University of Pretoria Yearbook 2019

BScHons Geoinformatics (02240414)

Minimum duration of study	1 year
Total credits	135

Programme information

Renewal of registration

i. Subject to exceptions approved by the Dean, on the recommendation of the relevant head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
ii. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the relevant head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

Admission requirements

A BSc in Geoinformatics or equivalent BSc degree that meets the prerequisites of the honours modules. Prospective students may be required to do additional modules to enable them to reach the desired level of study. Selection takes place before admission.

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Pass with distinction

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.

Curriculum: Final year

Minimum credits: 135

Minimum credits 135
Fundamental credits: 25
Core credits: 80
Elective credits: 30

Other programme-specific information:

Appropriate honours modules may be taken from the Faculty or from the School of Information Technology, as approved by the honours coordinator or relevant head of department.

Two elective modules should be selected, of which one must be either COS 787 or GIS 706.

Fundamental modules

Research methods 701 (GIS 701)

Module credits	10.00
Contact time	14 contact hours
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Quarter 1

Module content

The module introduces students to planning, research design, scientific reading, writing and presentation as required for geoinformatics research.

GIS professional practice 703 (GIS 703)

Module credits	15.00
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

Professionalism, including professional ethics, professional practices, partnerships, client relationships, SA Council for Professional and Technical Surveyors (including legislation and rules), and social responsibility. Relevant legislation, including Promotion of Access to Information Act and Spatial Data Infrastructure Act. Role of international associations/societies in Geoinformatics.

Core modules

Research project 702 (GIS 702)

Module credits	35.00
Language of tuition	Module is presented in English
Department	Geography Geoinformatics and Meteorology
Period of presentation	Year

Module content

An approved individual Geoinformatics research project with a system design and/or spatial analysis component. The project is carried out under the guidance of a lecturer. The student is expected to obtain the respective skills necessary for the research topic. Compilation of a research proposal. Literature survey. Selecting an appropriate research method. Carrying out of the research. Preparation of a research report.

Spatial statistics and geodesy 704 (GIS 704)

Module credits	15.00
Prerequisites	GMC 310 and GIS 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

Principles of least squares in statistics, Spatial least squares regression, Surface interpolation using least squares and coordinate transformations. Topics in Geodesy: Space based measurement systems, sea level measurements, Determination of the geoid, earth axis orientation determination and earth dynamics.

Advanced geospatial data 705 (GIS 705)

Module credits	15.00
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 assurance, data quality assessment and the supply chain for geospatial data acquisition.

Advanced remote sensing 705 (GMA 705)

Module credits	15.00
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
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
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.

Spatial databases 787 (COS 787)

Module credits	15.00
Prerequisites	No prerequisites.
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

This module covers the major themes of spatial databases with application to geographic information systems (GIS), i.e. systems concerning data with an implicit or explicit reference to a location relative to the earth. Topics covered include an introduction to spatial databases and spatial data management systems, representation of geographic data, spatial data modelling, computational geometry, spatial data indexing, query processing and spatial data standards. For Computer Science students the module is an introduction to the ever increasing application field of geographics information systems (GIS), and for Geoinformatics students the module provides insight into the Computer Science foundations of the field.

Basis in environmental health 772 (EHM 772)

Module credits	5.00
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
Prerequisites	No prerequisites.
Language of tuition	Module is presented in English
Department	School of Health System and Public Health
Period of presentation	Year

Internet GIS 706 (GIS 706)

Module credits	15.00
Prerequisites	INF 164 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

This module aims to explore the Internet as a platform for accessing and delivering geospatial data and services. Students will be exposed to the theory and practice of technologies and technology approaches that make Internet GIS a reality. From the basic building blocks of Internet GIS, to advanced Spatial Data Infrastructure concepts, this module covers current and emerging issues in bringing geospatial data and processes to the wider world. Students will be required to reflect on the implications of using such technologies. A significant portion of the module will involve 'hands-on' work in designing and building Internet GIS applications and accessing Internet-based data and services. This module also includes consideration of a number of case studies within different problem domains. Students should leave the module with an understanding of the building blocks that make Internet GIS possible and be able to consider what are good practices in the development of Internet GIS applications and services.

Special topics 707 (GIS 707)

Module credits	15.00
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.

Environmental management and risk assessment 716 (GTX 716)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

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.

Responsible ecotourism management 714 (TBE 714)

Module credits	20.00
Prerequisites	No prerequisites.
Contact time	1 other contact session per week, 1 lecture per week
Language of tuition	Module is presented in English
Department	Division of Tourism Management
Period of presentation	Semester 1

Module content

This module focuses on managing ecotourism (including the natural and cultural resource base) following eco-principles and guidelines in order to provide a framework for sustainable/responsible tourism development in response to community needs within the Southern African context. The concepts of ecotourism, alternative tourism, responsible tourism and geotourism are debated.The management of ecotourism is studied from a theoretical perspective addressing issues such as the planning, design and sustainable development of eco-facilities and spaces; co-creation and the experienced tourist; the greening of the environment; and managing sustainable events; against the backdrop of climate change using local, national and international case studies. The aim is to provide students with a holistic perspective of ecotourism and to hone their entrepreneurial view to issues within this arena in order to apply sustainable eco-principles to various situations, ranging from green architectural structures and spaces to sustainable community and pro-poor tourism projects.

The information published here is subject to change and may be amended after the publication of this information. The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the General Rules section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.