



# University of Pretoria Yearbook 2016

## BSc Extended programme - Physical Sciences (02130010)

**Duration of study** 4 years

**Total credits** 512

### Admission requirements

- In order to register NSC/IEB/Cambridge candidates must comply with the minimum requirements for degree studies as well as the minimum requirements for the relevant study programme.
- Life Orientation is excluded in the calculation of the Admission Point Score (APS).
- Grade 11 results are used for the provisional admission of prospective students.
- Final admission is based on the Grade 12 results.

Minimum requirements for 2016												
Achievement level												
Afrikaans or English				Mathematics				Physical Sciences				APS
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
4	3	D	D	4	3	D	D	4	3	D	D	26

NBT compulsory

### Additional requirements

- Students who are admitted to one of the BSc four-year programmes register for one specific programme. Three extended programmes are available:
  - BSc (Four-year programme) – Mathematical Sciences
  - BSc (Four-year programme) – Biological and Agricultural Sciences
  - BSc (Four-year programme) – Physical Sciences
- These programmes are followed by students who, as a result of exceptional circumstances, will benefit from an extended programme.
- 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 by being placed on the BSc (Four-year programme). Generally the BSc (Four-year programme) means that the first study year in Mathematics, Physics, Biology and Chemistry is extended to take two years. After completing the BSc (Four-year programme) successfully, students join the second year of the normal BSc programme to complete their



- degrees. The possibility of switching over to other faculties such as Engineering, Built Environment and Information Technology, Veterinary Science and Health Sciences, after one or two years in the four-year programme, exists. This depends on selection rules and other conditions stipulated by the other faculties.
- d. Students who wish to follow one of the BSc four-year programmes will be subjected to an Institutional Proficiency Test and will be considered for admission by the Admissions Committee. Information in this regard is available at the Client Services Centre.
  - e. Applications for admission to the BSc (Four-year programme) should be submitted before 30 September each year. Details are obtainable from the Student Administration at the Faculty of Natural and Agricultural Sciences.
  - f. The rules and regulations applicable to the normal study programmes apply mutatis mutandis to the BSc (Four-year programme), with exceptions as indicated in the regulations pertaining to the BSc (Four-year programme). For instance, students placed in the BSc (Four-year programme) must have a National Senior Certificate with admission for degree purposes.
  - g. An admissions committee considers applications for the BSc (Four-year programme) annually. Regarding subject choices, admitted students are individually placed on the BSc (Four-year programme) according to their prospective field of study. Students may NOT change this placement without the permission of the Chairperson of the admissions committee.

## Other programme-specific information

Prescribed: CMY 133 Chemistry, CMY 143 Chemistry and CMY 154 Chemistry: Equivalent module – a BSc First-semester prescribed module: CMY 117.

### Physics modules

For students in biological study directions: PHY 133 Physics, PHY 144 Physics and PHY 154 Physics Equivalent module: PHY 131.

For students who want to study Physical Sciences and engineering: PHY 133 Physics, PHY 143 Physics, PHY 153 Physics Equivalent module: FSK 116 (or FSK 176)

For all other students: PHY 133 Physics, PHY 143 Physics, PHY 153 Physics, PHY 163 General physics: Equivalent modules: PHY 114 and PHY 124.

Prescribed: WTW 133 Precalculus, WTW 143 Calculus and WTW 153 Calculus: Equivalent module – a BSc First-semester prescribed module: WTW 114.

For students in biological study directions: WTW 133 Precalculus, WTW 144 Mathematics and WTW 154 Mathematics: Equivalent module WTW 134 Mathematics

Prescribed: MLB 133 Molecular and cell biology, MLB 143 Molecular and cell biology, MLB 153 Molecular and cell biology: Equivalent module – a BSc First-semester prescribed module: MLB 111 Molecular and cell biology.

**NB Students may register for an extended module (eg PHY 133, PHY 143, PHY 153 and PHY 163) only once.**

### **Compulsory modules:**

AIM 111 and AIM 121 Academic information management, 4 + 4 credits.

LST 133 and LST 143 Academic literacy, 8+ 8 credits.

All new students must register for the academic literacy modules LST.

The Dean may, on the recommendation of the programme manager, approve deviations with regard to the



composition of the study programme.

Please note: Where elective modules are not specified, these may be chosen from any modules appearing in the list of modules.

It remains the student's responsibility to ascertain, prior to registration, whether they comply with the prerequisites of the modules they want to register for.

The prerequisites are listed in the alphabetical list of modules.

## Promotion to next study year

### **Academic promotion requirements**

It is expected of students who register for the first year of the BSc (Four-year programme) to pass all the prescribed modules of the first year.

It is expected of students accepted into the BSc (Four-year programme) to finish a complete corresponding BSc first year within the two years of enrolment in the BSc (Four-year programme). Students who do not show progress during the first semester of the first year will be referred to the Admissions Committee of the Faculty.



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## Curriculum: Year 1

**Minimum credits: 88**

### Fundamental modules

Language, life and study skills 133 (LST 133) - Credits: 8.00

Language, life and study skills 143 (LST 143) - Credits: 8.00

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

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

Academic orientation 120 (UPO 120) - Credits: 0.00

### Core modules

Chemistry 133 (CMY 133) - Credits: 8.00

Chemistry 143 (CMY 143) - Credits: 8.00

Physics 133 (PHY 133) - Credits: 8.00

Physics 143 (PHY 143) - Credits: 8.00

Precalculus 133 (WTW 133) - Credits: 8.00

Calculus 143 (WTW 143) - Credits: 8.00

### Elective modules

Molecular and cell biology 133 (MLB 133) - Credits: 8.00

Molecular and cell biology 143 (MLB 143) - Credits: 8.00

Mathematical statistics 133 (WST 133) - Credits: 8.00

Mathematical statistics 143 (WST 143) - Credits: 8.00



## Curriculum: Year 2

**Minimum credits: 24**

### Core modules

Chemistry 154 (CMY 154) - Credits: 8.00

Physics 153 (PHY 153) - Credits: 8.00

Calculus 153 (WTW 153) - Credits: 8.00

### Elective modules

Biometry 120 (BME 120) - Credits: 16.00

General chemistry 127 (CMY 127) - Credits: 16.00

Aspects of human geography 156 (GGY 156) - Credits: 8.00

Southern African geomorphology 166 (GGY 166) - Credits: 8.00

Historical geology 161 (GLY 161) - Credits: 8.00

Environmental and hazard geology 162 (GLY 162) - Credits: 8.00

Cartography 110 (GMC 110) - Credits: 12.00

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 153 (MLB 153) - Credits: 8.00

Exploring the universe 154 (SCI 154) - Credits: 16.00

Exploring the universe 164 (SCI 164) - Credits: 16.00

Mechanics 122 (SWK 122) - Credits: 16.00

Climate and weather of Southern Africa 164 (WKD 164) - Credits: 8.00

Numerical analysis 123 (WTW 123) - Credits: 8.00

Mathematical modelling 152 (WTW 152) - Credits: 8.00

Calculus 158 (WTW 158) - Credits: 16.00

Geoinformatics 120 (GIS 120) - Credits: 12.00

Introduction to environmental sciences 101 (ENV 101) - Credits: 8.00

Introduction to geology 155 (GLY 155) - Credits: 16.00

First course in physics 124 (PHY 124) - Credits: 16.00

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

Informatics 171 (INF 171) - Credits: 20.00



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## Curriculum: Final year

**Minimum credits: 24**

### Core modules

Chemistry 154 (CMY 154) - Credits: 8.00

Physics 153 (PHY 153) - Credits: 8.00

Calculus 153 (WTW 153) - Credits: 8.00

### Elective modules

Biometry 120 (BME 120) - Credits: 16.00

General chemistry 127 (CMY 127) - Credits: 16.00

Aspects of human geography 156 (GGY 156) - Credits: 8.00

Southern African geomorphology 166 (GGY 166) - Credits: 8.00

Historical geology 161 (GLY 161) - Credits: 8.00

Environmental and hazard geology 162 (GLY 162) - Credits: 8.00

Cartography 110 (GMC 110) - Credits: 12.00

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 153 (MLB 153) - Credits: 8.00

Exploring the universe 154 (SCI 154) - Credits: 16.00

Exploring the universe 164 (SCI 164) - Credits: 16.00

Mechanics 122 (SWK 122) - Credits: 16.00

Climate and weather of Southern Africa 164 (WKD 164) - Credits: 8.00

Numerical analysis 123 (WTW 123) - Credits: 8.00

Mathematical modelling 152 (WTW 152) - Credits: 8.00

Calculus 158 (WTW 158) - Credits: 16.00

Geoinformatics 120 (GIS 120) - Credits: 12.00

Introduction to environmental sciences 101 (ENV 101) - Credits: 8.00

Introduction to geology 155 (GLY 155) - Credits: 16.00

First course in physics 124 (PHY 124) - Credits: 16.00

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

Informatics 171 (INF 171) - Credits: 20.00

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The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.