

# BSc (Genetics), BSc (Human Genetics) & BSc (Biotechnology)

The Division of Genetics offers internationally recognised undergraduate and postgraduate degrees and is an active player on the international scientific stage.

Single- and dual-major options are offered in both the BSc (Genetics) and BSc (Human Genetics) programmes. Students can therefore choose to either specialise in genetics as a single major, or combine their genetics subjects with a second major, such as biochemistry, microbiology, plant science or zoology in the BSc (Genetics) programme, or with human physiology in the BSc (Human Genetics) programme.

The interdepartmental BSc (Biotechnology) programme places particular emphasis on molecular biology and is aimed at empowering students to pursue their interest in biotechnology. Undergraduate training includes exposure to aspects of biochemistry, genetics and microbiology, in addition to the other subjects chosen by the student.

Our degrees are research-oriented and place a strong emphasis on understanding underlying concepts and principles, as well as on developing the necessary problem-solving and analytical skills. Students are encouraged to decide on their postgraduate research direction during their undergraduate studies and to choose their electives accordingly.

## Who is the ideal candidate?

Effective science is increasingly becoming transdisciplinary and involves multifaceted research teams and expertise.

Individuals seeking to enrol in programmes such as Genetics should be innovative and creative thinkers with curious minds who exhibit inquiry-driven tenacity, display a passion for life-science-related topics and have a fair understanding of mathematics.

## What makes this programme unique?

At the undergraduate level, students are provided with a thorough background in the principles of genetics, as well as the application of those principles in fields as diverse as genomics, plant and animal biotechnology, diagnostics and risk determination, bioethics, conservation ecology and population, and behavioural and evolutionary studies.

Graduates acquire skills in analytical and critical thinking, as well as creativity in problem solving and data handling, which equip them for success in both scientific and non-scientific careers.

## Which companies employ our graduates?

**Genetics graduates are employed by institutes such as the CSIR, NHLS, ARC, NRF, SANBI and NICD. Some of the fields in which graduates have been employed are:**

- Academia
- Plant and crop breeding
- Animal health
- Microbiology
- Virology
- Agriculture and wildlife
- Medical and pharmaceutical
- Computational biology and bioinformatics
- Biomedical science communication
- Corporate business and sales
- Human and medical genetics

## What career opportunities exist for graduates?

Employment opportunities are available in various fields and graduates may be employed as:





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## Faculty of Natural and Agricultural Sciences

Fakulteit Natuur- en Landbouwetenskappe  
Lefapha la Disaense tša Tlhago le Temo

### Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2022			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
<b>BSc (Genetics)</b> <b>BSc (Human Genetics)</b> [3 years] Closing dates: SA – 30 September Non-SA – 31 August	5	5	5	32
<b>BSc (Biotechnology)</b> [3 years] Closing dates: SA – 30 September Non-SA – 31 August	5	5	5	32

#### BSc (Genetics)

Students complete all five of the final year **Genetics** modules together with three modules chosen from either **Biochemistry**, **Plant Science**, **Zoology** or **Microbiology**.

Single Major

Dual Major

**Genetics** modules can be combined with an equivalent number of modules from either **Biochemistry**, **Plant Science**, **Microbiology**, **Zoology** or **Entomology**.

#### BSc (Human Genetics)

Final year **Genetics** modules can be taken together with a selection of modules from **Human Physiology**, **Biochemistry**, **Pharmacology** or **Microbiology**.

Single Major

Dual Major

**Genetics** modules can be combined with an equivalent number of modules from **Human Physiology**.

#### BSc (Biotechnology)

Elective modules may be chosen from either **Genetics**, **Biochemistry**, **Plant Science** or **Microbiology**. The choice of modules determine a student's postgraduate outcomes.

#### BSc (Medical Sciences)

Dual Major

**Genetics** modules can be combined with an equivalent number of modules from **Human Anatomy**.

#### BSc (Human Physiology, Genetics and Psychology)

Triple Major

Modules from all three fields are taken at final year level. Students may continue with postgraduate studies in **Genetics** by adding one additional final year **Genetics** module.

Postgraduate study options

Additional postgraduate study options available in other Departments and programmes depending on the student's choice of modules at final year level.