

# University of Pretoria Yearbook 2023

## BSc (Biotechnology) (02133403)

**Department** Genetics

**Minimum duration of study** 3 years

**Total credits** 430

**NQF level** 07

## Admission requirements

### Important information for all prospective students for 2023

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

##### NSC/IEB

##### Mathematics

##### NSC/IEB

5

##### Physical Sciences

##### NSC/IEB

5

##### APS

32

Life Orientation is excluded when calculating the APS.

You will be considered for final admission to degree studies if space allows, and if you have a National Senior Certificate (NSC) or equivalent qualification with admission to bachelor's degree studies, and comply with the minimum subject requirements as well as the APS requirements of your chosen programme.

**Applicants with qualifications other than the abovementioned** should refer to the Brochure:

Undergraduate Programme Information 2023: Qualifications other than the NSC and IEB, available at [click here](#).

International students: [Click here](#).

### Transferring students

A transferring student is a student who, at the time of applying at the University of Pretoria (UP) is/was a registered student at another tertiary institution. A transferring student will be considered for admission based on NSC or equivalent qualification and previous academic performance. Students who have been dismissed from other institutions due to poor academic performance will not be considered for admission to UP.

**Closing dates:** Same as above.

### Returning students

A returning student is a student who, at the time of application for a degree programme is/was a registered

student at UP, and wants to transfer to another degree at UP. A returning student will be considered for admission based on NSC or equivalent qualification and previous academic performance.

**Note:**

- Students who have been excluded/dismissed from a faculty due to poor academic performance may be considered for admission to another programme at UP, as per faculty-specific requirements.
- Only ONE transfer between UP faculties and TWO transfers within a faculty will be allowed.
- Admission of returning students will always depend on the faculty concerned and the availability of space in the programmes for which they apply.

**Closing date for applications from returning students**

Unless capacity allows for an extension of the closing date, applications from returning students must be submitted before the end of August via your UP Student Centre.

Candidates who do not comply with the minimum admission requirements for BSc (Biotechnology), may be considered for admission to the BSc – Extended programme – Biological and Agricultural Sciences, which requires an additional year of study.

**BSc – Extended Programme – Biological and Agricultural Sciences**

**Minimum requirements**

**Achievement level**

**English Home**

**Language or**

**English First**

**Additional**

**Language**

NSC/IEB

4

**Mathematics**

NSC/IEB

4

**Physical Sciences**

NSC/IEB

4

**APS**

**26**

**Note:**

\*The BSc – Extended programmes are not available for students who meet all the requirements for the corresponding mainstream programme.

\*Please note that only students who apply in their final NSC or equivalent qualification year will be considered for admission into any of the BSc – Extended programmes. Students who are upgrading or taking a gap year will not be considered.

## Other programme-specific information

### 1.1 Requirements for specific modules

A candidate who:

- does not qualify for STK 110, must enrol for STK 113 and STK 123;
  - registers for Mathematical Statistics (WST) and Statistics (STK) modules must take note that WST and STK modules, except for STK 281, may not be taken simultaneously in a programme; a student must take one and only one of the following options:
- WST 111, WST 121, WST 212, WST 211, WST 221, WST 311, WST 312, WST 322, WST 321, and STK 353
  - or
  - WST 111, WST 121, WST 212, WST 211, WST 221, WST 311, WST 312, WST 322, STK 320, STK 353.

or

- STK 110, STC 122, STK 210, STK 220, WST 212, STK 310, STK 320, STK 353.

c. registers for a module presented by another faculty must take note of the timetable clashes, prerequisites for that module, subminimum required in examination papers, supplementary examinations, etc.

## 1.2 Fundamental modules

- a. It is compulsory for all new first-year students to satisfactorily complete the Academic orientation (UPO 102) and to take Academic information management modules (AIM 111 and AIM 121) and Language and study skills (LST 110). Please see curricula for details.
- b. Students who intend to apply for admission to MBChB or BChD in the second semester, when places become available in those programmes, may be permitted to register for up to 80 module credits and 4 core modules in the first semester during the first year provided that they obtained a final mark of no less than 70% for Grade 12 Mathematics and achieved an APS of 34 or more in the NSC.

## Promotion to next study year

A student will be promoted to the following year of study if he or she passed 100 credits of the prescribed credits for a year of study, unless the Dean on the recommendation of the relevant head of department decides otherwise. A student who does not comply with the requirements for promotion to the following year of study, retains the credit for the modules already passed and may be admitted by the Dean, on recommendation of the relevant head of department, to modules of the following year of study to a maximum of 48 credits, provided that it will fit in with both the lecture and examination timetable.

### General promotion requirements in the faculty

All students whose academic progress is not acceptable can be suspended from further studies.

- A student who is excluded from further studies in terms of the stipulations of the abovementioned regulations, will be notified in writing by the Dean or Admissions Committee at the end of the relevant semester.
- A student who has been excluded from further studies may apply in writing to the Admissions Committee of the Faculty of Natural and Agricultural Sciences for re-admission.
- Should the student be re-admitted by the Admissions Committee, strict conditions will be set which the student must comply with in order to proceed with his/her studies.
- Should the student not be re-admitted to further studies by the Admissions Committee, he/she will be informed in writing.
- Students who are not re-admitted by the Admissions Committee have the right to appeal to the Senate Appeals Committee.
- Any decision taken by the Senate Appeals Committee is final.

## 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: Year 1

## Minimum credits: 140

Fundamental modules = 14  
Core modules = 128

## Fundamental modules

Academic information management 111 (AIM 111) - Credits: 4.00

Academic information management 121 (AIM 121) - Credits: 4.00

Language and study skills 110 (LST 110) - Credits: 6.00

Academic orientation 102 (UPO 102) - Credits: 0.00

## Core modules

Biometry 120 (BME 120) - Credits: 16.00

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

Introductory genetics 161 (GTS 161) - Credits: 8.00

Introduction to microbiology 161 (MBY 161) - Credits: 8.00

Molecular and cell biology 111 (MLB 111) - Credits: 16.00

Physics for biology students 131 (PHY 131) - Credits: 16.00

Mathematics 134 (WTW 134) - Credits: 16.00

Mathematics 165 (WTW 165) - Credits: 16.00

Animal diversity 161 (ZEN 161) - Credits: 8.00

## Curriculum: Year 2

### Minimum credits: 144

Core = 120

Elective = 24

### Additional information:

Electives may be chosen from BME 210, DAF 200, FST 250, GKD 250, MBY 262, PLG 251, PLG 262, PPK 251, ZEN 251, ZEN 261.

### Please note:

- Students who want to focus their degree in Microbiology must take MBY 262 as an elective.
- Students must ensure that their selection of electives will meet the prerequisites for the modules they plan to take in the third year.

## Core modules

[Introduction to proteins and enzymes 251](#) (BCM 251) - Credits: 12.00

[Carbohydrate metabolism 252](#) (BCM 252) - Credits: 12.00

[Introductory biochemistry 257](#) (BCM 257) - Credits: 12.00

[Lipid and nitrogen metabolism 261](#) (BCM 261) - Credits: 12.00

[South African flora and vegetation 251](#) (BOT 251) - Credits: 12.00

[Plant physiology and biotechnology 261](#) (BOT 261) - Credits: 12.00

[Molecular genetics 251](#) (GTS 251) - Credits: 12.00

[Genetic diversity and evolution 261](#) (GTS 261) - Credits: 12.00

[Bacteriology 251](#) (MBY 251) - Credits: 12.00

[Mycology 261](#) (MBY 261) - Credits: 12.00

## Elective modules

[Biometry 210](#) (BME 210) - Credits: 24.00

[Animal anatomy and physiology 200](#) (DAF 200) - Credits: 32.00

[Introduction to food science and technology 250](#) (FST 250) - Credits: 12.00

[Introductory soil science 250](#) (GKD 250) - Credits: 12.00

[Food microbiology 262](#) (MBY 262) - Credits: 12.00

[Introduction to crop protection 251](#) (PLG 251) - Credits: 12.00

[Principles of plant pathology 262](#) (PLG 262) - Credits: 12.00

[Sustainable crop production and agroclimatology 251](#) (PPK 251) - Credits: 15.00

[Invertebrate biology 251](#) (ZEN 251) - Credits: 12.00

[African vertebrates 261](#) (ZEN 261) - Credits: 12.00

## Curriculum: Final year

### Minimum credits: 144

Core = 54

Elective = 90

#### To focus your degree in Biochemistry:

- Students must take BCM 357, BCM 367, BCM 368.
- The balance of the electives (36 credits) must be chosen from BOT 365, GTS 354, GTS 367, GTS 368, MBY 351, MBY 355, MBY 365.

#### To focus your degree in Genetics:

- Students interested in the PLANT GENETICS option must take GTS 354, BTC 361, GTS 367.
- The balance of the electives (36 credits) must be chosen from BCM 367, BOT 356, BOT 358, BOT 365, PLG 351, PLG 363.
- Students interested in the HUMAN / ANIMAL GENETICS option must take GTS 354, GTS 367, GTS 368.
- The balance of the electives (36 credits) must be chosen from BCM 357, BCM 367, BCM 368, MBY 351, MBY 355, MBY 365.

#### To focus your degree in Microbiology:

- Students must take MBY 351, MBY 355, MBY 365.
- The balance of the electives (36 credits) must be chosen from BCM 367, BCM 368, BOT 365, BTC 361, GTS 367.

#### To focus your degree in Plant Science:

- Students must take BTC 361, BOT 365.
- The balance of the electives (54 credits) must be chosen from BCM 367, BOT 356, BOT 358, BOT 366, GTS 354, GTS 367, MBY 351, MBY 365, PLG 363.

## Core modules

[Macromolecules of life: structure-function and bioinformatics 356](#) (BCM 356) - Credits: 18.00

[Eukaryotic gene control and development 351](#) (GTS 351) - Credits: 18.00

[Genetic manipulation of microbes 364](#) (MBY 364) - Credits: 18.00

## Elective modules

[Biocatalysis and integration of metabolism 357](#) (BCM 357) - Credits: 18.00

[Cell structure and function 367](#) (BCM 367) - Credits: 18.00

[Molecular basis of disease 368](#) (BCM 368) - Credits: 18.00

[Plant ecophysiology 356](#) (BOT 356) - Credits: 18.00

[Plant ecology 358](#) (BOT 358) - Credits: 18.00

[Phytomedicine 365](#) (BOT 365) - Credits: 18.00

[Plant diversity 366](#) (BOT 366) - Credits: 18.00

[Plant genetics and crop biotechnology 361](#) (BTC 361) - Credits: 18.00

[Genome evolution and phylogenetics 354](#) (GTS 354) - Credits: 18.00

[Population and evolutionary genetics 367](#) (GTS 367) - Credits: 18.00

[Genetics in human health 368](#) (GTS 368) - Credits: 18.00

[Virology 351](#) (MBY 351) - Credits: 18.00

[Bacterial genetics 355](#) (MBY 355) - Credits: 18.00

[Microbe interactions 365](#) (MBY 365) - Credits: 18.00

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[General plant pathology 351 \(PLG 351\)](#) - Credits: 18.00

[Plant disease control 363 \(PLG 363\)](#) - Credits: 18.00

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### **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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