University of Pretoria Yearbook 2025

BSc in Meteorology 4-year programme (02131007)

Department	Geography, Geoinformatics and Meteorology
Minimum duration of study	4 years
Total credits	494
NQF level	07

Programme information

This is an extended BSc degree programme with a four-year curriculum that is only presented on a full-time basis. It is designed to enable students, who show academic potential, to obtain a BSc degree.

This programme is directed at a general formative education in the natural sciences. It provides the student with a broad academic basis to continue with postgraduate studies and prepares the student for active involvement in a wide variety of career possibilities.

1. Students who are admitted to one of the BSc four-year programmes register for one specific programme.
2. These programmes are followed by students who, as a result of exceptional circumstances, will benefit from an extended programme.
3. Students who do not comply with the normal three-year BSc entrance requirements for study in the Faculty of Natural and Agricultural Sciences, may nevertheless be admitted to the Faculty in one of the BSc four-year programmes. Generally, an extended programme means that the first study year is extended to take two years. The possibility of switching over to other faculties after one or two years in the four-year programmes exists. This depends on selection rules and other conditions stipulated by the other faculties.
4. Applications for admission to the BSc four-year programmes should be submitted in accordance with the UP applications process, with applications considered up to 30 June and in a second round in August/September. Details are obtainable from the Student Administration at the Faculty of Natural and Agricultural Sciences.
5. The rules and regulations applicable to the mainstream study programmes apply mutatis mutandis to the BSc four-year programmes, with exceptions as indicated in the regulations pertaining to the BSc four-year programmes. For instance, students admitted into the BSc four-year programmes must have a National Senior Certificate with admission for degree purposes.

Admission requirements

Important information for all prospective students for 2025

The admission requirements below apply to all who apply for admission to the University of Pretoria with a **National Senior Certificate (NSC) and Independent Examination Board (IEB) qualifications. Click here for this Faculty Brochure.**

Minimum requirements
Achievement level

English Home Language or English First Additional Language	Mathematics	Physical Sciences	APS
NSC/IEB	NSC/IEB	NSC/IEB	
58%	58%	58%	**32**

Life Orientation is excluded when calculating the APS.

Applicants currently in Grade 12 must apply with their final Grade 11 (or equivalent) results.

Applicants who have completed Grade 12 must apply with their final NSC or equivalent qualification results.

Please note that meeting the minimum academic requirements does not guarantee admission.

Only students that have completed school in the last two years and have not studied at a tertiary institution will be considered for this programme.

Successful candidates will be notified once admitted or conditionally admitted.

Unsuccessful candidates will also be notified.

Applicants should check their application status regularly on the UP Student Portal at click here.

Applicants with qualifications other than the abovementioned should refer to the International undergraduate prospectus 2025: Applicants with a school leaving certificate not issued by Umalusi (South Africa), available at click here.

International students: Click here.

Examinations and pass requirements

Academic promotion requirements
Students who do not show progress during the first semester of the first year will be referred to the Admissions Committee of the Faculty.
It is expected of students who register for the first year of the BSc four-year programmes to pass all the prescribed modules of the first year.

Progression requirement
The first year is foundational to the mainstream modules that follow; students will be limited to repeating two foundation modules during year 2 of study. Students may apply for internal transfers at the end of year 2. Not all mainstream programmes will be accessible; the Faculty's transfer guide will clearly outline all possibilities and the overarching objective will be that approved transfers will not involve adding an additional year of study.

Curriculum: Year 1

Minimum credits: 100

Fundamental = 20
Core = 80

Fundamental modules

Academic information management 111 (AIM 111) - Credits: 4.00
Academic information management 121 (AIM 121) - Credits: 4.00
Language, life and study skills 133 (LST 133) - Credits: 6.00
Language, life and study skills 143 (LST 143) - Credits: 6.00
Academic orientation 102 (UPO 102) - Credits: 0.00

Core modules

Foundational biology 137 (BIO 137) - Credits: 8.00
Foundational biology 147 (BIO 147) - Credits: 8.00
Foundational chemistry 137 (CMY 137) - Credits: 8.00
Foundational chemistry 147 (CMY 147) - Credits: 8.00
Foundational physics 137 (PHY 137) - Credits: 8.00
Foundational physics 147 (PHY 147) - Credits: 8.00
Foundational statistics 137 (STC 137) - Credits: 8.00
Foundational statistics 147 (STC 147) - Credits: 8.00
Foundational mathematics 137 (WTW 137) - Credits: 8.00
Foundational mathematics 147 (WTW 147) - Credits: 8.00

Curriculum: Year 2

Minimum credits: 122

Core = 90
Elective = 32

Additional information:
Students are advised to choose elective modules based on the requirements for a second major of interest. It is the student's responsibility to ensure that all prerequisites are taken into account. Electives must be chosen according to the combinations below with a view to pursuing specialisation in the relevant field. Students continue with the electives pertaining to the specific second major chosen, through to the third and fourth years of study.

- **Applied mathematics as second major**: WST 111, WTW 123, WTW 162 (32 credits)
- **Geography and environmental science as second major**: GGY 156, GGY 166, ENV 101 and one of [ZEN 161, WTW 123] (32 credits)
- **Geoinformatics as second major**: INF 154, INF 112, INF 164, WTW 123 (38 credits)
- **Statistics as second major**: STK 110, STC 122, WTW 123 (34 credits)
- **Zoology as second major**: ZEN 161, BOT 161, MLB 111 (32 credits)

Core modules

Biometry 120 (BME 120) - Credits: 16.00
Cartography 110 (GMC 110) - Credits: 10.00
First course in physics 114 (PHY 114) - Credits: 16.00
Atmospheric structure and processes 155 (WKD 155) - Credits: 16.00
Calculus 114 (WTW 114) - Credits: 16.00
Mathematics 124 (WTW 124) - Credits: 16.00

Elective modules

Plants and society 161 (BOT 161) - Credits: 8.00
General chemistry 117 (CMY 117) - Credits: 16.00
General chemistry 127 (CMY 127) - Credits: 16.00
Introduction to environmental sciences 101 (ENV 101) - Credits: 8.00
Aspects of human geography 156 (GGY 156) - Credits: 8.00
Southern African geomorphology 166 (GGY 166) - Credits: 8.00
Introduction to geology 155 (GLY 155) - Credits: 16.00
Earth history 163 (GLY 163) - Credits: 16.00
Informatics 112 (INF 112) - Credits: 10.00
Informatics 154 (INF 154) - Credits: 10.00
Informatics 164 (INF 164) - Credits: 10.00
Molecular and cell biology 111 (MLB 111) - Credits: 16.00
First course in physics 124 (PHY 124) - Credits: 16.00
Exploring the universe 154 (SCI 154) - Credits: 16.00
Statistics 122 (STC 122) - Credits: 13.00
Statistics 110 (STK 110) - Credits: 13.00
Mathematical statistics 111 (WST 111) - Credits: 16.00

Mathematical statistics 121 (WST 121) - Credits: 16.00
Numerical analysis 123 (WTW 123) - Credits: 8.00
Dynamical processes 162 (WTW 162) - Credits: 8.00
Animal diversity 161 (ZEN 161) - Credits: 8.00

Curriculum: Year 3

Minimum credits: 128

Core = 90
Elective = 32

Additional information:
Students are advised to choose elective modules based on the requirements for a second major of interest. It is the student's responsibility to ensure that all prerequisites are taken into account. Electives must be chosen according to the combinations below with a view to pursuing specialisation in the relevant field. Students continue with the electives pertaining to the specific second major chosen, through to the third and fourth years of study.

- **Applied mathematics as second major**: WST 111, WTW 123, WTW 162 (32 credits)
- **Geography and environmental science as second major**: GGY 156, GGY 166, ENV 101 and one of [ZEN 161, WTW 123] (32 credits)
- **Geoinformatics as second major**: INF 154, INF 112, INF 164, WTW 123 (38 credits)
- **Statistics as second major**: STK 110, STC 122, WTW 123 (34 credits)
- **Zoology as second major**: ZEN 161, BOT 161, MLB 111 (32 credits)

Core modules

Environmental sciences 201 (ENV 201) - Credits: 14.00
Remote sensing 220 (GMA 220) - Credits: 14.00
Programming in meteorology 254 (WKD 254) - Credits: 12.00
Physical meteorology 261 (WKD 261) - Credits: 12.00
Introduction to dynamic meteorology 263 (WKD 263) - Credits: 14.00
Satellite meteorology 265 (WKD 265) - Credits: 12.00

Elective modules

South African flora and vegetation 251 (BOT 251) - Credits: 12.00
City, structure, environment and society 201 (GGY 201) - Credits: 14.00
Process geomorphology 252 (GGY 252) - Credits: 12.00
Introductory geographic information systems 283 (GGY 283) - Credits: 14.00
Geographic data analysis 220 (GIS 220) - Credits: 14.00
Introductory soil science 250 (GKD 250) - Credits: 12.00
Informatics 214 (INF 214) - Credits: 14.00
Informatics 225 (INF 225) - Credits: 14.00
Informatics 261 (INF 261) - Credits: 7.00
Waves, thermodynamics and modern physics 255 (PHY 255) - Credits: 24.00
General physics 263 (PHY 263) - Credits: 24.00
Introduction to crop protection 251 (PLG 251) - Credits: 12.00
Sustainable crop production and agroclimatology 251 (PPK 251) - Credits: 15.00
Statistics 210 (STK 210) - Credits: 20.00
Statistics 220 (STK 220) - Credits: 20.00
Surveying 220 (SUR 220) - Credits: 14.00
Mathematical statistics 211 (WST 211) - Credits: 24.00

Applications in data science 212 (WST 212) - Credits: 12.00
Mathematical statistics 221 (WST 221) - Credits: 24.00
Linear algebra 211 (WTW 211) - Credits: 12.00
Calculus 218 (WTW 218) - Credits: 12.00
Analysis 220 (WTW 220) - Credits: 12.00
Vector analysis 248 (WTW 248) - Credits: 12.00
Differential equations 264 (WTW 264) - Credits: 12.00
Differential equations 286 (WTW 286) - Credits: 12.00
Invertebrate biology 251 (ZEN 251) - Credits: 12.00
African vertebrates 261 (ZEN 261) - Credits: 12.00

Curriculum: Final year

Minimum credits: 144

Core = 72
Elective = 72

Additional information:
Students must continue with electives pertaining to the second major chosen in the previous years of study.

- **Applied mathematics as second major**: WTW 382, WTW 383, WTW 386 and WTW 387 (72 credits)
- **Geography and environmental science as second major**: ENV 301, GGY 301, GGY 361 and GIS 310 (76 credits)
- **Geoinformatics as second major**: GMA 320, GIS 310, GIS 311, GMC 310 (88 credits). Students who are accepted for BScHons Geoinformatics will have to complete GIS 320 in addition to the other honours modules
- **Statistics as second major**: STK 310, STK 320 and STK 353 (75 credits)
- **Zoology as second major**: ZEN 351, ZEN 352, ZEN 353, ZEN 354 (72 credits)

Core modules

Mid-latitude and polar meteorology 315 (WKD 315) - Credits: 18.00
Tropical meteorology 316 (WKD 316) - Credits: 18.00

Elective modules

Human environmental interactions 301 (ENV 301) - Credits: 18.00
Theories and applications of human geography 301 (GGY 301) - Credits: 18.00
Environmental geomorphology 361 (GGY 361) - Credits: 18.00
Geographic information systems 310 (GIS 310) - Credits: 22.00
Geoinformatics 311 (GIS 311) - Credits: 22.00
Soil chemistry 320 (GKD 320) - Credits: 14.00
Remote sensing 320 (GMA 320) - Credits: 22.00
Geometrical and space geodesy 310 (GMC 310) - Credits: 22.00
Electronics, electromagnetism and quantum mechanics 356 (PHY 356) - Credits: 36.00
Statistical mechanics, solid state physics and modelling 364 (PHY 364) - Credits: 36.00
Statistics 310 (STK 310) - Credits: 25.00
Statistics 320 (STK 320) - Credits: 25.00
The science of data analytics 353 (STK 353) - Credits: 18.00
Principles of veld management 310 (WDE 310) - Credits: 12.00
Multivariate analysis 311 (WST 311) - Credits: 18.00
Time-series analysis 321 (WST 321) - Credits: 18.00
Dynamical systems 382 (WTW 382) - Credits: 18.00
Numerical analysis 383 (WTW 383) - Credits: 18.00
Partial differential equations 386 (WTW 386) - Credits: 18.00
Continuum mechanics 387 (WTW 387) - Credits: 18.00
Population ecology 351 (ZEN 351) - Credits: 18.00
Mammalogy 352 (ZEN 352) - Credits: 18.00
Community ecology 353 (ZEN 353) - Credits: 18.00
Evolutionary physiology 354 (ZEN 354) - Credits: 18.00

General Academic Regulations and Student Rules

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. The G Regulations are updated annually and may be amended after the publication of this information.

Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this 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 (HEQSF) 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.