fully aware of the contents.

#### 1.4. Educational Approach

In terms of the educational policy of the University it is accepted that "a student should undergo an academic-scientific moulding as to be able later in professional context to function as an independent scientist and to contribute to the creative development of the chosen profession... in effect it 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.

### **1.5. Critical Cross-Field Outcomes**

The critical cross-field outcomes include, but are not limited to:

- Identifying and solving problems by using critical and creative thinking.
- Working effectively with others as a member of a team.
- Organising and managing oneself and one's activities responsibly and effectively.
- Communicating effectively using visual, mathematical and language skills in the modes of written persuasion.
- Demonstrating an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
- Contributing to the full personal development of each learner and the social and economic development of society at large by making it the underlying intention of any programme of learning to make an individual aware of the importance of:
  - Reflecting on and exploring a variety of strategies to learn more effectively;
  - Participating as responsible citizens in the lives of local, national and global communities;
  - Being culturally and aesthetically sensitive across a range of social contexts;
  - Exploring education and career opportunities; and
  - Developing entrepreneurial opportunities.

## **2. Lecturing and Communication**

### **2.1. Lecturing Staff**

Details and short curriculum vitae of all lecturing and support staff are available on the departmental homepage under *Staff*. Students are encouraged to acquire contact information and research interests prior to contacting staff.

Members of staff are available only by appointment made via email, or at the times stipulated on their office doors or module study guides for consulting. Students should respect that research and other undergraduate and postgraduate students also require time and that lecturers cannot be available at any given time of day, even when in the office.

Demonstrators and tutors are sometimes used to improve contact, notably during practical work. For a given module, the demonstrators and tutors compliment the functions of the lecturer and all work covered by them form part of the learning outcomes for the course.

### **2.2. Student Administration**

Student matters are handled by Ms Mmantwa Senyatsi in room 3-48 of the Mineral Sciences Building. All queries can be directed to her during her office hours.

Class guardians for the two honours programmes are as follows:

- Engineering and Environmental Geology Honours & IGL 703      Dr MA Dippenaar
- Geology Honours      Prof AJ Bumby

### **2.3. 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. The class representative will serve to communicate important notifications during lecture sessions, notably concerning announcements of lecturer absence and student grievances. Airing of grievances by a class representative will be taken as reflecting the opinion of the complete class and will never be accepted as a personal opinion.

The class representative will be confirmed based on evaluation of his/ her academic record. It is expected that a class representative performs academically and has, at the time of appointment, passed all previous academic semester modules, and has registered for all geology modules within in a given academic year (e.g. all 100, 200 or 300 level modules) within the same calendar year (e.g. 2015, 2016 or 2017).

### **3. Admission and Requirements**

#### **3.1. Admission into the Honours Programme**

##### **Geology:**

According to the 2016 Postgraduate Yearbook (Faculty of Natural and Agricultural Sciences), the following are required: A BSc degree in Geology with an average of 60% for all the geology modules at 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 perusal of their academic records and at the discretion of the head of department.

##### **Engineering Geology and Hydrogeology:**

According to the 2016 Postgraduate Yearbook (Faculty of Natural and Agricultural Sciences), the following are required: A BSc degree in Geology or Environmental and Engineering Geology with an average of 60% for all the modules in applied geology at second-year and third-year level. These modules must include soil mechanics, rock mechanics, engineering geology and hydrogeology. 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 perusal of their academic records and at the discretion of the head of department.

#### **3.2. Re-admission and Modules Failed**

In the event that one or more modules are failed during the academic year, reregistration will be based on positions available and new applications meeting all prerequisites will be given preference.

If allowed, a maximum of 30 combined module credits may be repeated (amounting to two theory modules or one project module). 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 30 credits will result in the student being failed the complete honours course. In exceptional circumstances, the student may be allowed to enroll for the entire programme for the following year. However, readmission is competitive with the new enrollments, and a student having failed more than 30 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.

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.

### **3.3. Additional Requirements**

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©
- 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.

## **4. Contact Sessions and Course Programme**

### **4.1. Compulsory Sessions**

The provisional programme for 2016 is attached in APPENDIX A. Note that the honours programmes are presented full-time and it is therefore not possible to also be employed (fulltime or parttime) for the year of registration.

According to University policy, class attendance is compulsory. For this reason, no lectures, practical sessions, field trips or discussions will be repeated as this negatively impacts on the rest of the students in the class. Students who are absent from lectures and practical sessions without proper reason will be responsible to obtain the information and announcements from the relevant session on their own.

These contact sessions must be regarded as fixed appointments throughout the entire academic year, including undergraduate recess periods. There are no formal recess periods during the honours course and candidates should not arrange extracurricular activities during week days between 08:00 and 17:00 without prior confirmation from the lecturers. Saturdays are also available for academic purposes and students 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.

Students should not query whether appointments are compulsory, nor should their work (if applicable) interfere with attendance of compulsory sessions.

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

### **4.2. Consulting Hours**

The lecturers are available during the scheduled contact sessions or by appointment during the consulting times indicated on their office doors. Appointments should be made via email to ensure that a suitable date and time can be arranged. Due to other academic duties (e.g. undergraduate lecturing, postgraduate supervision, research), lecturers cannot guarantee to be available at any given time.

### **4.3. Announcements**

All announcements will be made during the official contact sessions. ClickUP, email or the notice boards may be used for any additional communication, including announcements, discussions and publication of

test results. It however remains the responsibility of students to ensure that they are informed of all communications with respect to the various activities within each module.

#### **4.4. Communication**

At honours level, lecturers provide study material and guidance, but expect students to participate more actively. It becomes the student's 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 honours lecturer is there to provide course contents, to guide the student through self study, and/ or to supervise research project work.

### **5. Course Structure**

The theoretical part of the course is presented as lectures, practicals and self-study. Project work, on the other hand, is to be conducted independently and with supervision of the relevant lecturers and the student should take the lead.

#### **5.1. Technical Reporting and Scientific Writing**

During the first week, an Introduction to Technical Reporting and Scientific Writing course will be presented and 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. The style sheet, policy on plagiarism and proper English reporting skills will be addressed in detail during this week.

Students 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.

#### **5.2. Theory Component**

The following section applies to all core and elective modules within the specialisation within the course.

##### **Presentation of Theory Modules**

The theory modules will be presented during block sessions in which all the formal lectures for the different modules will be presented. A period for the preparation of seminars will follow with a day for each module set aside for seminar presentations and a concluding week when module tests will be written. Attendance of these sessions is compulsory.

##### **Self-study Component**

Due to the student-centred approach of most modules, a large component of each module will be self-study. As the material prepared by the students forms part of the study material for examination purposes, it is important to prepare these written assignments with great care and dedication. It remains the responsibility of each candidate to ensure that s/he obtains the required and prescribed material for each of the modules, irrespective of the quality of the assignments produced by fellow students. In the event of substandard assignments or serious omissions the lecturer may provide additional readers on clickUP.

##### **ClickUP**

A number of the modules will be presented via clickUP with limited to no formal contact sessions. These modules will be available on the web during specified times and the study guides, assignments and assessment will be facilitated via clickUP. The formal discussion sessions will be compulsory and participation of candidates will count as part of the module assessment.

### **5.3. Practical Component**

Due to the applied nature of the programme, practical and project work form a substantial part of the training. The aim of practical/ project-orientated modules and assignments is to guide the student through the different stages of a site investigation and/ or practical assignment as well as to work with large data sets and within a larger projector research team.

#### **Management of Project Modules**

A separate study guide will be handed out for the project modules GLY 710 and GTX 713, addressing the purpose and assignments.

Accumulation of the total credits for project modules – if applicable – is typically based on notional hours spent on literature study, data collection, analysis, interpretation and reporting. A total of 300 hours is assigned based on the 30 credits and should incorporate at least one bigger project (> 20 credits) and two or more small projects making up the remainder of the credit requirements.

#### **Excursions**

Field and site visits as well as small project work and shorter excursions and visits to construction projects/ sites will be organised randomly throughout the year and will infringe on the formal programme.

#### **Reporting**

The prescribed style sheet and format for written assignments will be supplied during the *Introduction to Technical Reporting and Scientific Writing* course. The part on referencing is of particular importance because all inadequately referenced written submissions will be returned to the student for revision based on the details in §8. If the referencing is still not complete or according to the guidelines the assignment will be awarded a zero mark. An English Handbook is available for download under *I am looking for...* on the Geology Department homepage ([www.up.ac.za/geology](http://www.up.ac.za/geology)).

#### **Report Submission**

All report submissions have to be submitted via clickUP and/ or as ringbound hard copies (however specified by the relevant lecturer) before the deadlines noted in the respective study guides. Under no circumstances will late submissions be accepted and the online assignment module will refuse the uploading of assignments after the stipulated deadline. All written submissions for GTX 713 have to be in doc- or docx-format with all graphics compressed to reduce the file size. As the *track changes* function is used for evaluation, pdf-files will not be accepted.

## **6. Assessment**

### **6.1. Assessment of Theory Modules**

The assessment of theoretical modules will be based on the stated objectives for each individual module.

**A 50% subminimum** is required for the module mark and exam to pass the respective modules.

Candidates will be issued with individual study guides for each of the theory modules in which the details regarding course content, student input, study aims and module requirements and methods of assessment will be listed. The relevant study guides of the web-based modules will be released on clickUP on the dates announced during the formal contact sessions on Mondays.

The assessment procedure for each of the theory modules will be detailed in the individual module study guide. Entrance to the examination in any of the theory modules requires a final module mark of at least 50%, except if stated otherwise in the module study guide.

## **6.2. Assessment of Project Modules**

Reports submitted for the final examination of the project modules must be in bound hard copy for presentation to the external examiners. The attached form in Appendix B should be completed and submitted with each of the hard-copy reports. Unsatisfactory reports and project updates will be treated as a re-evaluation, implying that a maximum mark of 50% will be allocated if work has to be resubmitted due to the need for significant corrections. In the event of a plagiarised report, a zero mark will be allocated without an opportunity for resubmission and in serious cases the report will be referred to the Student Disciplinary Committee for appropriate action. Late submission or no submission will also result in a zero mark for the relevant component of the project.

The project reports and practical task assignments will be assessed on the objectives agreed to during the project proposal sessions. The extent to which the final reports have achieved the initial objectives or to what extent the practical assignments cover the relevant topics will be the guide used during marking.

A final mark of at least 50% is required for each individual practical project report to pass the module. The final project results will be presented to the project supervisors, entire honours class and the external examiners. The presentation mark will comprise of four separate marks awarded by the project supervisor, internal examiner, external examiner as well as a peer group assessment mark.

Project modules are managed by the student. To ensure that all parties involved are aware of the mutual expectations and outcomes, it is important that the student complies with the assessment outlines noted below. These progress markers are to be discussed during project update meeting. Project modules will be assessed based on the following:

### **Proposal and timeframe**

Was a project proposal submitted, containing a brief scope, objectives, methodology, costing and timeframe? Did the student comply with the submitted proposal?

### **Purpose Statement, Hypothesis, Scope or Terms of Reference**

Is the purpose of the investigation or research project clearly defined, within context of the expected outcomes and adequately addressed in the discussion?

### **Methodology**

Are the correct methods applied and are the methods applied correctly to properly address the problem? Are the methods applied in a scientifically sound manner and are the short-comings of the applied methods addressed? Are the methods well explained and understood?

### **Literature Review**

Is the literature review thorough yet concise and containing all the required information? Are the state-of-the-art documents cited? Are the required legislation and guidelines incorporated? Is the development of the methods well discussed? Is an adequate number of recent (ca. 5 years) publication included to address recent advances? Are concepts clearly discussed?

### **Data Acquisition**

Are the correct data utilised? Were data collected in the correct ways (e.g. correct excavation, sampling and preservation techniques)? Is the database statistically significant (e.g. not a single sample extrapolated over a complete study area)? Was data acquisition well planned and well executed? Was the student involved directly in the data acquisition?

### **Data Analysis**

Are the correct methods of data analysis employed? Is the statistical significance or representativeness of the data adequately described? Are analyses well formulated and explained to ensure duplication of results?

## **Results or Appraisal**

Are the results well described in context of the purpose statement and results obtained? Is the discussion well written to clarity and technical soundness? Are the results meaningful, even if in contradiction to the initial purpose statement? Are the conclusions and recommendations valid?

## **Bibliography and Plagiarism**

Is the list of references thorough and up to date? Were the correct methods of summarising, paraphrasing and quoting employed? Is the student guilty of plagiarism?

### **6.3. Typical Assessment Criteria**

At honours level, assessment is focused around the student's ability to synthesis information, solve practical problems and critically interpret findings.

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.

#### **Mathematical problems:**

- Was the correct method applied?
- Are the steps of the calculations shown (not only an answer)?
- Is the answer correct?
- Are the units correct and indicated throughout all the calculations?
- Are the graphical representations correct?
- Are the correct deductions or conclusions made?
- Is it presented in a legible, comprehensible manner with a logical flow from one step to the next?

#### **Short theory questions:**

- Is the answer relevant to the question?
- Is the answer correct?
- Is the answer short and concise and realistic with respect to the allocated maximum marks?
- Are there redundant, irrelevant or incorrect statements in the answer?
- Were the verb in question addressed, i.e. discuss, list, define, complete, elaborate, etc.

#### **Essay questions:**

- Is the essay opened with an introductory paragraph not only repeating the question?
- Does the essay end with a conclusion paragraph which does not introduce any new facts?
- Is the body of the essay structured into logical paragraphs with core concepts?
- Are the language, grammar and punctuation proper?
- Are the answers and the statements relevant to the question asked?
- Were the verb in question addressed, i.e. discuss, explain, compare, evaluate, elaborate, etc.
- Are the answers and the contents of the essay correct?
- Is it presented in a legible, comprehensible manner?
- Is the length of the essay and content realistic with respect to the allocated maximum marks?
- Were figures, schematic diagrams, flow charts, equations and/ or tables used appropriately?
- Was the answer supplied in the student's own words with relevant references and 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.

Assessment sheets (Appendix B) will be supplied in the relevant course study guides and will be used for allocation of a mark for the presentation, report and seminar components of the relevant module. The guidelines supplied below should be considered when preparing assignments.

**Seminars:**

- Presentation: level of use of language; verbal skills and projection; time management
- Appearance: effort in preparation; visual appearance; relevance and appropriateness of text; application of graphics and tables
- Referencing: cited per slide; extent of bibliography; verbal reference to cited authors; relevance of authors cited
- Literature and Methodology: adequate description of existing literature; inclusion of state-of-the-art and recent (ca. 5 years)
- Data and Analyses: proper depiction of data; correct analyses; constraints, assumptions and limitations addressed; statistical reliability addressed; relevance of data
- Interpretation: relevance of information; thoroughness of addressing the topic; correctness of content; ability to debate outcomes
- Purpose and Conclusions: clarity of objectives; proper title and purpose statement; level of addressing the topic; ability to conclude by addressing the purpose and objective; overall relevance and coherence.

**Report:**

- Appearance and Structure: effort in preparation; visual appearance and formatting; relevance and appropriateness of text; application of graphics and tables; style sheet usage; logical sequencing of report; grouping of associated information
- Language: correctness of language, grammar, spelling and punctuation; scientific level of writing; level of readability
- Literature and Referencing: adequate description of existing literature; inclusion of state-of-the-art and recent (ca. 5 years); proper in-text referencing; extent and correctness of bibliography; continuous reference to cited authors; no plagiarism; relevance of authors cited
- Methodology: thorough description of methods, constraints, assumptions, limitations and advantages; state-of-the-art and recent advances incorporated; discussion of acquisition, analysis and appraisal in sensible manner; proper motivation for selected methodology
- Data and Analyses: proper depiction of data; correct analyses; constraints, assumptions and limitations addressed; statistical reliability addressed; relevance of data
- Interpretation: relevance of information; thoroughness of addressing the topic; correctness of content; ability to debate outcomes; level of comprehension of the topic following the research; ability to transfer knowledge
- Purpose and Conclusions: clarity of objectives; proper title and purpose statement; level of addressing the topic; ability to conclude by addressing the purpose and objective; overall relevance and coherence; scientific contribution of the work.

**Oral examination:**

Oral examinations will be in the form of questions directed to the student and will be based on:

- Thorough knowledge of the topic, i.e. the student's ability to describe principles related to the topic in a clear, concise and understandable manner; confidence in addressing the topic
- Ability to explain concepts well, i.e. to convey theoretical aspects
- Application of concepts, i.e. ability to apply the theoretical concepts to real-life or hypothetical case studies
- Decision-making, i.e. weighing various options and properly debating the options at hand with proper motivation of the selected approaches, where applicable.

#### **6.4. Absence from Seminars, Field Visits and Module Tests**

The official test and seminar dates are set in the preliminary course programme for each module. 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 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 Department concerned. In the event of a semester test and seminar presentation, these documents have to be submitted to the lecturer.

As soon as the student is back on campus, an appointment must be made with the lecturer to discuss the issue after which a decision will be taken whether the reason is valid and a single time for the re- or sick test will be set for all these candidates.

Note, furthermore, that the University of Pretoria does not allow supplementary, ancillary or re-exams in the event of sick or special exams. The same applies to all other activities within the study programme contained in this study guide, including (but not limited to) seminars, module tests, field trips, excursions and colloquia.

#### **6.5. Absence from the Exam Period**

This has to be discussed with the Faculty directly as the lecturer cannot approve sick or special exams. No sick exams will be granted by the Faculty unless a sick note is submitted to the Faculty directly within 72 hours of the official exam period. The lecturer does not have the right to grant special exams and this has to be discussed with the Faculty. As per University regulations, no supplementary or ancillary examinations will be granted on sick exams.

#### **6.6. Absence from Sick, Supplementary, Re- and/ or Aegrotat Tests and Exams**

No excuses will be accepted for absence from any second opportunity of assessment, including (but not limited to) ancillary class tests or exams, sick tests or exams, re-tests or re-exams, or aegrotat tests or exams. Given that all of these represent second opportunities, absence from these assessments will not be discussed or reconsidered.

#### **6.7. Late Submissions of Written Assignments**

Late submissions are inexcusable as ample time is supplied for timeous submission. Late submissions will not be accepted and will result in a zero mark for this component. The same applies to written project updates and literature reviews requested as part of module contents.

This also applies to smaller project work making up the module GTX 713 or mapping camp reports. Final reports are due within two months of completion of field work. If submitted late, the project will not be marked and another small project will have to be completed.

The highest mark to be awarded for late submission is 50%, unless prior arrangements have been approved in writing by the lecturer concerned.

### **7. Lecture Materials**

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

Class notes are a privilege offered by the lecturing staff. Students should realise that it is their 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 should not expect to study solely from the lecture presentations, and the lecturer has the right to examine topics covered in the classes but not in the lecture notes.

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

## **8. Plagiarism and Referencing**

### ***8.1. Policy on Plagiarism***

Plagiarism refers to the appropriation of the work or ideas of others. Plagiarism is both unethical and illegal and may be regarded as a criminal offence in terms of the Copyright Act 98 of 1978. The University of Pretoria places a high premium on its academic standards and subscribes to a value system that requires strong action against plagiarism. Being regarded as a serious contravention of the University's rules, plagiarism can lead to expulsion from the University. For more information, see <http://upetd.up.ac.za/authors/create/plagiarism.htm> and Appendix C.

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 Similiarity Index of 50%, but so will 2 sources of 25% each. Thus, a lecturer cannot simply make judgements based on the Similiarity 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%.

### ***8.2. 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 – those published in internationally recognised journals within the past 5 years.
- Classical texts – 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 textbook – broad, generic overview of a subdiscipline, often inadequate for postgraduate purposes, and typically as prescribed or recommended for undergraduate courses.

## **9. Ethical Behaviour**

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, etv.). 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.
- 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 course programme supervisor or the head of the department who will guide the student regarding the proper channels towards resolution.

## Specific Information: BSc Hons Engineering and Environmental Geology

### 10. Course Description

#### 10.1. Engineering Geology and Hydrogeology

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.

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.

#### 10.2. Course Structure

The modules for specialization in Engineering Geology are listed in **Table 1** and those for specialization in Hydrogeology in **Table 2**.

**Table 1. Modules for specialisation in Engineering Geology.**

Code	Module Name	Credits	Prerequisites
Core modules (120 credits required):			
GTX 713	Site Investigation Project 713	30	GLY 363/GLY 364
GTX 714	Engineering Geology of South Africa 714	15	SGM 311 or TDH
GTX 716	Environmental Management & Risk Assessment 716	15	
GTX 722	Rock Engineering 722	15	GLY 364 or TDH*
GTX 723	Engineering Applications 723	15	GTX 722
GTX 721	Construction Materials 721	15	
GTX 725	Fluid Mechanics in Geological Media 725	15	GLY 363 & GLY 265
Elective modules (15 credits required):			
GTX 715	Environmental Geochemistry 715	15	
GTX 726	Rock and Soil Improvement 726	15	GLY 364 or TDH*

**Table 2. Modules for specialisation in Hydrogeology.**

Code	Module Name	Credits	Prerequisites
Core modules (120 credits required):			
GTX 713	Site Investigation Project 713	30	GLY 364/ 363/ TDH
GTX 714	Engineering Geology of South Africa 714	15	SGM 311 or TDH
GTX 715	Environmental Geochemistry 715	15	
GTX 716	Environmental Management & Risk Assessment 716	15	
GTX 719	Contaminant Transport 719	15	GTX 715 or TDH*
GTX 718	Hydrogeological Modelling 718	15	GTX 725
GTX 725	Fluid Mechanics in Geological Media 725	15	GLY 363 & GLY 265
Elective modules (15 credits required):			
GTX 722	Rock Engineering 722	15	GLY 364 or TDH*
GTX 726	Rock and Soil Improvement 726	15	

A total of 135 credits are needed of which 120 credits are prescribed and 15 are elective credits. A typical theory module is presented in three weeks (12 credits/ 120 hours) with additional time allocated for exam preparation (3 credits/ 30 hours). The large project module accounts for 30 credits (300 hours or 7½ weeks). These credits exclude compulsory attendance of two field schools, an excursion and other site visits and short courses as recommended. Final examination on all the modules takes place during November of the academic year. Appendix A shows the preliminary calendar for the presentation of the programme.

Elective modules will only be presented in a specific year if there are more than 3 candidates registered for that module. It remains the responsibility of each candidate to ensure that their elective module credits are sufficient to add up to the required number of credits for the degree.

Note also that the complete programme is presented full-time and in English only.

### **10.3. Description of Modules**

#### **GTX 713 Site Investigation Project 713 (30 credits)**

Prerequisites: GLY 363 and GLY 364 or TDH      Lecturer: Various; managed by Dr Dippenaar

Module content: Fieldwork, which includes mapping, soil and rock description, joint surveys, borehole testing, water sampling, and interpretation of laboratory test results and compilation of site investigation report. 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. Attendance of short courses, conferences and field excursions.

#### **GTX 714 Engineering Geology of South Africa 714 (15 credits)**

Prerequisites: SGM 311 or TDH      Lecturer: Prof van Rooy

Module content: 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 the engineering problems of rocks and soils within different stratigraphic units and climatic regions.

#### **GTX 715 Environmental Geochemistry 715 (15 credits)**

Prerequisites: n/a      Lecturer: External; managed by Dr Dippenaar

Module content: 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)**

Prerequisites: n/a      Lecturer: Dr Dippenaar

Module content: 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 (15 credits)**

Prerequisites: GTX 725      Lecturer: External; managed by Dr Dippenaar

Module content: 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 719 Contaminant Transport 719 (15 credits)**

Prerequisites: n/a

Lecturer: Dr Dippenaar

Module content: Theory of contaminant transport in porous and fractured aquifers, determination of transport parameters, boundary conditions, analytical solutions of 1-, 2- and 3-dimensional transport equations for porous aquifers, analytical solutions for fractured aquifers.

### **GTX 721 Construction Materials 721 (15 credits)**

Prerequisites: n/a

Lecturer: Prof van Rooy

Module content: Requirements for and use of concrete aggregates, road and dam construction materials; site investigation and site development methods; quality control.

### **GTX 722 Rock Engineering 722 (15 credits)**

Prerequisites: n/a

Lecturer: Prof van Rooy

Module content: 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 (15 credits)**

Prerequisites: GTX 722

Lecturer: Prof van Rooy

Module content: 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 (15 credits)**

Prerequisites: GLY 363 and GLY 265

Lecturer: Dr Dippenaar

Module content: 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 (e.g. soil, rock, concrete). Single phase flow and multiphase flow; saturated and unsaturated flow. Quantification of hydrological parameters. South African hydrostratigraphy. Drainage and dewatering.

### **GTX 726 Rock and Soil Improvement (15 credits)**

Prerequisites: n/a

Lecturer: Dr Dippenaar

Module content: Grouting materials and procedures; rock and soil support and stabilization; rock and soil compaction; geofabrics; water seepage and drainage methods.

## **10.4. Assessment**

Unless noted otherwise in the module study guides (Appendix E), the mark allocation is as follows:

$$\text{Final Mark (100\%)} = \text{Module Mark (50\%)} + \text{Exam (50\%)}$$

The total number of credits awarded to each site investigation project will depend on the difficulty and level of each individual project. More than one project may be necessary to accumulate the 30 credits needed for GTX713. The final marks for the project module **GTX 713** will be calculated as follows:

$$\text{Final Mark (100\%)} = \sum [\text{Project Mark (100\%)} / \text{Credits}] * 30 \text{ credits}$$

## **11. Course Programme**

The course programme is attached in Appendix A. Changes to the programme will be communicated on the fixed weekly meetings or via email.

### **11.1. Fixed Weekly Meetings and Lecture Venues**

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 08:30 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 08:30 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.

### **11.2. Field Schools and Excursions**

One or more field schools and/ or excursions are presented during the course of the year and attendance is compulsory. The purpose of the field schools is to integrate previous knowledge with new theory and field exposure relevant to the fields of engineering geology and hydrogeology.

The first field school is scheduled for the week of 1-5 February. Departure is at 07:30 from Sci-Enza and return on Friday 6 February before 14:00. Ensure to bring cool and warm clothes, swimming wear, hiking boots, a water bottle, hat, rain jacket, bedding (sleeping bag), towel, stationary, sunscreen and insect repellent. Laptops are also recommended. At a fee of R 500 per person, accommodation will be in dormitories and all study materials, food, crockery, cutlery and transport will be supplied.

The official honours excursion coincides with the assessment of GTX 726 and all supplementary examinations. The provisional date is set for the week of 1 November, although this may change during the course of the year. Attendance of this excursion is compulsory.

### **11.3. Dates of Assessment**

The examination is scheduled to start on 11 October 2015. The provisional examination timetable is supplied in **Table 3**. All examinations are scheduled to commence at 08:30 on the relevant day in the Engineering Geology or Hydrogeology office, unless noted as taking place during the year-end excursion. The examination timetable will be updated and finalised later in the year. The periods scheduled for exams, supplementary exams and oral exams (including project presentations) are, however, fixed to ensure that final marks can be submitted to the Faculty by 30 November.

**Table 3. Examination timetable.**

Date	Engineering Geology	Hydrogeology
10 Oct	GTX714 (EG)	GTX714 (EG)
12 Oct	GTX716 (EG)	GTX716 (EG)
14 Oct	GTX725 (EG)	GTX725 (EG)
17 Oct		GTX715 (HG)
19 Oct		GTX718 (HG)
21 Oct	GTX721; GTX722; GTX723 (EG)	GTX719 (HG)
31 Oct	GTX713 Seminars	GTX713 Seminars
01 Nov	GTX726; Supplementary Exams (Excursion)	GTX726; Supplementary Exams (Excursion)

Unless noted otherwise in the individual module study guides, the dates as scheduled in the course programme apply for assessment.

Students are expected to upload presentations between 08:00 and 08:30 on Monday 31 October 2016 as seminars commence at 08:30. No uploading will be allowed after 08:30 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.

## 12. Prescribed Books and Study Expenses

Additional to §7, the necessary literature sources as well as additional recommended and prescribed reading will be listed in each individual module study guide. A list of prescribed books and compulsory expenses are shown in **Table 4 – Table 7**.

**Table 4. General purchases and costs.**

Description	Cost	Pay To:
Geological pick	~ R 400.00	Sanvik
Hand lens (10x magnification)	~ R 100.00	Museum
Field School 1	R 500.00	Department
Excursion	R 1 000.00	Department
TOTAL FOR 2015	R 2 000.00	Department

**Table 5. Prescribed books for the course, irrespective of specialisation.**

Book Title	Cost	Available
Cashman, P. M. and Preene, M. (2013) Groundwater Lowering in Construction: A Practical Guide to Dewatering. 2 <sup>nd</sup> Ed. CRC Press. Cornwall.	~ R 800.00	Taylor & Francis
Craig, R.F. (2004). Craig's Soil Mechanics. Taylor Francis. (or any other soil mechanics book, e.g. Das 2008; Knappett and Craig 2012)	~ R 400.00	Taylor & Francis
Dippenaar, M. A., Van Rooy, J. L. et al. (2014). Vadose Zone Hydrology: Concepts and Techniques. Water Research Commission TT 584/13.	Free	<a href="http://www.wrc.org.za">www.wrc.org.za</a>
González de Vallejo, L. I. and Ferrer, M. (2011). Geological Engineering. CRC Press/Balkema. Leiden. -678pp.	~ R 1100.00	Publisher, Bookstore
Johnson, Anhaeusser and Thomas.(2003). The Geology of South Africa. Geological Society of South Africa/ Council for Geoscience	~ R 600.00	GSSA

**Table 6. Additional prescribed books for the option in Engineering Geology.**

Book Title	Cost	Available
Fulton, F.J. &Addis, B.J.(2001). Fulton's Concrete Technology. A South African Handbook. Cement & Concrete Institute, Halfway House	R500.00	C&CI
Bell, F G (1993) Engineering Geology, 201-245. Blackwell Scientific.	~ R 900.00	Bookstore
Bieniawski, Z T (1989) Engineering rock mass classifications. John Wiley & Sons, New York	R 2 800.00	Internet
Council for Geoscience and SAIEG.(2003). Guideline for engineering geological characterisation and development of dolomitic land. Council for Geoscience, Pretoria.	Free	Council for Geoscience
Hoek, E & Bray, J (1977) Rock slope engineering. Int. Min. & Metal, London OR Mah, C.W. & Wyllie, D.C., 2004. Rock slope engineering. Spons Architecture Price book.	R 700.00	Bookstore
Hoek, E & Brown, E T (1994) Underground excavation in rock. Inst. Min. & Metal, London. Spon Press.	R 2 000.00	Internet
Hunt, R.E.(2005). Geotechnical engineering investigation handbook. 2nd Ed. CRC Press.	~ R 2 500.00	No info
National Home Builders Registration Council.(1999). Standards and guidelines. NHBRC.	Free	NHBRC
SABS.(1975). SABS 1083. Aggregates from natural sources. SABS.	?	SABS
Weinert H.H. (1980). The natural road building materials of Southern Africa. Academica. Pretoria.	R 50.00	Department

**Table 7. Additional prescribed books for the option in Hydrogeology.**

<b>Book Title</b>	<b>Cost</b>	<b>Available</b>
Appelo, C. A. J. and Postma, D. (2010). Geochemistry, Groundwater and Pollution. 2nd Ed (5th Reprint). CRC Press. Amsterdam. -649pp.		
Bear, J. (2007). Hydraulics of Groundwater. Dover. 569pp.	~ R 400.00	Dover
De Vivo, B., Belkin, H. E. and Lima, A. (Eds.) (2008). Environmental Geochemistry: Site Characterization, Data Analyses and Case Histories. Elsevier. -350pp. (ISBN 0-444053159-9/ 978-0-444-53159-9)	Free eBook	Elsevier
Käss, W. (1998). Tracing Techniques in Geohydrology. Balkema. Rotterdam. (ISBN 90 5410 444 9)		Balkema
Poehls, D. J. and Smith, G. J. (2009) Encyclopedic Dictionary of Hydrogeology. Academic Press.	~ R 600.00	
Weaver, - sampling manual	Free	<a href="http://www.wrc.org.za">www.wrc.org.za</a>
Weight, W. D. Hydrogeology Field Manual. 2nd Ed. McGraw-Hill. (ISBN 978-0-07-147749-7)	Free eBook	McGraw-Hill

### 13. Lecturing Staff

#### **Prof J. Louis van Rooy**

Management of all Engineering Geology Modules (GTX 714, 721, 722, 723)

Office: Room 4-25 Natural Sciences 2 Building, Hatfield Campus, University of Pretoria  
 Contact Telephone: 012 420 2023  
 Email: [louis.vanrooy@up.ac.za](mailto:louis.vanrooy@up.ac.za)  
 Sabbatical: 8 February 2016 to 31 December 2016

#### **Dr Matthys A. Dippenaar**

Class Guardian: B. Sc. Hons. Engineering Geology and Hydrogeology

Management of Hydrogeology Modules (GTX 715, 716, 718, 719, 725, 726)

Management of Project Module (GTX 713)

Office: Room 4-34 Natural Sciences 2 Building, Hatfield Campus, University of Pretoria  
 Contact Telephone: 012 420 3117  
 Email: [matthys.dippenaar@up.ac.za](mailto:matthys.dippenaar@up.ac.za)  
 Leave: 20/06-03/07; 27/08-05/09; 24/09-09/10

#### **Vacant Position: Hydrogeology**

Availability of lecturing staff: Monday mornings 08:30 in the lecture hall or by email appointment.

During sabbaticals, the lecturer concerned will be available at some Monday meetings only and will respond to emails on a weekly basis.

## **APPENDIX A: Provisional Course Programme**

<b>Week</b>		<b>Eng &amp; Env Geology</b>	<b>Geology</b>
04/1		Year starts	
11/1			
18/1	0		
25/1	1	Ist Year & Hons	714
1/2	2	Snr lectures Q1	Field school/714
8/2	3		714
15/2	4		725
22/2	5		725
29/2	6		725
7/3	7		716
14/3	8	17/3 - Fr	716
21/3		Q1/Q2	Recess
28/3		Recess	Excursion
04/4	9		Recess
11/4	10	17/4 Fr	713
18/4	11	22/4 Mo	718/722
25/4		No lectures	718/722
02/5	12		718/722
09/5	13		715/721
16/5	14		715/721
23/5	15	29/5 Lectures end	715/721
30/5	16	Exam	713
06/6	17	Exam	713
13/6	18	Exam	713
20/6		Sup	713
27/6		Recess	Mapping
04/7		Recess	Mapping
11/7		Recess	Recess
18/7	19	Q3	719/723
25/7	20		719/723
01/8	21		719/723
08/8	22		726
15/8	23		726
22/8	24		726
29/8	25		IGC
05/9	26	Q4 8/09 We	713
12/9	27		713
19/9			713
26/09	28		713
03/10		Recess	703
10/10	29		Recess
17/10	30		Exam
24/10	31		710
31/10	32	7/11 Lectures end	713
7/11	33	Oral & excursion	Short course
14/11			703
21/11			713
28/11			Exam

*Introduction to report writing during 1<sup>st</sup> week compulsory for all honours. (JR)*

**Notes (Geology Hons.):** 711 Igneous petrology/geochemistry (JR); 702 Volcanology (NL); 703 Geophysics and Basin Analysis (AG); 704 Crustal evolution (AJB); 713 Economic Geology (WA); 706 Ore deposits and Mining methods (NL/JD); 707 mapping camp (NL); 712 Metamorphic Geology and geochemistry (PM); 710 project.

**Notes (Eng Env Geol Hons):** 713 Projects (JLvR, MAD); 714 Eng Geology of SA (JLvR); 715 Env Geochemistry (MAD); 716 Env Management (MAD); 718 Hydro modelling (MP); 719 Contaminant transp.(Terry); 721 Constr Materials (Ext); 722 Rock Engineering (GB); 723 Engineering Applications (BJ); 725 Fluid Mechanics (MAD); 726 Rock & soil improvement (MAD)

**APPENDIX B: General Assessment Rubric**

<b>Assessment:</b>		<b>Date:</b>	
<b>Module:</b>		<b>Code:</b>	
<b>Name:</b>		<b>No.:</b>	
<b>Topic:</b>			
<b>Assessor:</b>			

<b>Engineering Geology &amp; Hydrogeology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>Mark</b>	<b>Max</b>
	<i>Unacceptable</i>	<i>Below expectation</i>	<i>Average</i>	<i>Above expectation</i>	<i>Excellent</i>							
<b>Appearance:</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>28</b>	<b>32</b>	<b>36</b>	<b>40</b>		<b>40</b>
Oral Presentation	2	4	6	8	10	12	14	16	18	20		20
Report Appearance & Structure	1	2	3	4	5	6	7	8	9	10		10
Grammar & Language	1	2	3	4	5	6	7	8	9	10		10
<b>Technical Presentation:</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>18</b>	<b>21</b>	<b>24</b>	<b>27</b>	<b>30</b>		<b>30</b>
Materials & Methods	1	2	3	4	5	6	7	8	9	10		10
Literature & Referencing	1	2	3	4	5	6	7	8	9	10		10
Data & Analysis	1	2	3	4	5	6	7	8	9	10		10
<b>Scientific Soundness:</b>	<b>3</b>	<b>6</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>18</b>	<b>21</b>	<b>24</b>	<b>27</b>	<b>30</b>		<b>30</b>
Analyses & Modelling	1	2	3	4	5	6	7	8	9	10		10
Interpretation	1	2	3	4	5	6	7	8	9	10		10
Problem Statement & Conclusions	1	2	3	4	5	6	7	8	9	10		10
<b>TOTAL (REPORT AND ORAL PRESENTATION):</b>												<b>100</b>
<b>TOTAL (REPORT ONLY)*</b>												<b>80</b>

\* If no oral presentation is assessed, recalculate the final mark out of 80.

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

## **APPENDIX C: 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:

1. I understand what plagiarism is and am aware of the University's policy in this regard.
2. 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.
3. I have not used work previously produced by another student or any other person to hand in as my own.
4. 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.
5. I understand the Department of Geology's policy on plagiarism and the criteria set for using Turnitin by the Department.
6. 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: \_\_\_\_\_

**APPENDIX D: Individual Module Study Guides**

<b>Module Code</b>	<b>Module Description</b>	<b>EG</b>	<b>HG</b>	<b>Attached?</b>
GTX 713	Site Investigation Project	✓	✓	
GTX 714	Engineering Geology of South Africa	✓	✓	
GTX 715	Environmental Geochemistry		✓	
GTX 716	Environmental Management and Risk Assessment	✓	✓	
GTX 718	Hydrogeological Modelling	✗	✓	
GTX 719	Contaminant Transport	✗	✓	
GTX 721	Construction Materials	✓	✗	
GTX 722	Rock Engineering	✓		
GTX 723	Engineering Applications	✓	✗	
GTX 725	Fluid Mechanics in Geological Media	✓	✓	
GTX 726	Rock and Soil Improvement			

[ ✓ ] Core module for relevant programme

[    ] Elective module – select ONE only

[ ✗ ] Not available as elective