



University of Pretoria Yearbook 2022

BSc (Actuarial and Financial Mathematics) (02133395)

Department Mathematics and Applied Mathematics

Minimum duration of study 3 years

Total credits 434

NQF level 07

SAQA ID 105084

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

NSC/IEB

5

7

36

Candidates who do not comply with the minimum admission requirements for BSc (Actuarial and Financial



Mathematics), 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.

In addition, admission into the BSc (Actuarial and Financial Mathematics) programme will only be considered if students have passed IAS 111 and achieved a minimum mark of 60% in WTW 153 and WST 153.

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.

Other programme-specific information

Transfer to the BSc (Actuarial and Financial Mathematics) degree programme

Transfers to the BSc (Actuarial and Financial Mathematics) degree are considered on application. Applications are handled by Student Administration and you should contact them (nas.undergradhelp@up.ac.za). Applications are not considered during the year, but at the start of each year once the complete academic record for the previous year is available. Applications are generally approved when students meet the requirements specified below. Final admission in all cases is dependent on the capacity of the programme.

Transfer from BSc (Mathematical Statistics) 02133274

Students who have enrolled for the full set of prescribed first year modules for the BSc (Actuarial and Financial Mathematics) degree as part of their BSc (Mathematical Statistics) degree and passed them all outright in one year, will be allowed to transfer at the end of their first year. A dropped subject is considered a fail. Failing a subject and passing it at a Winter or Summer school is also considered a fail. Passing modules with supplementary examinations or very low exam marks are warning signals and a transfer will not be allowed. Students who fall in this category will be allowed to transfer at the end of their second year of study, if they have completed all the prescribed modules for the first and second year of the BSc (Actuarial and Financial Mathematics) in two years.

Transfer from BSc Extended programme - Mathematical Sciences 02130016

In terms of the yearbook, “Admissions from the BSc – Extended programmes to the BSc (Actuarial and Financial Mathematics) programmes will only be considered if students have passed all their first-year modules with an average percentage of at least 60%, passed IAS 111 and achieved a minimum percentage of 60% for WTW 143 and WTW 153.” Note that the admission requirements for IAS 111 and FBS 112 are 60% for each of the first year



Mathematics and Mathematical Statistics modules i.e. WTW 133, WTW 143, WST 133 and WST 143.

Transfers from other programmes not included above

Students who meet the grade 12 admission requirements for BSc (Actuarial and Financial Mathematics) are considered. The student's complete tertiary academic record will be considered. The student should have taken and passed the full credit load in the previous degree for the time the student spent doing that degree. Failed and/or dropped modules will normally disqualify a student from transferring.

Further queries not resolved by the above information, contact the department by sending an email outlining your query with your name and student number to actuarial@up.ac.za.

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. 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, 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: 146

Fundamental = 14

Core = 132

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

Economics 110 (EKN 110) - Credits: 10.00

Economics 120 (EKN 120) - 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

Mathematical statistics 111 (WST 111) - Credits: 16.00

Mathematical statistics 121 (WST 121) - Credits: 16.00

Calculus 114 (WTW 114) - Credits: 16.00

Numerical analysis 123 (WTW 123) - Credits: 8.00

Mathematics 124 (WTW 124) - Credits: 16.00

Mathematical modelling 152 (WTW 152) - Credits: 8.00



Curriculum: Year 2

Minimum credits: 144

Core = 132

Elective = 12

Additional information:

- The elective must be chosen between IAS 282 or WTW 221.
- Students who want to follow an Actuarial career, should select IAS 282. Students who want to pursue an honours degree in Mathematics, should select WTW 221.

Core modules

Financial mathematics 211 (IAS 211) - Credits: 12.00

Contingencies 221 (IAS 221) - Credits: 12.00

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

Differential equations 264 (WTW 264) - Credits: 12.00

Elective modules

Financial mathematics 282 (IAS 282) - Credits: 12.00

Linear algebra 221 (WTW 221) - Credits: 12.00



Curriculum: Final year

Minimum credits: 144

Core = 108

Elective = 36

There are two options for electives. Students should select electives according to one of the options.

1. Actuarial Science option: IAS 353, IAS 382

Students who want to try to obtain the maximum possible exemptions from the Actuarial Society examinations, and who meet the prerequisites, should select the Actuarial Science option.

2. Financial Mathematics option: WTW 310, and one of the following modules WTW 320, WTW 382

Students who want to complete the BSc (Actuarial and Financial Mathematics) degree, but are considering an honours degree in Mathematics, should in addition to the Financial Mathematics option take the module WTW 381 for non-degree purposes.

Students who want to complete the BSc (Actuarial and Financial Mathematics) degree, but are considering an honours degree in Applied Mathematics, should take the Financial Mathematics option with any two of the modules WTW 382, WTW 383, WTW386, with one of them for non-degree purposes.

Students who want to complete the BSc (Actuarial and Financial Mathematics) degree, but are considering an honours degree in Mathematical Statistics, should take in addition to either option STK 353 for non-degree purposes.

Students who would like to continue with any of the alternative above-mentioned honours degrees without taking additional credits can switch to the respective undergraduate programme during their third year. Students should note that they still qualify for exemptions from the Actuarial Society subjects if they switch to one of the alternative degrees.

Core modules

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

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

[Time-series analysis 321](#) (WST 321) - Credits: 18.00

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

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

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

Elective modules

[Contingencies 353](#) (IAS 353) - Credits: 18.00

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

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

[Complex analysis 320](#) (WTW 320) - 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

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.