



Make today matter

The Division of Genetics offers internationally recognised undergraduate and postgraduate degrees. Genetics is at the core of the biological, agricultural, veterinary and medical sciences and has become essential in fields as diverse as virology and epidemiology, biodiversity conservation and sustainable agriculture.

Single- and double-major options are offered in both the Bachelor of Science *Genetics* and Bachelor of Science *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 Bachelor of Science *Genetics* programme, or with human physiology in the Bachelor of Science *Human Genetics* programme.

The interdepartmental Bachelor of Science *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.

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, NHLA, 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; and
- human and medical genetics.

Who is the ideal candidate?



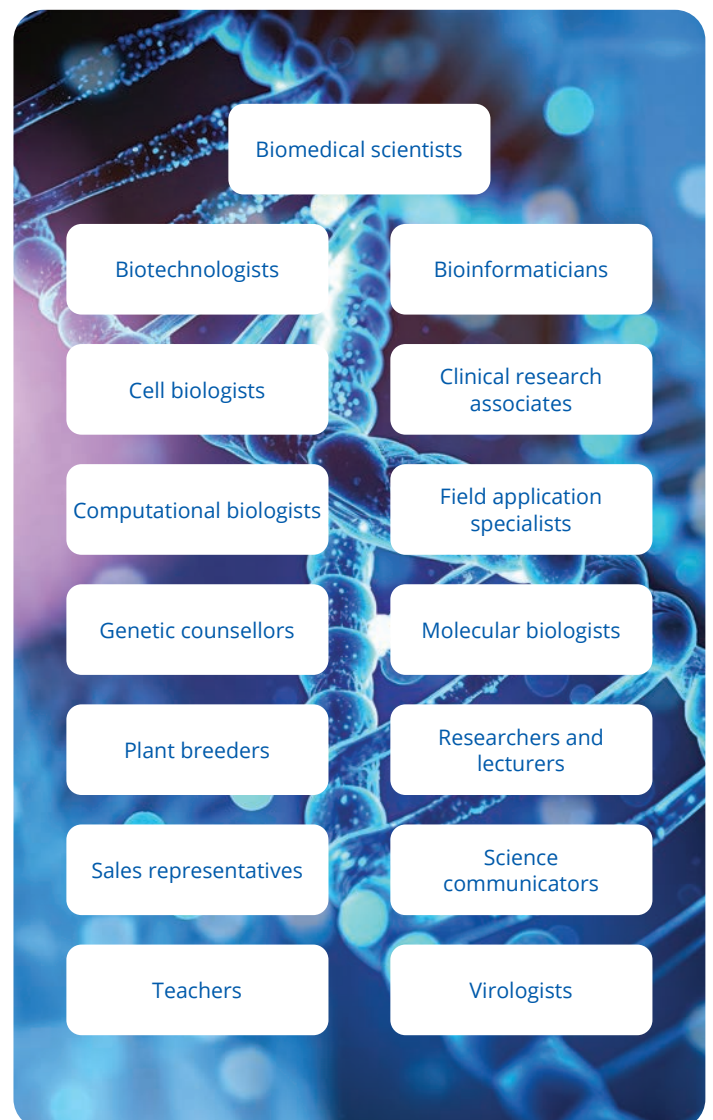
Effective science is increasingly becoming transdisciplinary and involves multifaceted research teams and expertise.

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.

Career opportunities



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





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YUNIBESITHI YA PRETORIA

Faculty of Natural and Agricultural Sciences

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

Bachelor of Science *Genetics*, Bachelor of Science *Human Genetics* and Bachelor of Science *Biotechnology*



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Minimum admission requirements

Programmes	Minimum requirements for NSC/IEB for 2025			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
Bachelor of Science <i>Genetics</i> Bachelor of Science <i>Human Genetics</i> [3 years]	5	5	5	32
Bachelor of Science <i>Biotechnology</i> [3 years]	5	5	5	32

Bachelor of Science *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

Double Major

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

Bachelor of Science *Human Genetics*

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

Single Major

Double Major

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

Bachelor of Science *Biotechnology*

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

Bachelor of Science *Medical Sciences*

Double Major

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

Bachelor of Science *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.



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Minimum requirements for
applicants with a school
leaving certificate not issued
by Umalusi (South Africa)



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Refer to the International undergraduate prospectus at www.up.ac.za/programmes > Undergraduate > Admission Information or [click here](#) for more information.

- The closing date for applications for programmes in this faculty is 30 June.
- Meeting the minimum admission requirements does not guarantee admission into a programme.

FACULTY OF NATURAL AND AGRICULTURAL SCIENCES Programmes	Minimum requirements for 2025									
	Achievement level									
	Compulsory subjects	GCSE #		HIGCSE NSSC HL	AS Level	A Level	IB		KOMBI ABITUR	KCSE
		The qualifications in the two columns below will be considered only for conditional admission. If final AS and/or A levels have been completed, these two columns will not apply. It can also not be used for final admission and/or registration.			GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZIMSEC	IB SL	IB HL		
CIE	UK	GCE CIE NSSC AS	GCE CIE CGCE UACE WAEC ZIMSEC	IB SL	IB HL	KOMBI ABITUR	KCSE			
IGCSE LGCSE BGCSE SGCSE	England Wales Northern Ireland									
O Level NSSC OL CGCE UCE NECO WAEC ZIMSEC										
Bachelor of Science <i>Biochemistry</i>	English Mathematics Physics Chemistry									
Bachelor of Science <i>Biotechnology</i>										
Bachelor of Science <i>Ecology</i>										
Bachelor of Science <i>Zoology</i>										
Bachelor of Science <i>Entomology</i>										
Bachelor of Science <i>Genetics</i>										
Bachelor of Science <i>Human Genetics</i>										
Bachelor of Science <i>Human Physiology</i>										
Bachelor of Science <i>Human Physiology, Genetics and Psychology</i>										
Bachelor of Science <i>Medical Sciences</i>		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science <i>Microbiology</i>		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science <i>Plant Science</i>		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science <i>Chemistry</i>										
Bachelor of Science <i>Physics</i>										
Bachelor of Science <i>Geography</i> [Option: Geography and Environmental Science]										
Bachelor of Science <i>Geoinformatics</i>										
Bachelor of Science <i>Geology</i>										
Bachelor of Science <i>Meteorology</i>										
Bachelor of Science <i>Environmental and Engineering Geology</i>										

Only English with at least a C symbol on this level can be used for final admission.

NOTE: The Faculty of Natural and Agricultural Sciences requires the following achievement levels for IELTS and TOEFL: TOEFL – Writing=22; Speaking=23; Reading=21; Listening=17
IELTS – Writing=6; Speaking=6; Reading=6; Listening=6



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FACULTY OF NATURAL AND AGRICULTURAL SCIENCES Programmes	Minimum requirements for 2025									
	Achievement level									
	Compulsory subjects	GCSE #		HIGCSE NSSC HL	AS Level	A Level	IB		KOMBI ABITUR	KCSE
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		CIE	UK							
IGCSE LGCSE BGCSE SGCSE	England Wales Northern Ireland									
O Level NSSC OL CGCE UCE NECO WAEC ZIMSEC										
Bachelor of Science <i>Food Science</i>	English Mathematics Physics Chemistry									
Bachelor of Science in Food Management [Option: Culinary Science]										
Bachelor of Science in Food Management [Option: Nutrition]										
Bachelor of Science in Agriculture in Agricultural Economics and Agribusiness Management		C	4	3	C	E	4	3	60-69%	B
		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science in Agriculture in Animal Science		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science in Agriculture in Plant Pathology										
Bachelor of Science in Agriculture in Applied Plant and Soil Sciences										
Bachelor of Science <i>Actuarial and Financial Mathematics</i>	English Mathematics	C A	4 7	3 1	C A	E C	4 6	3 5	60-69% 80-100%	B A
Bachelor of Science <i>Mathematics</i>	English Mathematics									
Bachelor of Science <i>Applied Mathematics</i>		C	4	3	C	E	4	3	60-69%	B
Bachelor of Science <i>Mathematical Statistics</i>		B	5	2	B	D	5	4	70-79%	B+
Bachelor of Consumer Science <i>Clothing Retail Management</i>	English Mathematics									
Bachelor of Consumer Science <i>Food Retail Management</i>		C D	4 3	3 3	C D	E E	4 2	3 2	60-69% 50-59%	B C+
Bachelor of Consumer Science <i>Hospitality Management</i>										

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IELTS – Writing=6; Speaking=6; Reading=6; Listening=6

