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 2022

- The admission requirements apply to students who apply for admission to the University of Pretoria with a **National Senior Certificate (NSC) and Independent Examination Board (IEB) qualifications.**
- **Applicants with qualifications other than the abovementioned** should refer to:
  - **Brochure:** Undergraduate Programme Information 2022: Qualifications other than the NSC and IEB, available at click here.
- **Citizens from countries other than South Africa (applicants who are not South African citizens)** should also refer to:
  - **Brochure:** Newcomer's Guide 2021, available at click here.
  - **Website:** click here.
- **School of Tomorrow (SOT), Accelerated Christian Education (ACE) and General Education Development Test (GED):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **National Certificate (Vocational) (NCV) Level 4:** The University of Pretoria may consider NCV candidates, provided they meet the exemption for bachelor's status criteria and the programme requirements.

Transferring students

A transferring student is a student who, at the time of application for a degree programme at the University of Pretoria (UP) –

- is a registered student at another tertiary institution, **or** was previously registered at another tertiary institution and did not complete the programme enrolled for at that institution, and is not currently enrolled at a tertiary institution, **or** has completed studies at another tertiary institution, but is not currently enrolled at a tertiary institution, **or** has started with tertiary studies at UP, then moved to another tertiary institution and wants to be readmitted at UP.

A transferring student will be considered for admission based on

- an NSC or equivalent qualification with exemption to bachelor's or diploma studies (whichever is applicable); **and** meeting the minimum faculty-specific subject requirements at NSC or tertiary level; **or** having completed a higher certificate at a tertiary institution with faculty-specific subjects/modules passed (equal to or more than 50%), as well as complying with faculty rules on admission;
- previous academic performance (must have passed all modules registered for up to the closing date of

application) or as per faculty regulation/promotion requirements;

- a certificate of good conduct.

Note: Students who have been dismissed at the previous institution due to poor academic performance, will not be considered for admission to UP.

Returning students

A returning student is a student who, at the time of application for a degree programme –

- is a registered student at UP, and wants to transfer to another degree at UP, **or** was previously registered at UP and did not complete the programme enrolled for, and did not enrol at another tertiary institution in the meantime (including students who applied for leave of absence), **or** has completed studies at UP, but is not currently enrolled or was not enrolled at another tertiary institution after graduation.

A returning student will be considered for admission based on

- an NSC or equivalent qualification with exemption to bachelor's or diploma studies (whichever is applicable); **and** meeting the minimum faculty-specific subject requirements at NSC or tertiary level; **or** previous academic performance (should have a cumulative weighted average of at least 50% for the programme enrolled for);
- having applied for and was granted leave of absence.

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. The Admissions Committee may consider such students if they were not dismissed more than twice. Only ONE transfer between UP faculties will be allowed, and a maximum of two (2) transfers within a faculty.

Important faculty-specific information on undergraduate programmes for 2022

- The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.
- The following persons will be considered for admission: Candidates who have a certificate that is deemed by the University to be equivalent to the required National Senior Certificate (NSC) with university endorsement; candidates who are graduates from another tertiary institution or have been granted the status of a graduate of such an institution, and candidates who are graduates of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the Admission Point Score (APS).
- Grade 11 results are used for the conditional admission of prospective students. Final admission is based on the final NSC/IEB results.

University of Pretoria website: click here

Minimum requirements Achievement level		
English Home Language or English First Additional Language	**Mathematics**	**APS**
NSC/IEB 5	NSC/IEB 6	**34**

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 if students obtained a GPA of 65% in 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	Mathematics	APS
NSC/IEB	NSC/IEB	
4	5	**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.

Other programme-specific information

1.1   Requirements for specific modules

A candidate who:

a. does not qualify for STK 110, must enrol for STK 113 and STK 123;
b. egisters 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, STK320, STK353.

     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.

Curriculum: Year 1

Minimum credits: 140

Fundamental = 14
Core = 108
Elective = 44 /32

Electives should be chosen as follows:

- Students in Mathematical Statistics who also want to be trained for the Mathematics industry should choose from WTW 123 (8), 115 (8), 152 (8), 162 (8), COS 132 (16) and COS 122 (16) or 151 (8).
- Students in Mathematical Statistics who also want to be trained for the Insurance industry and/or Econometrics, should choose: WTW 152 (8), WTW 123 (8), IAS 111 (6), 121 (6), EKN 110 (10), 120 (10), and either FBS 110 (10), 120 (10) or FBS 112 (10), 122 (10).
- Students in Mathematical Statistics with other career requirements, choose modules from any other subject/faculty to meet their specific needs.

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 120 (FBS 120) - 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 (Credits = 44)

- Students in Mathematical Statistics who also want to be trained for the Mathematics industry should choose from WTW 264 (12), WTW 286 (12), 285 (12) and 248 (12).
- Students in Mathematical Statistics who also want to be trained for the Insurance Industry should choose IAS 211 (12) IAS 221 (12), IAS 282 (12)
- Students in Mathematical Statistics who also want to be trained for the Econometrics industry should choose: EKN 214(16), EKN 224 (16).
- Students in Mathematical Statistics with other career requirements, may choose modules from any other subject/faculty to meet their specific needs but should consult with the Department of Statistics in this regard.

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:

- Students in Mathematical Statistics who also want to be trained for the Mathematics industry should choose two of the following: WTW 310 (18), 320 (18), 354 (18), 364 (18), 381 (18), 382 (18), 383 (18), 386 (18), 387 (18), 389 (18).
- Students in Mathematical Statistics who also want to be trained for the Insurance industry should choose WTW 354 (18), WTW 364 (18) and WST 322 (18).
- Students in Mathematical Statistics who also want to be trained for the Econometrics industry should choose three of the following: EKN 310 (20), 320 (20), 314 (20), 325 (20) or WST 322 (18).
- Students in Mathematical Statistics with other career requirements, may choose modules from any other subject/faculty to meet their specific needs but should consult with the Department of Statistics in this regard.

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

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.