

University of Pretoria Yearbook 2023

BScHons (Geography) *Geography and Environmental Science* (02240416)

Department Geography, Geoinformatics and Meteorology

Minimum duration of study 1 year

Total credits 135

NQF level 08

Admission requirements

1. Relevant BSc degree
2. A weighted average of at least 60% in relevant final-year modules
3. An admission examination may be required

Transitional measures

Students who failed GIS 708 in 2021, may take GMA 705 as an alternative as from 2022.

General information

University of Pretoria Programme Qualification Mix (PQM) verification project

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

Curriculum: Final year

Minimum credits: 135

Fundamental credits: 25

Core credits: 95

Elective credits: 15

Additional information: 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.

Fundamental modules

Geographical and environmental principles 710 (GGY 710)

Module credits 25.00

NQF Level 08

Prerequisites No prerequisites.

Contact time 1 lecture per week

Language of tuition Module is presented in English

Department Geography Geoinformatics and Meteorology

Period of presentation Year

Module content

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

Core modules

Environmental assessments 785 (ENV 785)

Module credits 15.00

NQF Level 08

Service modules Faculty of Health Sciences

Prerequisites No prerequisites.

Contact time 28 contact hours

Language of tuition Module is presented in English

Department Geography Geoinformatics and Meteorology

Period of presentation Year



Module content

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.

Research project 702 (GGY 702)

Module credits	35.00
NQF Level	08
Prerequisites	No prerequisites.
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Year

Module content

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.

Applied geomorphology 718 (GGY 718)

Module credits	15.00
NQF Level	08
Prerequisites	GGY 361 or GGY 363 or equivalent
Contact time	28 contact hours
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Year

Module content

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.

Environmental change 789 (GGY 789)

Module credits	15.00
NQF Level	08
Service modules	Faculty of Health Sciences
Prerequisites	Limited to BScHons students.

Contact time	28 contact hours
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Year

Module content

Study themes include past environmental change, causes and consequences of human-induced environmental change and South Africa and climate change.

Advanced GIS 708 (GIS 708)

Module credits	15.00
NQF Level	08
Prerequisites	GIS 310 or equivalent.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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.

Advanced remote sensing 705 (GMA 705)

Module credits	15.00
NQF Level	08
Prerequisites	GMA 320 or equivalent
Contact time	28 contact hours per semester
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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.

Elective modules



Statistics for biological sciences 780 (BME 780)

Module credits	15.00
NQF Level	08
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	No prerequisites.
Contact time	2 Block weeks
Language of tuition	Module is presented in English
Department	Statistics
Period of presentation	Semester 1

Module content

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 of statistical results and translating these results to the biological context.

Natural woodland and forests: Ecology and management 700 (BOT 700)

Module credits	15.00
NQF Level	08
Prerequisites	No prerequisites.
Language of tuition	Module is presented in English
Department	Department of Plant and Soil Sciences
Period of presentation	Semester 2

Module content

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.

Basis in environmental health 772 (EHM 772)

Module credits	5.00
NQF Level	08
Prerequisites	No prerequisites.
Language of tuition	Module is presented in English
Department	School of Health System and Public Health

Period of presentation Year

Introduction to environmental and occupational health 775 (EOH 775)

Module credits 10.00

NQF Level 08

Prerequisites No prerequisites.

Language of tuition Module is presented in English

Department School of Health System and Public Health

Period of presentation Year

Selected theme 701 (GGY 701)

Module credits 15.00

NQF Level 08

Prerequisites No prerequisites.

Contact time 28 contact hours

Language of tuition Module is presented in English

Department Geography Geoinformatics and Meteorology

Period of presentation Year

Module content

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.

Urban geography 780 (GGY 780)

Module credits 15.00

NQF Level 08

Prerequisites GGY 301 or equivalent.

Contact time 28 contact hours

Language of tuition Module is presented in English

Department Geography Geoinformatics and Meteorology

Period of presentation Year

Module content

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.

Advanced geospatial data 705 (GIS 705)

Module credits 15.00



NQF Level	08
Prerequisites	GIS 310 or equivalent
Contact time	28 contact hours per semester
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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

Special topics 707 (GIS 707)

Module credits	15.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	28 contact hours per semester
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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

Advanced GIS 708 (GIS 708)

Module credits	15.00
NQF Level	08
Prerequisites	GIS 310 or equivalent.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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.

Geospatial data and services 709 (GIS 709)

Module credits	15.00
NQF Level	08
Prerequisites	(INF 164, INF 214, GIS 311) or equivalent.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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.

Advanced remote sensing 705 (GMA 705)

Module credits	15.00
NQF Level	08
Prerequisites	GMA 320 or equivalent
Contact time	28 contact hours per semester
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Semester 1 or Semester 2

Module content

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.

Regulations and rules

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

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

regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.

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