

# University of Pretoria Yearbook 2023

## BSc (Mathematical Statistics) (02133274)

**Department** Statistics

**Minimum duration of study** 3 years

**Total credits** 420

**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

##### Mathematics

##### APS

NSC/IEB

5

NSC/IEB

6

**34**

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 (Mathematical Statistics), may be considered for admission to the BSc – Extended programme – Mathematical Sciences, which requires an additional year of study.

**Please note:** Progression from the BSc – Extended programme – Mathematical Sciences to the mathematics-intensive programmes will be considered only for students who obtained a GPA of 65% in all their first-year modules. Students who pass all first-year modules will be advised on alternative academic pathways.

### BSc – Extended Programme – Mathematical Sciences

#### Minimum requirements

#### Achievement level

#### English Home Language or English First Additional Language

NSC/IEB

4

#### Mathematics

NSC/IEB

5

#### APS

28

### 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 = 14

Core = 64

Elective = 62

Electives (with credits shown in brackets) should be chosen from the following:

- **Mathematics Stream:** WTW 123 (8), WTW 115 (8), WTW 152 (8), WTW 162 (8), COS 132 (16), COS 122 (16) (COS 151 (8) as an optional addition), WKD 155 (16)
- **Insurance/Economics Stream:** WTW 152 (8), WTW 123 (8), IAS 111 (6), IAS 121 (6), EKN 110 (10), EKN 120 (10), (FBS 110 (10) or (FBS 112 (10), FBS 122 (10), WKD 155 (16)

## 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

Mathematical statistics 111 (WST 111) - Credits: 16.00

Mathematical statistics 121 (WST 121) - Credits: 16.00

Calculus 114 (WTW 114) - Credits: 16.00

Mathematics 124 (WTW 124) - Credits: 16.00

## Elective modules

Operating systems 122 (COS 122) - Credits: 16.00

Imperative programming 132 (COS 132) - Credits: 16.00

Introduction to computer science 151 (COS 151) - Credits: 8.00

Economics 110 (EKN 110) - Credits: 10.00

Economics 120 (EKN 120) - Credits: 10.00

Financial management 110 (FBS 110) - Credits: 10.00

Financial management 112 (FBS 112) - Credits: 10.00

Financial management 122 (FBS 122) - Credits: 10.00

Actuarial and Financial Mathematics in practice 111 (IAS 111) - Credits: 6.00

Actuarial and Financial Mathematics in practice 121 (IAS 121) - Credits: 6.00

Atmospheric structure and processes 155 (WKD 155) - Credits: 16.00

Discrete structures 115 (WTW 115) - Credits: 8.00

Numerical analysis 123 (WTW 123) - Credits: 8.00

Mathematical modelling 152 (WTW 152) - Credits: 8.00

Dynamical processes 162 (WTW 162) - Credits: 8.00



## Curriculum: Year 2

**Minimum credits: 140**

Core = 108

Elective = 32

### **Elective Modules (with credits shown in brackets) (Credits = 32)**

- **Mathematics Stream:** WTW 264 (12) or WTW 286 (12), WTW 285 (12) , WTW 248 (12)
- **Insurance Stream:** IAS 211 (12), IAS 221 (12), IAS 282 (12)
- **Economics/Econometrics Stream:** EKN 214 (16), EKN 234 (16) (and EKN 244 (16) as an optional addition)

Note that only WTW 220 or WTW 224 can be credited. WTW 224 is a terminating module for any WTW 300 modules, thus only an option in the insurance and economics stream.

### **Core modules**

[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

[Linear algebra 221](#) (WTW 221) - Credits: 12.00

[Techniques of analysis 224](#) (WTW 224) - Credits: 12.00

### **Elective modules**

[Economics 214](#) (EKN 214) - Credits: 16.00

[Economics 224](#) (EKN 224) - Credits: 16.00

[Financial mathematics 211](#) (IAS 211) - Credits: 12.00

[Contingencies 221](#) (IAS 221) - Credits: 12.00

[Financial mathematics 282](#) (IAS 282) - Credits: 12.00

[Vector analysis 248](#) (WTW 248) - Credits: 12.00

[Differential equations 264](#) (WTW 264) - Credits: 12.00

[Discrete structures 285](#) (WTW 285) - Credits: 12.00

[Differential equations 286](#) (WTW 286) - Credits: 12.00

## Curriculum: Final year

**Minimum credits: 140**

Core = 86

Elective = 54

### Additional Information:

- **Mathematics Stream:** Choose three from WTW 310 (18), WTW 320 (18), WTW 354 (8), WTW 364 (20), WTW 381 (18), WTW 382 (18), WTW 383 (18), WTW 386 (18), WTW 387 (18), WST 322 (18), WTW 389 (18)
- **Insurance Stream:** WTW 354 (18), WTW 364 (18), WST 322(18)
- **Economics/Econometrics Stream:** Choose three from EKN 310 (20), EKN 320 (20), EKN 314 (20), EKN 325 (20), WST 322 (18)

### Core modules

[Statistics 320](#) (STK 320) - Credits: 25.00

[The science of data analytics 353](#) (STK 353) - Credits: 25.00

[Multivariate analysis 311](#) (WST 311) - Credits: 18.00

[Stochastic processes 312](#) (WST 312) - Credits: 18.00

### Elective modules

[Economics 310](#) (EKN 310) - Credits: 20.00

[Development economics 315](#) (EKN 315) - Credits: 20.00

[Economics 320](#) (EKN 320) - Credits: 20.00

[Economics 325](#) (EKN 325) - Credits: 20.00

[Survival models 382](#) (IAS 382) - Credits: 18.00

[Actuarial statistics 322](#) (WST 322) - Credits: 18.00

[Analysis 310](#) (WTW 310) - Credits: 18.00

[Complex analysis 320](#) (WTW 320) - Credits: 18.00

[Financial engineering 354](#) (WTW 354) - Credits: 18.00

[Financial engineering 364](#) (WTW 364) - Credits: 18.00

[Algebra 381](#) (WTW 381) - 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

[Geometry 389](#) (WTW 389) - Credits: 18.00

### 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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