



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

DEPARTMENT OF GEOGRAPHY, GEOINFORMATICS AND METEOROLOGY

BScHons Geography and Environmental Science

2023

This information brochure is a guide only. For the latest on the chosen degree please visit the UP website at www.up.ac.za.

1. GEOGRAPHY AND ENVIRONMENTAL SCIENCE

Geography is the study of our planet, both the physical features on our planet and the human population groups, their spatial diversity, movements, cultures, and demographics. Environmental Science typically encapsulates the study of all the anthropogenic changes to our environment, consequences of these changes, and possible solutions. During your study, you will become increasingly aware of the wonders of our planet Earth, and hopefully, find it an enriching experience. Climate change, population growth, land degradation, poverty, pollution, and unsustainable consumer lifestyles are some of the challenges that you can take on with this degree. The postgraduate program in Geography and Environmental Science provides a solid foundation for graduates with a broad interest in both geography in general as well as those interested specifically in environmental management. At the same time, the degree also provides the required background for a research career involving analysis and multidisciplinary research about current geographical and environmental issues. The degree, therefore, provides a solid basis for pursuing a Master's degree in a large number of environmental disciplines.

2. JOB OPPORTUNITIES

Graduates with a BSc Honours in Geography and Environmental Science are typically employable within both the private and government sectors. Many of our students find work in Environmental Consulting companies, such as Golder or KBR, but there are also job opportunities within government departments such as the Department of Environment, Forestry and Fisheries (DFFE) or the South African National Biodiversity Institute (SANBI). Others find jobs within the private sector within sustainability consulting, for example at companies such as the Carbon Trust or Pegasus.

3. APPLICATION, SELECTION AND ADMISSION REQUIREMENTS

Admission into BScHons Geography and Environmental Science is a BSc in Geography or Environmental Science or equivalent BSc degree. The undergraduate degree must meet the prerequisites of the core modules.

A prospective student must have an average of 60% or more for the final year modules of the bachelor's degree that are prerequisites for the Honours degree to be considered for the Honours program. Selection takes place before admission and the number of places is limited. Acceptance is conditional on the final marks obtained for the undergraduate bachelor's degree. Students are usually notified by mid-November of the outcome.

Online application is available on www.up.ac.za, click on 'Study > Apply' in the top menu.

Applications for our programs close on 30 September.

The first meeting for Honours students is usually towards the end of January. The final date will be announced early in January via email by the Honours coordinator. Lectures usually commence during the week after the first meeting.

The Honours program is designed for full-time study and classes are presented during the day. If you are working, it is advisable to do the program over two years and in this case, you have to inform the academic advisor of this at the start of the year.

The University of Pretoria is a residential university, meaning that students should live close by to be able to attend classes and practicals on campus. Although we changed to online and hybrid contact sessions during the COVID-19 pandemic, from 2023 onwards, we expect that students will have to regularly attend classes and write examinations on campus in person.

4. MODULES AND CREDITS

The timetable is announced at the beginning of the year. The timetable varies from year to year, depending on staff availability and student numbers.

Code	Module name	Credits	Period
Fundamental modules:			
GGY 710	Geographical and environmental principles 710	25	S1 or S2
Core modules:			
ENV 785	Environmental assessments 785	15	S1
GGY 702	Research project 702	35	Y
GGY 718	Applied geomorphology 718	15	Q1, Q2, Q3, or Q4
GGY 789	Environmental change 789	15	Y
GIS 708*	Advanced GIS 708	15	S1 or S2
GMA 705*	Advanced remote sensing 705	15	S1 or S2
Elective modules (to the value of 15 credits):			
BME 780	Statistics for biological sciences 780	15	S1
BOT 700	Natural woodland and forests: Ecology and management 700	15	S2
EHM 772	Basis in environmental health 772	5	Y
EOH 775	Introduction to environmental and occupational health 775	10	Y
GGY 701	Selected theme 701	15	Q1, Q2, Q3, or Q4
GGY 780	Urban geography 780	15	Q1, Q2, Q3, or Q4
GIS 705	Advanced geospatial data 705	15	S1 or S2
GIS 707	Special topics 707	15	S1 or S2
GIS 708*	Advanced GIS 708	15	S1 or S2
GIS 709	Geospatial data and services 709	15	S1 or S2
GMA 705*	Advanced remote sensing 705	15	S1 or S2

Please consult the yearbook for the latest module prerequisites.

* Students must choose one of the two geoinformatics modules, GIS 708 or GMA 705, as a core module. They may choose the other one as an elective module.

Minimum credits: 135

For detailed module descriptions, please consult the University's website [Study > Yearbooks](#). Select **Faculty of Natural and Agricultural Sciences** on the left, click on **Honours** and then **BScHons Geography and Environmental Science** on the right.

5. MODULE DESCRIPTIONS

BME 780, Statistics for biological sciences 780

The principles of experimental design as required for the selection of an appropriate research design.

Identification of the design limitations and the impact thereof on the research hypotheses and the statistical methods. Identification and application of the appropriate statistical methods needed. Interpreting statistical results and translating these results to the biological context.

BOT 700, Natural woodland and forests: Ecology and management 700

Definitions of woodlands and forests and vegetation and forest resources in southern Africa; Classification of forest and woodland in southern Africa; Woodland dynamics including disturbance, recruitment, growth and mortality, recovery after disturbance; Ecosystem services (microclimate and nutrient cycling, carbon sequestration etc); Sustainable forest resource management (resource assessment, socio-economic assessment e.g. wood and non-forest products, participatory resource management processes); Forest health; Monitoring of resource-use impacts and adaptive management; Development of a framework for sustainable conservation and use of non-timber forest products; Climate change and resilience. Forest disease and pathology.

EHM 772, Basis in environmental health 772

ENV 785, Environmental assessments 785

The aim of this module is to understand the principles and processes behind environmental assessments. The module will give an overview of the history of assessments, compare assessment processes internationally, evaluate the strengths and weaknesses of different approaches, provide an overview of the South African regulatory context and the environmental authorisation process.

EOH 775, Introduction to environmental and occupational health 775

GGY 701, Selected theme 701

A self-study module on an aspect or aspects of geographical or environmental science selected in consultation with the head of the department from: (a) themes not covered in existing options; or (b) educational subjects.

GGY 702, Research project 702

An approved individual research project on an environmental/geography topic within the natural sciences. The project is carried out under the guidance of a lecturer. The project culminates in a research report in the format of a research paper and presentation. The student is expected to obtain the respective skills (theoretical and practical research techniques, data analysis, communication and computer skills) necessary for the research topic.

GGY 710, Geographical and environmental principles 710

The module provides a critical review of the structures and paradigms in which the geographical and environmental sciences are practiced. Reference is made to the development and impact of paradigms and the interdependence of systems within space and time.

GGY 718, Applied geomorphology 718

This module focuses on processes and applications of geomorphology. Topics that may be studied include: soil erosion and conservation, weathering, geomorphic response to environmental change, slope processes and geomorphological hazards. The module includes practical fieldwork and field assessments. Dates for field trips will be confirmed at a later stage.

Prerequisites: *GGY 361 Environmental geomorphology or GGY 363 Applied geomorphology or equivalent.*

GGY 780, Urban geography 780

The main themes of the module include: overview of global urbanisation theories and processes; urban morphology and change; the administrative structure and functions of African cities and; the quality of urban life in the developing world.

Prerequisites: *GGY 301 Theories and applications of human geography or equivalent.*

GGY 789, Environmental change 789

This module involves the study of the causes and consequences of environmental change from multidisciplinary perspectives. A focus of this module is human-environmental interaction. Study themes include past

environmental change, causes and consequences of human-induced environmental change and South Africa and climate change.

GIS 705, Advanced geospatial data

Advanced topics in geospatial data management, such as data quality, data acquisition and management, standards, spatial data infrastructure (SDI) and legislation.

Prerequisites: GIS 310 *Geographic Information Systems* or equivalent.

GIS 707, Special topics

A special topic in Geoinformatics linked to research specialization in the department and/or visiting lecturers. For example, research trends and advances in a specific topic or field of specialization in Geoinformatics. The module is presented in the form of guided advanced readings, seminars and/or discussion sessions.

Prerequisites: Any prerequisites specified by the lecturer.

GIS 708, Advanced GIS

Advanced topics in GIS application, such as principal component analysis, multi-criteria evaluation and other geospatial analysis methods, and their application relating to the UN Sustainable Development Goals.

Prerequisites: GIS 310 *Geographic Information Systems* or equivalent.

GIS 709, Geospatial data and services

Advanced topics in spatial databases, such as computational geometry, spatial data indexing and query processing, and using the web and mobile technologies for accessing, delivering and presenting geospatial data and services.

Prerequisites: INF 164 *Informatics (Programming)*, INF 214 *Informatics (Relational databases)*, GIS 311 *Geoinformatics*, or equivalent.

GMA 705, Advanced remote sensing 705

The aim of the module is to provide knowledge and understanding of image analysis and information extraction methods in remote sensing. The emphasis is on equipping students with knowledge and skills necessary to process imagery to extract diverse biophysical and geospatial information. The course gives insight into the possibilities and limitations of the application of modern remote sensing/image acquisition systems for Earth and atmosphere research purposes at different levels of detail.

Prerequisites: GMA 320 *Remote sensing*, or equivalent.

6. FEES, FUNDING AND BURSARIES OPPORTUNITIES

For information about fees and funding (including scholarships and bursaries, visit the UP website, www.up.ac.za, click 'Study' in the top menu, then 'Fees and Funding'.

7. INFORMATION FOR INTERNATIONAL STUDENTS

The first step for international students is to have their existing academic qualifications evaluated by the South African Qualifications Authority (www.saqa.org.za). It is essential to attach the SAQA certificate to your online application.

Additional information for international students is available on the UP website, www.up.ac.za, click on 'Study' in the top menu, then on 'International Students'.

8. FREQUENTLY ASKED QUESTIONS

The average for one or more of my relevant final year modules was below 60%, will I still be considered for the Honours programme?

For admission to BScHons Geography and Environmental Science, a prospective student must have an average of 60% for modules that are prerequisites to the core Honours modules. Admission is also based on the

available spaces in the program.

I am currently completing my final year undergraduate studies; therefore my final year modules are not yet available. Can I still apply for next year?

Yes. But please make sure that the June exam marks are available when you attach your academic record to your application. The selection panel will consider semester marks for modules where the final mark is not yet available. Once the final mark is available, the selection panel will revisit selected applications, to make sure that they still qualify.

I completed my B.Tech, will I be considered for the BScHons Geography and Environmental Science program?

Unfortunately, admission to an Honours degree in the Faculty of Natural and Agricultural Sciences requires that you hold a BSc degree. You could apply for the BSc Geography and Environmental Science degree. Alternatively, you may consider applying for the BSocSciHons Geography and Environmental Science program.

I completed my BA degree. Will I be considered for the BScHons Geography and Environmental Science program?

Unfortunately, admission to an Honours degree in the Faculty of Natural and Agricultural Sciences requires that you hold a BSc degree. You could apply for the BSc Geography and Environmental Science degree. Alternatively, you may consider applying for the BSocSciHons Geography and Environmental Science program.

I completed an undergraduate degree in a related field (not geography and/or environmental science). Will I qualify for the Honours program?

The undergraduate modules must meet the admission requirements for the Honours modules listed in Section 4. Remember to attach your full transcripts and yearbook when you apply. The selection panel will then review your transcripts and determine if you meet the admission requirements.

I did not do my undergraduate degree at UP. How do I know whether the undergraduate modules that I completed meet the admission requirements for the Honours modules?

The most directly suitable degree to be selected for our Honours programs is the BSc Geography and Environmental Science undergraduate degree. Have a look at the program composition for this degree in the yearbook at <http://www.up.ac.za/yearbooks/home>. Compare the module descriptions to the modules that you completed to get an idea of the suitability of your undergraduate modules. However, the final decision lies with the selection panel.

9. CONTACT DETAILS

Please email any enquiries to:

Dr Natalie Haussmann (academic advisor), natalie.haussmann@up.ac.za

Website: <https://www.up.ac.za/ggm>, click on 'Study' > 'Our Programmes'.