

# Faculty of Science

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The Faculty of Science prides itself on its vibrant, dynamic and diverse scientific community of scholars who are passionate about enhancing the learning experience of our students, enhancing the research profile of the Faculty and enhancing the academic, social and economic impact of the Faculty's teaching and research programmes.

Innovative education, internationally competitive research, as well as community development, are integrated into a dynamic synergy.

We provide outstanding service to our students in respect of learning programmes, learning facilities, in-service training and a learning environment that is conducive to life-long learning. Four year programmes are offered as alternative access routes to students who require them, and academic support and mentorship programmes are provided to students who need additional guidance and assistance. Our students are in great demand in the business sector and contribute significantly to the industry.

The Faculty is an active player in a wider network of national and international partnerships and collaborations. One example is a joint PhD programme with the reputable St Andrews University in Scotland. With regard to undergraduate programmes, we are proud that UJ holds accreditation from the British Computer Society for our BSc degree programme in Information Technology.

These and other international partnerships with prestigious institutions are testimony to the high esteem that our staff, students and programmes enjoy in the international community.

Each year, several staff members and students receive national and international acclaim for research and other academic achievements. The Faculty is proud that it has a unique state-of-the-art analytical research facility, which houses the multi-user analytical apparatus of the Faculty in a single unit.

It is evident from all of the above that the Faculty of Science is fully dedicated to realising all of its ideals.

## Please note

In addition to the formal entry requirements:

- There are constraints in certain programmes that may limit the numbers that may be accepted into the programme, and
- It may also be required from prospective students to write a placement test.



## DEGREE PROGRAMMES

Programme	Minimum APS	Group A		Group B			Career	Campus
		English	Mathematics ❖	Other recognised language	Subject 1 ⚡	Subject 2		
<b>BSc (Information Technology) degree (3 years)</b>								
INFORMATION TECHNOLOGY BSIT01	27	4	5	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>27 (30 for BSIT03)</b> .	Systems analyst, network manager, programmer, web developer, web master, database administrator, software engineer, computer graphics designer, information technology manager, researcher			APK
COMPUTER SCIENCE AND INFORMATICS BSIT02	27	4	5		Systems analyst, network manager, programmer, web developer, web master, database administrator, software engineer, computer graphics designer, information technology manager, researcher			APK
INFORMATION TECHNOLOGY (ELECTRICAL ENGINEERING) BSIT03	30	4	5		Electrical and electronic engineer, computer engineer			APK

❖ Mathematics Paper 3 results will be added as an additional credit to increase the APS.

⚡ A minimum rating of **5** for Physical Science if Chemistry 1A and/or Physics 1A is included in the study programme.  
A minimum rating of **4** for Physical Science if Chemistry 1C and/or Physics 1C is included in the study programme.

**Note 1:** All programmes in the Faculty of Science are offered in English only.

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<b>APS scale</b>	7	6	5	4	3	2	1
<b>Percentage</b>	80-100%	70-79%	60-69%	50-59%	40-49%	30-39%	0-29%

## DEGREE PROGRAMMES

Programme	Minimum APS	Group A			Group B			Career	Campus
		English	Mathematics ♦♦	Physical Science ♦	Other recognised language	Subject 1	Subject 2		
<b>BSc (Life and Environmental Sciences) degree (3 years)</b>									
BIOCHEMISTRY AND BOTANY BSLE01	27	4	4 / 5	4 / 5	The remainder of the 3 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>27</b> .		Analyst, technologist, or researcher at Sasol, Eskom, pharmaceutical companies, mining companies or in health industry	APK	
BOTANY AND CHEMISTRY BSLE02	27	4	5	4 / 5			Biologist, botanist, ecologist, nature conservation scientist, forensic scientist	APK	
BOTANY AND ENVIRONMENTAL MANAGEMENT BSLE03	27	4	4	4			Biologist, geographer, regional planner, environmental conservationist, botanist, cytologist, mycologist	APK	
BOTANY AND GEOGRAPHY BSLE04	27	4	4 / 5	4 / 5			Biologist, geographer, regional planner, environmental conservationist, botanist, cytologist, mycologists	APK	
BOTANY AND ZOOLOGY BSLE06	27	4	4 / 5	4 / 5			Biologist, nature conservationist, environmentalist, ethno-botanist, ecologist, entomologist, pathologist, parasitologist, geneticist, food technologist, zoologist	APK	
ZOOLOGY AND BIOCHEMISTRY BSLE07	27	4	4 / 5	4 / 5			Zoologist, biochemist, nature conservationist, environmentalist, ecologist, entomologist, pathologist, geneticist, food technologist	APK	
ZOOLOGY AND CHEMISTRY BSLE08	27	4	5	4 / 5			Zoologist, chemical technologist and researcher	APK	
ZOOLOGY AND ENVIRONMENTAL MANAGEMENT BSLE09	27	4	4	4			Geo-zoologist, population geneticist, environmental ecologist and specialist	APK	
ZOOLOGY AND GEOGRAPHY BSLE10	27	4	4 / 5	4 / 5			Geo-zoologist, population geneticist, environmental ecologist and specialist	APK	



## DEGREE PROGRAMMES

Programme	Minimum APS	Group A			Group B			Career	Campus
		English	Mathematics ♦♦	Physical Science ♦	Other recognised language	Subject 1	Subject 2		
<b>BSc (Life and Environmental Sciences) degree (3 years)</b>									
ZOOLOGY AND HUMAN PHYSIOLOGY BSLE12	27	4	4 / 5	4 / 5	The remainder of the 3 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>27</b> .		Zoologist, forensic pathologist, geneticist, parasitologist	APK	
HUMAN PHYSIOLOGY AND PSYCHOLOGY BSLE13	27	4	4 / 5	4 / 5			Psychologist, forensic pathologist, researcher	APK	
HUMAN PHYSIOLOGY AND BIOCHEMISTRY BSLE14	27	4	4 / 5	4 / 5			Biochemist, researcher, forensic analyst, biotechnologist	APK	
BIOCHEMISTRY AND PSYCHOLOGY BSLE15	27	4	4 / 5	4 / 5			Biochemist, researcher, consultant in psychology	APK	
SPORT SCIENCES BSLE16	27	4	4 / 5	4 / 5			Teaching, training specialist, sports scientist researcher	APK	
GEOLOGY AND GEOGRAPHY BSLE17	27	4	4	4 / 5			Geographer, geologist, mineralogist, regional planner, site analyst, geographical information specialist	APK	
GEOGRAPHY AND ENVIRONMENTAL MANAGEMENT BSLE18	27	4	4 / 5	4			Location analyst, town planner, geo-information specialist, environmental rehabilitation manager, geomorphologist	APK	
ENVIRONMENTAL MANAGEMENT AND GEOLOGY BSLE19	27	4	4	4			Geographer, geologist, mineralogist, regional planner, site analyst, GIS specialist	APK	

♦ Mathematics Paper 3 results will be added as an additional credit to increase the APS.

♦♦ A minimum rating of **5** for Mathematics if Mathematics 1A is included in the study programme.  
A minimum rating of **4** for Mathematics if Mathematics 1C is included in the study programme.

♦ A minimum rating of **5** for Physical Science if Chemistry 1A and/or Physics 1A is included in the study programme.  
A minimum rating of **4** for Physical Science if Chemistry 1C and/or Physics 1C is included in the study programme.

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<b>Percentage</b>	80-100%	70-79%	60-69%	50-59%	40-49%	30-39%	0-29%

## DEGREE PROGRAMMES

Programme	Minimum APS	Group A		Group B			Career	Campus
		English	Mathematics ♦	Other recognised language	Subject 1 ♦	Subject 2		
<b>BSc (Mathematical Sciences) degree (3 years)</b>								
APPLIED MATHEMATICS AND COMPUTER SCIENCE BSMA01	28	4	5	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>28</b> or <b>30</b> (as indicated).			Computer programmer, systems analyst, mathematical modulator	APK
APPLIED MATHEMATICS AND MATHEMATICAL STATISTICS BSMA02	28	4	5				Mathematician, data compiler, data interpreter, biometrician	APK
APPLIED MATHEMATICS AND MATHEMATICS BSMA03	28	4	5				Mathematical modulator, mathematical adviser	APK
COMPUTATIONAL SCIENCE BSMA04	30	4	6				Software specialist in high-tech industry, designer of medical monitors	APK
FINANCIAL MATHEMATICS BSMA05	30	4	7				Risk and portfolio manager, quantitative analyst	APK
MATHEMATICAL STATISTICS AND COMPUTER SCIENCE BSMA06	28	4	5				Computer programmer, systems analyst, data compiler and analyst	APK
MATHEMATICAL STATISTICS AND ECONOMICS (WITH FINANCIAL ORIENTATION) BSMA07	30	4	5				Econometrist, investment economist, biometricist, economic journalist	APK
MATHEMATICS AND COMPUTER SCIENCE BSMA08	28	4	5				Computer programmer, systems analyst, mathematical advisor	APK
MATHEMATICS AND ECONOMICS (WITH FINANCIAL ORIENTATION) BSMA09	30	4	5				Econometrist, investment economist, consultant	APK
MATHEMATICS AND INFORMATICS BSMA10	28	4	5				Computer programmer, systems analyst	APK
MATHEMATICS AND MATHEMATICAL STATISTICS BSMA11	28	4	5				Financial analyst, economist	APK

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## DEGREE PROGRAMMES

Programme	Minimum APS	Group A			Group B			Career	Campus
		English	Mathematics ♦	Physical Science ⊕	Other recognised language	Subject 1	Subject 2		
<b>BSc (Physical Sciences) degree (3 years)</b>									
BIOCHEMISTRY AND CHEMISTRY BSPH01	28	4	5	4 / 5	The remainder of the 3 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>28</b> .			Scientist in the field of food and water, and biomedical, biotechnological and agricultural sectors	APK
CHEMISTRY AND MATHEMATICS BSPH02	28	4	5	5				Chemistry, researcher, technologist, problem solver	APK
CHEMISTRY AND PHYSICS BSPH03	28	4	5	5				Physicist, researcher, chemistry technologist, forensic researcher	APK
GEOLOGY AND APPLIED GEOLOGY BSPH04	28	4	5	4 / 5				Geographer, geologist, mineralogist, regional planner, site analyst, geographical information specialist	APK
GEOLOGY AND CHEMISTRY BSPH05	28	4	5	4 / 5				Geochemist, geologist, forensic scientist, exploration expert	APK
GEOLOGY AND MATHEMATICS BSPH06	28	4	5	4 / 5				Geomathematician, geologist, problem analyst	APK
GEOLOGY AND PHYSICS BSPH07	28	4	5	5				Physicist, geophysicist, geohydrologist, geologist	APK
PHYSICS AND APPLIED MATHEMATICS BSPH08	28	4	5	5				Problem solver, researcher in astronomy and energy sources	APK
PHYSICS AND MATHEMATICS BSPH10	28	4	5	5				Problem solver, researcher in astronomy and energy sources	APK

⊕ Mathematics Paper 3 results will be added as an additional credit to increase the APS.

♦ A minimum rating of **5** for Mathematics if Mathematics 1A is included in the study programme.

A minimum rating of **4** for Mathematics if Mathematics 1C is included in the study programme.

⊕ A minimum rating of **5** for Physical Science if Chemistry 1A and/or Physics 1A is included in the study programme.

A minimum rating of **4** for Physical Science if Chemistry 1C and/or Physics 1C is included in the study programme.

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## DEGREE PROGRAMMES

Programme	Minimum APS	Group A		Group B			Career	Campus
		English	Mathematics ♦	Other recognised language	Subject 1 ♦	Subject 2		
<b>BSc (Information Technology) degree (4 years)</b>								
COMPUTER SCIENCES BSITE1	25	4	4	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>25</b> .			Systems analyst, network manager, programmer, web developer, web master, database administrator, software engineer, computer graphics designer, information technology manager, researcher	APK

♦ Mathematics Paper 3 results will be added as an additional credit to increase the APS.

♦ A minimum rating of **4** is required for Physical Science.

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<b>BSc (Life and Environmental Sciences) degree (4 years)</b>								
BOTANY AND BIOCHEMISTRY LEX001	25	4	4	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>25</b> .			Analyst, technologist, or researcher at Sasol, Eskom, pharmaceutical companies, mining companies or in health industry	APK
BOTANY AND CHEMISTRY LEX002	25	4	4				Biologist, botanist, ecologist, nature conservation scientist, forensic scientist	APK
BOTANY AND ENVIRONMENTAL MANAGEMENT LEX003	25	4	4				Biologist, geographer, regional planner, environmental conservationist, botanist, cytologist, mycologist	APK
BOTANY AND GEOGRAPHY LEX004	25	4	4				Biologist, geographer, regional planner, environmental conservation, botanist, cytologist, mycologists	APK
BOTANY AND ZOOLOGY LEX006	25	4	4				Biologist, nature conservationist, environmentalist, ethno-botanist, ecologist, entomologist, pathologist, parasitologist, geneticist, food technologist, zoologist	APK
ZOOLOGY AND BIOCHEMISTRY LEX007	25	4	4				Zoologist, biochemist, nature conservationist, environmentalist, ecologist, entomologist, pathologist, geneticist, food technologist	APK
ZOOLOGY AND CHEMISTRY LEX008	25	4	4				Zoologist, chemical technologist and researcher	APK

## DEGREE PROGRAMMES

Programme	Minimum APS	Group A		Group B			Career	Campus
		English	Mathematics ❖	Other recognised language	Subject 1 ⚙️	Subject 2		
<b>BSc (Life and Environmental Sciences) degree (4 years)</b>								
ZOOLOGY AND ENVIRONMENTAL MANAGEMENT LEX009	25	4	4	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>25</b> .			Geo-zoologist, population geneticist, environmental ecologist and specialist	APK
ZOOLOGY AND GEOGRAPHY LEX010	25	4	4				Geo-zoologist, population geneticist, environmental ecologist and specialist	APK
ZOOLOGY AND HUMAN PHYSIOLOGY LEX012	25	4	4				Zoologist, forensic pathologist, geneticist, parasitologist	APK
HUMAN PHYSIOLOGY AND PSYCHOLOGY LEX013	25	4	4				Psychologist, forensic pathologist, researcher	APK
HUMAN PHYSIOLOGY AND BIOCHEMISTRY LEX014	25	4	4				Biochemist, researcher, forensic analyst, biotechnologist	APK
BIOCHEMISTRY AND PSYCHOLOGY LEX015	25	4	4				Biochemist, researcher, consultant in psychology	APK
SPORT SCIENCE LEX016	25	4	4				Teaching, training specialist, sports scientist researcher	APK
GEOGRAPHY AND GEOLOGY LEX017	25	4	4				Geographer, geologist, mineralogist, regional planner, site analyst, geographical information specialist	APK
GEOGRAPHY AND ENVIRONMENTAL MANAGEMENT LEX018	25	4	4				Location analyst, town planner, geo-information specialist, environmental rehabilitation manager, geomorphologist	APK
ENVIRONMENTAL MANAGEMENT AND GEOLOGY LEX019	25	4	4			Geographer, geologist, mineralogist, regional planner, site analyst, GIS specialist	APK	

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⚙️ A minimum rating of **4** for Physical Science is required, if Chemistry and/or Physics are included in the study programme.

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## DEGREE PROGRAMMES

Programme	Minimum APS	Group A		Group B			Career	Campus
		English	Mathematics ❖	Other recognised language	Subject 1 ⚙️	Subject 2		
<b>BSc (Physical Sciences) degree (4 years)</b>								
BIOCHEMISTRY AND CHEMISTRY PHX001	25	4	4	The remainder of the 4 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>25</b> .			Scientist in the field of food and water, and biomedical, biotechnological and agricultural sectors	APK
CHEMISTRY AND MATHEMATICS PHX002	25	4	4				Chemistry, researcher, technologist, problem solver	APK
CHEMISTRY AND PHYSICS PHX003	25	4	4				Physicist, researcher, chemistry technologist, forensic researcher	APK
GEOLOGY AND APPLIED GEOLOGY PHX004	25	4	4					APK
GEOLOGY AND CHEMISTRY PHX005	25	4	4				Geochemist, geologist, forensic scientist, exploration expert	APK
GEOLOGY AND MATHEMATICS PHX006	25	4	4				Geomathematician, geologist, problem analyst	APK
GEOLOGY AND PHYSICS PHX007	25	4	4				Physicist, geophysicist, geohydrologist, geologist	APK
PHYSICS AND APPLIED MATHEMATICS PHX008	25	4	4				Problem solver, researcher in astronomy and energy sources	APK
PHYSICS AND MATHEMATICS PHX010	25	4	4				Problem solver, researcher in astronomy and energy sources	APK

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## NATIONAL DIPLOMA PROGRAMMES

Programme	Minimum APS	Group A			Group B		Career	Campus
		English	Mathematics ❖	Physical Science	Other recognised language	Subject 1		
<b>National Diploma (3 years)</b>								
ANALYTICAL CHEMISTRY* 344-3	25	4	4	4	4	The remainder of the 2 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of 25.	Analytical chemists analyse raw materials and final products to gauge their quality levels	DFC
BIOTECHNOLOGY 349-1	25	4	4	4	4		Biotechnologists manipulate living cells for application in the baking, brewing, chemical, agricultural and pharmaceutical fields	DFC
FOOD TECHNOLOGY 348-1	25	4	4	4	4		Food technologists research the production, processing, preservation, packing and distribution of food	DFC

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\* This programme is being reviewed and might be reconfigured to a four year programme.



## NATIONAL DIPLOMA PROGRAMMES

Programme	Minimum APS	Group A				Group B		Career	Campus
		English	Mathematics ❖	Physical Science	Other recognised language	Subject 1	Subject 2		
<b>National Diploma (4 years)</b>									
ANALYTICAL CHEMISTRY NDAC1E	22	4	4	3	3	The remainder of the 2 NSC subjects (excluding Life Orientation) is used together with Group A, to calculate a minimum total APS of <b>22</b> .	Analytical chemists analyse raw materials and final products to gauge their quality levels	DFC	
BIOTECHNOLOGY NDBTE1	22	4	3	3	3		Biotechnologists manipulate living cells for application in the baking, brewing, chemical, agricultural and pharmaceutical fields	DFC	
FOOD TECHNOLOGY NDFTE1	22	4	3	3	3		Food technologists research the production, processing, preservation, packing and distribution of food	DFC	

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## ADMISSION REQUIREMENTS FOR APPLICANTS WITH A NATIONAL CERTIFICATE (VOCATIONAL)

For admission to a **BSc degree (4 years)** the applicant must have:

- A NCV (level 4) issued by the Council for General and Further Education and Training.
- An achievement of at least 70% for 5 of the 7 subjects – fundamental and vocational categories.
- An achievement of at least 70% in English as Language of Teaching and Learning/First Additional Language.
- An achievement of at least 70% in Mathematics – taken as fundamental subject.
- For all BSc (4-year) degrees in the programme Physical Sciences and the programme Life and Environmental Sciences, an achievement of at least 70% in Physical Science (taken as a Fundamental subject).
- All applicants have to complete the NBT prior to admission. The result of the NBT will inform decisions taken on placement of the applicant.

For admission to a **National Diploma (4 years)** the applicant must have:

- A NCV (level 4) issued by the Council for General and Further Education and Training.
- An achievement of at least 60% for 6 of the 7 subjects – fundamental and vocational categories.
- An achievement of at least 70% in English as Language of Teaching and Learning/First Additional Language.
- An achievement of at least 60% in both Mathematics and Physical Science (taken as Fundamental subjects).
- For the 4-year National Diplomas in Biotechnology and Food Technology, an achievement of at least 60% in Life Science (taken as a Fundamental subject).
- All applicants have to complete the NBT prior to admission. The result of the NBT will inform decisions taken on placement of the applicant.

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