



Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en
Inligtingtegnologie / Lefapha la Boetšenere,
Tikologo ya Kago le Theknološi ya Tshedimošo

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

www.up.ac.za/ebit



Note: The minimum admission requirements reflected in this brochure are subject to changes in regulations relating to COVID-19. Amendments will reflect in the digital version of this brochure, which can be downloaded from www.up.ac.za/programmes > Undergraduate > Faculty brochures.

2023

UNDERGRADUATE
FACULTY BROCHURE

Make today matter

Message from the Dean

Get ready for a dynamic digital future. As we take our place on the front line of innovation, the Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria is preparing to tackle the challenges of the future with a generation of problem-solvers and innovators who are ready to change the world.

Prof Sunil Maharaj
Dean: Faculty of Engineering, Built Environment and Information Technology



Our slogan, *Innovating our Tomorrow*, amplifies our thought leadership to stay relevant, to be globally competitive, to re-invent ourselves and to deliver graduates who will be ready to embrace the disruptive unknown with an awakened mind. By encouraging students to embrace disruptive technologies, we are preparing them for a new world beyond university; one that has been shaped by the principles of a post-pandemic way of life, work and education.

To ensure that we remain globally competitive in the Fourth Industrial Revolution (4IR), while maintaining our place as an innovation leader, we actively collaborate with international universities, government departments and industry. Our focus is on producing high-quality research to make UP a leading research-intensive university.

EBIT has more than 30 research chairs and entities, which attracts high-quality students and researchers. Our work relates to fields such as artificial intelligence (AI), big data science, robotics, machine learning, green buildings planning and construction, urban citizenship, information and communications technology (ICT), technology innovation, water and environmental engineering, green energy, minerals and materials beneficiation, smart cities and intelligent transportation.

Our Faculty is one of the few in Africa to feature among the top 500 in the world in six subject areas in the 2021 QS World University Rankings by Subject, and our School of Engineering is ranked 356th out of more than 10 000 engineering schools in the field of engineering and technology. Our programmes in electrical and electronic engineering continue to feature at the top of all South African universities. We are also particularly proud of the recognition received by our programmes in mineral and mining engineering, which have been ranked among the top 50 world-wide. In addition, the Minerals Education Trust Fund (METF) has named our programme in metallurgical engineering as the best in the country.

Through our close ties with industry partners, we continuously search for collaboration opportunities to enhance the relevance of our academic programmes and enable our students to acquire scarce and highly specialised skills. This is why our graduates are in high demand.

Our students can now also start their own businesses on campus through the high-tech business incubator, TuksNovation.

We also continuously improve our teaching and learning activities to help our students to succeed in their studies. Our academic staff go to great lengths to bring the world of work to the lecture room. EBIT offers 23 undergraduate degree programmes, and our degrees are accredited by national and international statutory and professional bodies. We follow a hybrid teaching model and we have superb laboratory facilities. Learning is facilitated by a motivated team consisting of dedicated academics, supported by highly competent administrative staff and student advisors.

The Faculty strives to accommodate as many students as possible who meet the admission criteria. Since places are limited, we recommend that learners who excel in their studies apply early. Prospective students are also encouraged to visit our website for further information and to submit their online applications without delay. We look forward to receiving your application to join one of our degree programmes for an enriching and rewarding experience in EBIT. I will be delighted to welcome you in 2023!

Tel +27 (0)12 420 5318
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Website www.up.ac.za/ebit

Congratulations to Prof Elof who is the Acting Dean for the Faculty of Engineering, Built Environment and Information Technology. Prof Maharaj is currently the Acting Vice-Principal: Research and Postgraduate Studies.

Email linda.king@up.ac.za
Read more here: www.linkedin.com/showcase/69770752/admin



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Information systems Uwaiza Abdool Sattar

The thrill of knowledge

'Looking at the mesmerising world and listening to the voices of the people around me made me wonder where I will eventually fit in and what my contribution will be. I have come a long way since mumbling my first few words, forcefully crawling towards my most wanted toy and taking my first steps. The life cycle starts slowly, but with effort great heights can be achieved.'

After completing school, I enrolled at the University of Pretoria to study information technology. Suddenly, I was surrounded by career-driven students walking haphazardly into lecture rooms, voices echoing in hallways, and students anxiously searching for information in the libraries.

I AM a final-year BIT (Information Systems) student. This degree offers exciting opportunities in the new digital economy. I want to pursue my dream of becoming a systems analyst and driving the development and design of different systems that will improve the productivity of various businesses and organisations. The programme is constantly changing as a result of continuous innovation, and the consequent availability of new tools, resources and techniques.

As an EBIT student, I have been granted the opportunity to take on various leadership roles. In my second year, I had the privilege of serving as the Secretary of the JuniorTukkie Student Ambassadors Society and of EBIT House. This year, I am the Chairperson of EBIT House and the SRC Academics Representative. These roles have taught me the value of good human relations, team-building skills and the fostering of potential.

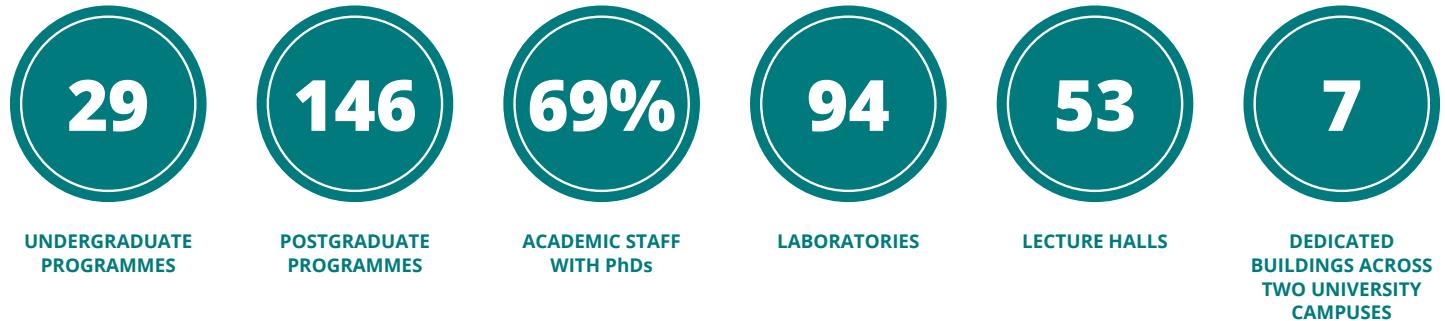
IAMEBIT

#ChooseUP

The Science Technology Engineering and Mathematics (STEM) programme promotes creativity and encourages leaders to take risks in applying their knowledge. This will assist in developing problem-solving analysis and encourage adaptation to different scenarios. Programmes like these increase students' confidence and encourage them to tackle problems with determination to become next-generation innovators.



Innovation is the gift that keeps on giving and is revolutionising the world. It is the result of continuous inspiring ideas, processes and developments and keeps everyone on the edge of their seats. My dream for Africa is that its people should feel valued and proud, standing hand-in-hand in unity despite their differences. We should accept our flaws, celebrate our successes and bring forth a remarkable generation. Africa has a rich cultural and ethnic diversity, a unique heritage and much more. I would like to contribute to ensuring a better life for all and the dissemination of knowledge that will equip people to make remarkable contributions. Everyone has the potential to make a difference, and today is the day to take the first step!



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Comments and queries may be directed to ssc@up.ac.za or tel: +27 (0)12 420 3111.

Disclaimer: This publication contains information about regulations, policies, tuition fees, curricula and programmes of the University of Pretoria applicable at the time of printing. Amendments to or updating of the information in this publication may be affected from time to time without prior notification. The accuracy, correctness or validity of the information contained in this publication is therefore not guaranteed by the University at any given time and is always subject to verification. The user is kindly requested to verify the correctness of the published information with the University at all times. Failure to do so will not give rise to any claim or action of any nature against the University by any party whatsoever.

Undergraduate programmes

Important information for all prospective students for 2023

- The admission requirements and general information in this brochure 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 2023: Qualifications other than the NSC and IEB*, available at [> Undergraduate > Admission information.](http://www.up.ac.za/programmes)
 - **Brochure:** *Newcomers Guide 2022*, available at [> Undergraduate > Admission information.](http://www.up.ac.za/programmes)
 - **Website:** www.up.ac.za/international-cooperation-division.
- **School of Tomorrow (SOT) and Accelerated Christian Education (ACE):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **General Education Development (GED):** South African GED graduates who graduated up to 2019 may be considered for admission provided they qualify for an exemption certificate issued by USAf and comply with university admission requirements, as well as faculty subject requirements. South African GED graduates who graduated after 2019 cannot be considered for admission to UP as the diploma is not accredited by USAf and will not be considered for exemption. Applicants from the USA who completed the GED may apply for a Foreign Conditional Exemption Certificate issued by USAf accompanied by their SAT/TOEFL/IELTS results.
- **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.

Important faculty-specific information on undergraduate programmes for 2023

The closing date for all selection programmes is **30 June 2022**. The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

- 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 APS.
- Grade 11 results are used for the conditional admission of prospective students.
- A valid qualification with admission to degree studies is required.
- Minimum subject and achievement requirements, as set out in the table below, are required.
- Conditional admission to the four-year programmes in the School of Engineering is guaranteed only if a prospective student complies with ALL the requirements as indicated in the undergraduate minimum admission requirements table on page 2.
- Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS OF 30.
- Students may apply directly to be considered for the ENGAGE programme.
- All modules will be presented in English, as English is the language of tuition, communication and correspondence.

Second-choice programme: Should your Admission Point Score (APS) adhere to our entrance requirements for our engineering programmes, and you are not accepted for your first-choice programme, then please consider an alternative engineering programme as your second-choice programme. If your APS does not meet the entrance requirements, then consider the second-choice programme indicated in the tables on pages 2-5.

Accreditation: The various programmes in the School of Engineering are accredited by the Engineering Council of South Africa (ECSA), and our degrees meet the requirements for professional engineers in South Africa. All our programmes in the School for the Built Environment are internationally recognised and accredited by their respective statutory councils, allowing students to register as members of their chosen professions. All the degree offerings in the School of Information Technology (SIT) are highly sought after in the IT industry with a focus on industry-related trends. The curriculum conforms to the highest international standards. We are very proud to be a member of the iSchools Organisation. We are the only IT School in South Africa with Accreditation Board for Engineering & Technology (ABET) rating.



Undergraduate programmes

University of Pretoria website www.up.ac.za/ebit

Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BEng (Industrial Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Industrial Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Industrial engineers design, test, implement and manage a wide range of man/machine systems for production and the delivery of services. Organisational matters that require optimisation include site selection and layout of facilities, manufacturing, inventory control, materials handling, supply chain management, quality management, cost control, financial services, maintenance, reliability, computer simulation, information systems, human resources and business law.				
BEng (Chemical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Chemical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Chemical engineers are involved in industrial processes that convert raw materials to products with a higher economic value. This is achieved using physical, thermal, chemical, biochemical and mechanical changes and processes. Chemical engineers apply their specialised knowledge in the petroleum, food, minerals processing, power generation and the paper and pulp industries, water and effluent treatment, and environmental engineering activities, including air pollution control. Like those in other engineering disciplines, chemical engineers are involved in research and development, techno-economic evaluation, equipment and plant design, process control and optimisation, construction, commissioning, operation and management, and the marketing and distribution of the final products.				
BEng (Civil Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Civil Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Civil engineers design, build and maintain constructions such as tower blocks and skyscrapers, dams, canals and pipelines, roads, bridges, tunnels, railways, airports, power stations, towers, waterworks and outfall installations. They are involved in financial modelling, feasibility studies and the management and rehabilitation of large asset portfolios.				
BEng (Electrical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Electrical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Electrical engineers are active in the generation, storage, transmission, distribution and utilisation of electrical energy. There is a bright future in renewable energy. Electrical engineers design, supervise the construction, oversee the optimal operation and assure perfect and timely maintenance of all electrical installations for municipalities, residential areas, commercial buildings, factories, mines and industries. Rail transport, water pumping, electrical grids, telecommunications, energy management and smart lighting all fall within the scope of electrical engineering.				
BEng (Electronic Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Electronic Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Electronic engineers are active in various fields, such as telecommunications (fixed networks, wireless, satellite, television, radar and radio frequency networks), entertainment and medicine (magnetic resonance imaging, X-rays, cardiopulmonary resuscitation, infrared tomography, electroencephalograms (EEGs), electrocardiograms (ECGs), rehabilitation engineering and biokinetics), integrated circuit design, bioengineering, military equipment design (vehicle electronics, smart bombs, night vision, laser systems), transport (e-tags, speed measuring, railway signalling, global positioning system (GPS) and mapping), 'smart' dust, safety and security systems (face and speech recognition), banking (ATMs), commerce, robotics, education, environmental management, tourism and many more.				
BEng (Mechanical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Mechanical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Mechanical and aeronautical engineers are concerned with power-generating machines and systems such as vehicles, ships, air-conditioners, pebble-bed nuclear reactors, aeroplanes, engines and turbines, robots and biomedical systems. Areas of specialisation include product design and manufacturing (such as the design, testing and improvement of mechanical, electrical, pneumatic and hydraulic systems), marine engineering and naval architecture, biomedical engineering, air-conditioning and refrigeration, aerospace systems and aircraft/missile engineering, vehicle engineering, maintenance engineering and energy management (gas and steam turbines, nuclear power reactors, petrol engines, cooling towers and renewable energy systems).				

Undergraduate programmes



Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BEng (Metallurgical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Metallurgical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Metallurgical engineers unlock the riches of deposits of metal ores and minerals and optimise the manufacture and performance of metallic components. You'll find metallurgical engineers where valuable minerals are recovered from ore, where metals are produced from the minerals and where the metals are converted into useful materials as well as into high-performance products. Areas of specialisation include minerals processing, extractive metallurgy, materials engineering and performance, advanced manufacturing processes, including laser-assisted additive manufacturing and welding, as well as failure analysis and forensic engineering.				
BEng (Mining Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Mining Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Mining engineers have a wide range of opportunities, namely mining (mine management, technical management of ventilation, rock mechanics, rock breaking, mineral resources), financial evaluation and management (mine design, financial evaluation of mines, mine feasibility studies, mine environmental impact studies), mining and drilling contracting (mining, tunnelling, shaft sinking, mine development, ore evaluation), mining research, mining equipment design and manufacture, mining marketing and mining administration at national, provincial and international levels.				
BEng (Computer Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35
The suggested second-choice programmes for BEng (Computer Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics) if your APS and subject requirements of your first-choice programme are not obtained.				
Careers: Computer engineers are active in all fields of the information superhighway and the information and communication technology (ICT) world, which include computer systems, software engineering, computer and communications networks, wireless sensor networks, embedded software, electronics, smart control systems and automation, data security, e-commerce, pattern recognition (face and speech recognition) and artificial intelligence. They specialise in combining hardware, software and communication technologies to optimise system performance.				
Engineering Augmented Degree Programme (ENGAGE) ENGAGE is a supporting programme for Engineering disciplines [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	30
For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za.				
Note: The admission requirements above are relevant to prospective students who will commence their studies in 2023. Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of 30. 2022 entries, will be determined by NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of minimum 30. The National Benchmark Test (NBT) is no longer a requirement for any undergraduate programme in 2023.				

Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			APS
	Achievement level			
SCHOOL FOR THE BUILT ENVIRONMENT	English Home Language or English First Additional Language	Mathematics	Physical Sciences	APS
BSc (Architecture) [3 years] Closing date: 30 June	5	4	4	27
For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za .				
Will only be considered as first study choice. Selection programme: Selection includes an interview.				
Careers: The BSc (Architecture) degree programme enables graduates to register with the South African Council for the Architectural Profession (SACAP) as candidate architectural technologists. The qualification is the first step to future registration as a candidate senior architectural technologist or a candidate architect.				
BSc (Construction Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	or Accounting 4	30
The suggested second-choice programme for BSc (Construction Management) is BSc (Real Estate).				
Careers: After completing the three-year undergraduate degree programme, graduates could enter careers in, among others, construction site management or subcontracting. On completion of the ensuing one-year honours programme, graduates can register as professional construction managers and opportunities become much wider, including project management, property development, portfolio management, commercial marketing and managerial positions in the corporate environment.				
BSc (Real Estate) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	or Accounting 4	30
The suggested second-choice programme for BSc (Real Estate) is BCom (Investment Management).				
Careers: Apart from a future in areas such as property investment, property finance and facilities, and property management, further studies to obtain an honours degree in real estate can lead to registration as professional property valuers. Career opportunities encompass the entire spectrum of the property sector, whether as entrepreneurs in the private sector or as employees in the private, government or semi-government sectors.				
BSc (Quantity Surveying) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	or Accounting 4	30
The suggested second-choice programmes for BSc (Quantity Surveying) are BSc (Construction Management) and BSc (Real Estate).				
Careers: Quantity surveying is the science that delivers specialised financial and contractual services and advice to clients in the building and construction industry, as well as related industries. The three-year undergraduate degree is the first step towards registration as quantity surveyors. The ensuing one-year honours programme leads to registration as candidate professional quantity surveyors. Career opportunities, apart from those in the private, government or semi-government sectors, also exist in the property, banking, mining and manufacturing industries.				
BTRP – Bachelor of Town and Regional Planning [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	-	27
For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za .				
Careers: Town and regional planners, development practitioners, urban managers, real estate analysts and researchers. While many town and regional planners act as private consultants to the public and private sectors, the majority are employed by government, research agencies (such as the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC)), non-governmental organisations, community-based organisations, major financial institutions and property development groups. The qualification will enable graduates to register as professional town and regional planners with the South African Council for Planners.				

Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language	Mathematics	
BIT (Information Systems) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30
The suggested second-choice programme for BIT (Information Systems) is BIS (Information Science).			
This programme is administered by the Faculty of Engineering, Built Environment and Information Technology. Careers: Data scientist, IT auditor, IT entrepreneur, IT tax specialist, e-business consultant, programmer, business analyst, project manager, CIO, CTO and knowledge manager			
BSc (Computer Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30
The suggested second-choice programmes for BSc (Computer Science) are BSc (Information and Knowledge Systems) and BCom (Informatics).			
Careers: Programmers, systems analysts, systems architects, consultants, database administrators, network analysts and researchers			
BIS (Multimedia) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	5	30
The suggested second-choice programmes for BIS (Multimedia) are BIS (Information Science), BIS (Publishing), BSc (Information and Knowledge Systems) and BCom (Informatics).			
Careers: Programmers, web designers, animation specialists, video editors and electronic artists. The programme prepares candidates for positions at any of the following content producers: paper publications, television, radio, phone technologies and the web. Graduates can become coders and work for programming companies. They can develop skills in their particular areas of interest, such as digital music or video programming, or graphic, games or web development.			
BSc (Information and Knowledge Systems) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	5	30
The suggested second-choice programme for BSc (Information and Knowledge Systems) is BSc (Computer Science).			
Careers: Graduates will differentiate themselves in an application environment by choosing one of the following options: data science, genetics, geographical information systems, IT and enterprises, IT and law, IT and music or software development.			
BIS (Information Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	-	28
The suggested second-choice programmes for BIS (Information Science) are BIS (Publishing), BCom (Informatics) and BA.			
If informatics is selected as a subject at the first-year level, an achievement level of 5 is required in Mathematics.			
Careers: Information and knowledge managers (manage information and knowledge resources), information or e-commerce specialists (organise, retrieve and add value to information), consultants on information products (services and systems), information brokers (act as infopreneurs and buy and sell information products and services), and system specialists/analysts/technologists (develop information systems).			
BIS (Publishing) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	-	28
The suggested second-choice programmes for BIS (Publishing) are BIS (Information Science), BA (Languages) and BA.			
Careers: Entry-level job opportunities include assisting specific role-players in the publishing value chain (such as MDs of publishing houses, commissioning editors, editors and production or marketing managers), market or picture research, copyright negotiations, copy-editing and proofreading, marketing and promotion, distribution and delivery.			
BCom (Informatics) Focus area: Information Systems [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30
This programme is administered by the Faculty of Economic and Management Sciences.			
Careers: Data scientist, IT auditor, IT entrepreneur, IT tax specialist, e-business consultant, programmer, business analyst, project manager, CIO, CTO and knowledge manager			

Undergraduate programmes

Information Technology

**Mathopatona
Paballo Matabane**

'I AM a BIT student at the University of Pretoria. I come from Lebowakgomo in Limpopo, and only knew IT as programming games or websites. However, studying in this field has exposed me to different IT disciplines, such as informatics, information science and computer science. I was triggered by the flexibility of the BIT degree, because one can pursue any career in the IT industry, from becoming a programmer to becoming an analyst of data, businesses or systems. The industry-based learning programming in your third year really prepares you for the challenges and complexities you will face in industry.'

I can now apply my IT skills in any business or industrial environment. My studies have taught me to integrate IT in the business sector, and my final-year project has taught me to approach companies to develop feasible systems. By joining various student structures on campus and within the Faculty, I have also developed leadership skills. EBIT has provided me with the support structure and the stability I needed to focus on my studies.'

Student life

Although the Faculty expects total commitment from its students with regard to their academic work, it encourages them to actively participate in university student life. This supports the development of well-rounded future leaders.

The University hosts a wide range of student life activities through campus organisations like the Student Representative Council (SRC), Student Culture (STUKU), the Student Sport Committee (SSC) and RAG.



All the Faculty's students automatically become part of EBIT House, which represents students and acts as a communication channel between the Faculty and its students. Within EBIT House, students can find a variety of discipline-specific sub-houses through which to become involved in more specialised student activities.



Online application process for studies in 2023

Please read through all the steps below to determine which actions are relevant for your application to study at the University of Pretoria in 2023. Citizens from countries other than South Africa* should also take note of the steps below with specific reference to the important information above the tables in the brochure: Undergraduate programme information for National Senior Certificate (NSC) and Independent Examination Board (IEB) available at www.up.ac.za/programmes > Undergraduate > Admission information.



Online application process for studies in 2023

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National Benchmark Test (NBT)

The National Benchmark Test (NBT) is not required for any undergraduate programme in 2023.

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How to access the UP Student Portal

Go to www.up.ac.za and click on My UP Login.

Note: A T-number is a temporary number and NOT a student number. This T-number is issued to the applicant at the beginning of the Online Application process. An applicant will receive a UP student number within 10 working days after his/her application has been submitted successfully.

Applicants will only be able to access the UP Student Portal once they have received a UP student number, eg u23123456.

Please watch a video demonstration on: 'How to access the UP Student Portal' at <https://youtu.be/Yd4pWr8lvNk>.

Go to www1.up.ac.za and click on the "New user" link.

- Type in your Username (u followed by your student number) and your National ID or Passport number. Click the "Proceed" button.

- Set up your new password and confirm the password in the second block. Click the "Proceed" button.
- A message is displayed to inform the user that the password was set successfully. Click the "OK" button.
- A list of challenge questions appears. Select any three of these challenge questions and then click on the "Submit" button. Enter your answer on the three challenge questions you chose and click on the "Save" button.
- A message will be displayed to inform you that your challenge questions have been set up. Click the "OK" button.
- You are now ready to access the UP Student Portal.
- Sign in again with your username and password.

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Veterinary Science Value-added Form (VSVAF) and Veterinary Nurse Value-added Form (VNVAF)

- These documents will be made available on the UP Student Portal, only for prospective students in the Faculty of Veterinary Science, who meet the minimum admission requirements. Visit the UP Student Portal regularly for notices in this regard.
- For detailed information about the VSVAF and VNVAF, please refer to the Faculty of Veterinary Science undergraduate brochure at [> Undergraduate > Faculty brochures](http://www.up.ac.za/programmes).

- Be sure to complete and submit the relevant document before the due date. The Faculty will communicate the due date to applicants on the UP Student Portal under "Communications".
- Enquiries may be directed to ssc@up.ac.za.

9

UP Student Contract

Before a student will be able to register, a contract needs to be concluded between the student and the University of Pretoria.

- Students must access the contract online on the UP Student Portal at [> My UP Login](http://www.up.ac.za).
- The contract should be completed online, and then printed and signed.
- Due to COVID-19 restrictions, clients are not allowed onto campus yet.
 - We however have a contract drop-off box at Security at the following entrances to the Hatfield Campus: Prospect Street, Roper Street, University Road, where your completed and signed original contract can be dropped off.

- You can also post your contract to the Student Service Centre, University of Pretoria, Private Bag X20, Hatfield, 0028.
- Or you can courier your contract to University of Pretoria (Contracts), University Road entrance, Hatfield, Pretoria, 0083.
- The University of Pretoria does not accept faxed, scanned or emailed contracts.
- Before you start to complete the UP Student Contract, please watch a video demonstration on 'How to complete the UP Student Contract' at [> Study at UP](http://www.up.ac.za/juniortukkie).

10

Orientation and Registration for new first-year students

- The Orientation Programme will be available on www.up.ac.za/orientation by the end of December 2022.

- Online Registration information will be available on www.up.ac.za/online-registration by the end of December 2022.

11

Special package offer to academic achievers

The special package offer to new first-year students is based on the academic average percentage obtained in the final school year end examination.

The special package offer includes:

- Guaranteed achievement awards (FLY@UP Assist First-year awards) to students who qualify.
- Guaranteed admission to first- or second-choice non-selection programmes for prospective students with an academic average percentage of between 85% and 100%, if the application is received no later than 1 May of the year preceding commencement of studies.

- Guaranteed placement in a UP residence to prospective students with an academic average percentage of between 85% and 100% if:
 - your application is received no later than 1 May of the year preceding commencement of studies; and
 - you have been conditionally admitted to a programme.

More information is available at [> Fly@UP Assist 1st Year Awards](http://www.up.ac.za/student-funding).

School of Engineering

School of Engineering: Highlights

The Engineering Council of South Africa has granted all programmes offered by the School of Engineering at the University of Pretoria accreditation. The School is one of the largest of its kind in the country in terms of student numbers, graduates and research contributions. It offers programmes in all the major engineering disciplines. Many specialisations are also offered at both the undergraduate and postgraduate levels.

Through the innovative and relevant research undertaken in its seven departments, the School of Engineering provides its students with the necessary training to enable them to make a considerable contribution to engineering in South Africa and abroad. The departments are Chemical Engineering; Civil Engineering; Electrical, Electronic and Computer Engineering; Industrial and Systems Engineering; Materials Science and Metallurgical Engineering; Mechanical and Aeronautical Engineering; and Mining Engineering.

The School maintains close ties with industry through several research chairs in all its departments. These include chairs in **Maintenance Engineering, Pyrometallurgy, Fluoro-material Science and Process Integration, Carbon Technology and Materials, Reaction Engineering, Water Utilisation and Environmental Engineering, Railway Engineering, Industry Leadership 4.0 and Broadband Multimedia Communications**. It also has a number of research centres and institutes, such as the Hub for Energy Efficiency and Demand-side Management, the Advanced Engineering Centre of Excellence, the Industrial Metals and Minerals Research Institute, the Centre for Telecommunications Engineering for the Information Society, the Centre for Asset Integrity Management, the SAIW Centre for Welding Engineering and the Carl and Emily Fuchs Institute for Microelectronics, to name but a few. Each department excels in its own research, but the consolidation of research activities is encouraged, and several sustainable research groups have been formed to make an impact worldwide.

School of Engineering

Department of Chemical Engineering

BEng (Chemical Engineering)

What does the programme entail?

The American Institution of Chemical Engineers (AIChE) defines chemical engineering as a branch of engineering that is concerned with the application of physical and natural sciences that is gained through study, experience, and practice with good judgment to develop economic ways of using materials and energy for the benefit of humankind. Thus the discipline involves all aspects of the industrial processes that, in the broadest sense, convert raw materials into higher-value products using combinations of physical, chemical, thermal, biochemical and mechanical changes.

The programme provides you with the necessary foundation to ensure that once you graduate, you will be able to make creative contributions to the world's ever-increasing needs by:

- converting natural resources into efficient and useable forms of energy;
- developing more durable, lighter and renewable materials;
- designing more efficient, environmentally friendly processing plants;
- applying biotechnology to convert raw materials into products in a sustainable way;
- designing processes to ensure that limited natural resources, such as water, can be reused; and
- leaving a clean and sustainable environment behind for future generations.

A solid foundation in chemistry, physics, mathematics and biology is combined with the principles of the conservation of mass, energy and momentum, followed by the application of the economic tenets when designing equipment so as to ensure lucrative processes that will contribute to economic and industrial growth. The programme is aimed at producing graduates who can develop new and innovative processes, ensuring continued growth to satisfy the abovementioned needs.

Career opportunities

Chemical engineers are increasingly making their unique abilities available in areas as diverse as the automotive industry and the biomedical field, in addition to the traditional areas where their unique approach and understanding of the relevant principles lead to development in the petroleum, minerals, paper, food and textile industries. These industries are collectively referred to as the process industries, which is why chemical engineers are often called process engineers. Water purification and water treatment, biorefinery/waste valorisation, the design and operation of such processes and the protection of the environment from pollution are further areas in which chemical engineers make invaluable contributions.

One of the characteristic qualities of chemical engineers is their ability to examine an engineering problem at different levels, from using their detailed knowledge to manipulate the behaviour of molecules under very specific conditions applying their expertise to study and explain the effect of large chemical plants on a country's economy and environment. Apart from the opportunity to be part of a team that successfully plans, designs and operates large processing plants, chemical engineers can also specialise in the development and application of advanced computer-based methods to design, control and optimise processes.

A chemical engineer may be involved in any of the stages of a typical project, which are:

- research and development;
- techno-economic evaluation;
- modelling, design and optimisation;
- plant construction and commissioning;
- plant operation and management;
- problem-solving in manufacturing or in product applications; and
- manufacturing and marketing of equipment and products.

Chemical Engineering at UP

In addition to producing sought-after graduates in chemical engineering, we conduct research that has led to world-class contributions in water utilisation and environmental engineering, advanced materials development and applications, bioreaction engineering and process systems design, control and optimisation.

People with widely divergent interests and temperaments can find themselves in interesting and challenging careers in chemical engineering. Many projects require teamwork, where the ability to act as a team member and as a team leader is important. This discipline is exceptionally suited to women, and the number of females in our student complement is continuously growing. In the past three years, 40% of the Department's graduates were female.

Contact information

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Website www.up.ac.za/chemeng

First year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Calculus ▪ Physics ▪ General chemistry ▪ Chemical engineering ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Electricity and electronics ▪ Statics ▪ General chemistry ▪ Chemical engineering ▪ Humanities and social sciences 2 ▪ Workshop practice

Second year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Chemistry ▪ Programming and information technology ▪ Strength of materials ▪ Chemical engineering ▪ Chemical engineering materials ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Chemistry ▪ Electrical engineering ▪ Engineering statistics ▪ Thermodynamics ▪ Community-based project

Third year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Engineering management ▪ Transfer processes ▪ Biochemical engineering ▪ Mass transfer ▪ Chemical engineering ▪ Professional and technical communication ▪ Practical training 	<ul style="list-style-type: none"> ▪ Engineering activity and group work ▪ Process dynamics ▪ Kinetics ▪ Laboratory ▪ Chemical engineering design

Fourth year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Particle technology ▪ Process synthesis ▪ Process control ▪ Reactor design ▪ Research project ▪ Practical training 	<ul style="list-style-type: none"> ▪ Design project ▪ Process analysis ▪ Research project ▪ Specialisation ▪ Chemical engineering practice

School of Engineering

Department of Civil Engineering

BEng (Civil Engineering)

Civil engineers create facilities that improve the quality of people's lives and environments. This process entails research into the proposed facility, followed by the planning, design and construction of the facility, as well as its continued maintenance. Civil engineers design, build and maintain constructions such as tower blocks and skyscrapers, dams, canals and pipelines, roads, bridges, tunnels, railway lines, airports, power stations, towers, waterworks and outfall installations.

Since these facilities have a long lifespan and a direct impact on the community and environment, civil engineers are trained to deal not only with the analytical aspects of design but also to liaise and consult directly with communities and individuals to design, build and maintain such facilities cost-effectively and to the benefit of humankind. Facilities designed by civil engineers form the infrastructure for wealth and job creation, for instance, in the manufacturing and housing industries.

The development of information technology and computer software that make continuous data collection, mathematical modelling and designs more effective has drastically changed the nature of civil engineering in that it enables civil engineers to concentrate on the more fundamental aspects of developmental work and design. Continuous evaluation of infrastructure health supports the extension of the functional life of infrastructure through its inputs into maintenance engineering. The worldwide trend towards environmental awareness increasingly impacts on the civil engineer's working



methods. Information technology, and environmental engineering and management, increasingly form a greater part of the training, so that a civil engineer can still be provided with a broad-based qualification that offers challenging, fulfilling and highly adjustable career opportunities throughout a career lifespan of from 40 to 50 years.

In 2020, the Department inaugurated its new Engineering 4.0 facility, which includes state-of-the-art laboratories and training facilities to support the training and education of the engineers of the future.

Contact information

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Website www.up.ac.za/civil-engineering

First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Calculus ▪ General chemistry ▪ Materials science ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Physics ▪ Statics ▪ Electricity and electronics ▪ Humanities and social sciences 2 ▪ Workshop practice

Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Strength of materials I ▪ Geology for engineering ▪ Programming and information technology ▪ Strength of materials II ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Structural analysis ▪ Pavement materials and design ▪ Engineering statistics ▪ Community-based project

Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Professional and technical communication ▪ Hydraulics ▪ Structural analysis ▪ Civil engineering economics ▪ Soil mechanics ▪ Timber design ▪ Civil engineering measurement techniques 	<ul style="list-style-type: none"> ▪ Hydraulics ▪ Geotechnical engineering ▪ Civil building materials ▪ Reinforced concrete design ▪ Transportation engineering ▪ Steel design

Fourth year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Hydraulics ▪ Research project ▪ Steel design ▪ Reinforced concrete design ▪ Infrastructure planning ▪ Engineering professionalism ▪ Practical training 	<ul style="list-style-type: none"> ▪ Civil environmental management ▪ Civil engineering ▪ Construction management ▪ Computer applications in civil engineering ▪ Detailed design

School of Engineering



Department of Electrical, Electronic and Computer Engineering

BEng (Computer Engineering)

What does the programme entail?

Computer engineering is one of the three internationally accepted and closely related subdisciplines of the traditional field of electrical engineering (electrical engineering, electronic engineering and computer engineering). Computer engineering is the most dynamic and rapidly growing engineering discipline in the vast and constantly expanding field of information and communication technology (ICT). There is hardly a technological system in the world that does not rely on computer engineering. It involves a combination of electronics, computer systems (hardware and software) and communication systems. A computer engineer is someone with a talent for optimising electronic systems with dedicated computing systems and control software. This includes computer and communication networks of all sizes—from a couple of microcontrollers to the worldwide web. It is essential to know what this career entails before enrolling for the programme.

A computer engineer has a good understanding of the basic sciences and a sound education in the theoretical and practical aspects (including design methodology) of electronics, digital systems, computer systems and control software. With the dramatic increase in computing and storage capabilities, as well as a decrease in size and cost, most technological systems include components of computer engineering.

The computer engineering degree at the University of Pretoria was developed in 1998 to deliver graduates able to undertake the most demanding challenges of the ICT world in all its forms. Examples of computer engineering include cell phone technology, car-control computers for engine management, entertainment systems, security systems, air-conditioning systems, active suspension and anti-lock braking systems (ABSs), which all use the principles of sensing, computing and actuation under optimised software control. This is the fastest-growing new discipline in engineering, and job opportunities for graduates exist all over the world.

Computer engineering is used in the following fields in particular: telecommunications, computer networking, cell phone operations, computer system companies, military technologies (avionics, night vision, electronic warfare, drones), transport technologies, internet

banking, security systems, consumer equipment, modems, hand-held scanners, voting, medical systems (portable and remote diagnostic recorders), robotics, entertainment equipment, global positioning system (GPS) navigation, measurement and control software, and fibre-optic (self-healing) networks.

A computer engineer has to be innovative and must keep abreast of new technologies and developments in both software and hardware. Some computer engineers move very quickly into management, where their analytical, synthetic, managerial and leadership skills enable them to reach the highest levels of corporate management.

The aim of computer engineering is to integrate electronics, computing and control systems in the best way possible to ensure fast, small and powerful systems. Typical subsystems include sophisticated software for artificial intelligence, biometrics, radio frequency (RF) subsystems and real-time applications, software engineering, human language technologies, e-commerce, m-commerce, billing software, data security and various networking applications, such as storage area networks.

Career opportunities

Computer engineering graduates have access to a wide range of job opportunities. These include working for a company (large or small) anywhere in the world as an employee, being an entrepreneur or being self-employed. Research and development opportunities are available in the fields of communication, computer systems, networking and peace-keeping operations, and in medical, transportation, software and electronics companies in South Africa and all over the world. This provides opportunities for innovation: thinking of a problem to be solved and coming up with a solution and even possibly patenting the idea. The academic programme at the University of Pretoria prepares students to become leaders in the field of computer engineering—with excellent financial rewards and professional satisfaction.

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Email herman.myburgh@up.ac.za

School of Engineering

First year		Third year	Fourth year
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Physics ▪ Calculus ▪ Electricity and electronics ▪ Imperative programming ▪ Humanities and social sciences 1 <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Information technology practice 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Statics ▪ Program design: Introduction ▪ Humanities and social sciences 2 ▪ Operating systems 	<ul style="list-style-type: none"> ▪ Engineering management ▪ Microprocessors ▪ Analogue electronics ▪ Intelligent systems ▪ Electromagnetic compatibility <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Information technology practice 	<ul style="list-style-type: none"> ▪ Engineering activity and group work ▪ Computer engineering design ▪ Software engineering ▪ Control systems ▪ Digital communications
Second year			
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Data structures and algorithms ▪ Electrical engineering ▪ Materials science ▪ Professional and technical communication ▪ Community-based project <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Introduction to programming and computer simulations ▪ Information technology practice 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Linear systems ▪ Digital systems ▪ Engineering statistics ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Project ▪ Engineering professionalism ▪ DSP programming and application ▪ Computer engineering: architecture and systems ▪ e-Business and network security <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Practical training and report 	<ul style="list-style-type: none"> ▪ Project ▪ Research project

Electronic engineering Armand Steyn

'I AM a BEng Electronic Engineering student at the University of Pretoria. My fascination in innovation and technology fuels my desire to constantly seek knowledge and expand my mind. EBIT not only enables, but also encourages this.

The manipulation of electricity to create technology is captivating and I've been able to experience this in action at the Department of Electrical, Electronic and Computer Engineering (EECE). The Faculty prioritises the overall development of its students. The academic staff members continually encourage us to strive beyond our limits. The Faculty is also incredibly interactive and hosts numerous events such as career exhibitions, health and fitness gatherings, and community outreaches.

My department offers world-class facilities to aid in our learning experience. One event I especially enjoyed was the highly anticipated annual robot race day, where I was a track official. Bearing witness to the knowledge acquired by the students to produce fully functioning microcontroller-based autonomous robotic vehicles was awe-inspiring. From my experience, the Faculty truly cares about and supports its students' progress in their studies.

I enjoy my course and look forward to my future learning experience. My dream is to bring innovative technology to the world and to further my knowledge in bioengineering technology in order to make a career out of it. EBIT is undoubtedly the best platform to bring this dream to fruition.'



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SCIENCE INDICATORS

School of Engineering

BEng (Electronic Engineering)

What does the programme entail?

Electronic engineering is one of the three internationally accepted and closely related subdisciplines in the traditional field of electrical engineering (electrical engineering, electronic engineering and computer engineering). Electronic engineering entails the vast and continuously expanding field of the 'electronic world and era'. There is hardly a technological system in the world that does not rely on electronics and electronic engineering. An electronic engineer is someone with a talent for introducing new and upgrading old technologies.

An electronic engineer has a good understanding of the basic sciences and a sound education in the theoretical and practical aspects (including design methodology) of electronics and electronic engineering systems. The drastic increase in the development of new electronic systems globally makes it essential for electronic engineers to be well prepared for the work.

Our electronic engineering degree programme was developed over many years to provide exactly what the industry expects from such an engineer. This is an exciting world, and since the 'half-life' of microelectronics and photonics is only approximately two-and-a-half years, there are constant improvements and developments.

Electronic engineering is used in almost all information, communication and technology (ICT) application fields, especially those of telecommunications (cell phones, broadcasting, internet service providers (ISPs), telecommunications companies (Telcos), global positioning systems (GPSs), transport (aeroplanes, ships, trains, motor cars), consumer equipment (iPods, induction stoves, fridges, microwaves, television sets), peace-keeping operations (avionics, night vision, electronic warfare, drones), medicine (bioengineering, diagnostic systems, rehabilitation engineering, intensive care units, laser surgery), robotics (mechatronics, mine robots, spacecraft), entertainment (video games, shows, casinos), mining, manufacturing, navigation, communication, satellite surveillance (day and night), access control (face recognition) and photonics (lasers, optical fibres, networking).

Electronic engineers need to be innovative and have to ensure that they keep abreast of new technologies. Some electronic engineers move very quickly into management, where their analytical, synthesis, managerial and leadership skills are used to reach the highest levels of corporate management. Several of this Department's graduates have sold their ideas (patents) for vast sums.

Electronic engineering aims to do things faster, cheaper, in smaller sizes and with much more control and artificial intelligence. Typical subsystems that form part of larger electronic systems are amplifiers, transmitters, receivers, control systems, sensor systems, power supplies, radio frequency (RF) subsystems, micro and nanoelectronics and microprocessors, digital signal processors (DSPs) and field-programmable gate arrays (FPGAs). Most electronic systems use a standard process of measurement (sensing) and calculate/compare/store information and controlled outputs (actuators) with extensive computing and communication power.

Career opportunities

Electronic engineering graduates have access to a wide range of job opportunities, which include working for companies (large or small) anywhere in the world as employees, or being entrepreneurs or self-employed. Research and development opportunities are available at South African electronics and microelectronics companies and research institutes (such as the CSIR), and at universities all over the world. Graduates in electronic engineering have the opportunity

to be innovative, ie to identify real-life problems and to come up with solutions, which they might be able to patent. The academic programme at the University of Pretoria prepares students to become leaders in the field of electronic engineering—with excellent financial rewards and professional satisfaction.

Contact information

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First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Calculus ▪ General chemistry ▪ Materials science ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Physics ▪ Statics ▪ Electricity and electronics ▪ Humanities and social sciences 2

Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Dynamics ▪ Electrical engineering ▪ Imperative programming ▪ Professional and technical communication ▪ Community-based project <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Introduction to programming and computer simulations 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Engineering statistics ▪ Linear systems ▪ Digital systems ▪ Community-based project

Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Engineering management ▪ Electromagnetism ▪ Analogue electronics ▪ Microprocessors ▪ Modulation systems 	<ul style="list-style-type: none"> ▪ Engineering activity and group work ▪ Microwaves and antennas ▪ Stochastic communication systems ▪ Control systems ▪ Electronic engineering design

Fourth year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Project ▪ Engineering professionalism ▪ DSP Programming and application ▪ Advanced electronics ▪ Automation <p>Recess Training:</p> <ul style="list-style-type: none"> ▪ Practical training and report 	<ul style="list-style-type: none"> ▪ Project ▪ Research project

Infographic

Electrical, Electronic and Computer Engineering (EECE)

This is the largest department of its kind at a university in South Africa and we have the largest number of specialisation fields in electrical, electronic and computer engineering.

Electrical Engineering

Electrical Engineering focuses on the generation, distribution, conversion and efficient utilisation of electrical energy to the electrical grid; for industrial, commercial and residential applications; power line communications as well as coal-fired, hydro and nuclear power stations.



FUN EVENT:
Robot race car day.
Watch the video here:

<https://www.up.ac.za/eece/article/2669042/annual-robot-car-race>

Electronic Engineering

Electronic Engineering deals with applications of electronics and this includes:

- Telecommunications (television, radio, cellular)
- Bioengineering
- Signal processing
- Optics
- Power electronics
- Electromagnetism
- Control systems
- Microelectronics
- Electronic design
- Embedded systems

Computer Engineering

Computer Engineering focuses on hardware and software.

- Hardware includes the field of robotics, digital signal processing, optical networks and communication systems.
- Software includes artificial intelligence, e-commerce systems, network security, and the design of operating and embedded systems.

Computer Engineering focuses on the combination of hardware and software to provide optimal solutions to real-world problems.



Infographic

Industries at which you can expect to find a career:



Electrical Engineering

Applications of Electrical Engineering extend to coal-fired, hydro and nuclear power stations; power line communications and building and railway wiring. There is now also an intense focus on demand side management and energy efficiency to ensure effective and efficient use of our valuable energy resources both renewable and non-renewable.



Electronic Engineering

Electronic Engineering can be applied to telecommunications (television, radio, cellular communications, optical communication and more), industry (control systems and power electronics), military, transport and bioengineering.



Computer Engineering

In short, computer engineers design and optimise computers and computing systems for use in robots, cell phones, cars, wireless networks and cyber security.

Computer engineers specialise in combining hardware and software to produce optimal solutions to problems.

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023				APS
	Achievement level				
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BEng (Electrical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35	
The suggested second-choice programmes for BEng (Electrical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics).					
Careers: Electrical engineers are active in the generation, storage, transmission, distribution and utilisation of electrical energy. There is a bright future in renewable energy. Electrical engineers design, supervise the construction, oversee the optimal operation and assure perfect and timely maintenance of all electrical installations for municipalities, residential areas, commercial buildings, factories, mines and industries. Rail transport, water pumping, electrical grids, telecommunications, energy management and smart lighting fall within the scope of electrical engineering.					
BEng (Electronic Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35	
The suggested second-choice programmes for BEng (Electronic Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics).					
Careers: Electronic engineers are active in various fields, such as telecommunications (fixed networks, wireless, satellite, television, radar and radio frequency networks), entertainment and medicine (magnetic resonance imaging, X-rays, cardiopulmonary resuscitation, infrared tomography, electroencephalograms (EEGs), electrocardiograms (ECGs), rehabilitation engineering and biokinetics), integrated circuit design, bioengineering, military equipment design (vehicle electronics, smart bombs, night vision, laser systems), transport (e-tags, speed measuring, railway signalling, global positioning system (GPS) and mapping), 'smart' dust, safety and security systems (face and speech recognition), banking (ATMs), commerce, robotics, education, environmental management, tourism and many more.					
BEng (Computer Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35	
The suggested second-choice programmes for BEng (Computer Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics).					
Careers: Computer engineers are active in all fields of the information superhighway and the information and communication technology (ICT) world, which include computer systems, software engineering, computer and communications networks, wireless sensor networks, embedded software, electronics, smart control systems and automation, data security, e-commerce, pattern recognition (face and speech recognition) and artificial intelligence. They specialise in combining hardware, software and communication technologies to optimise system performance.					
Engineering Augmented Degree Programme (ENGAGE) [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	30	
For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za.					
Note: The admission requirements above are relevant to prospective students who will commence their studies in 2023. Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of 30. 2022 entries, will be determined by NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of minimum 30. The National Benchmark Test (NBT) is no longer a requirement for any undergraduate programme in 2023.					

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

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School of Engineering

BEng (Electrical Engineering)

What does the programme entail?

Electrical engineering is one of the three internationally accepted and closely related subdisciplines in the traditional field of electrical engineering (electrical engineering, electronic engineering and computer engineering). This programme covers the vast and continuously expanding field of the 'electrical energy world'. Practically all technological systems in the world rely on electrical power as a source of energy. An electrical engineer is someone with a talent for introducing alternative and renewable sources of electrical energy into everyday life.

Enormous challenges exist for utilising and storing electrical energy derived from such sources as the sun (solar energy), wind, biomass and water (hydro-energy), and even nuclear energy. In South Africa, pumped storage systems are extensively used, and new systems are under construction. The next steps in the chain from generating to utilising electrical energy are the transmission and distribution systems. The most cost-effective way of saving electrical energy is to spend a great deal of research and development time and money on sustainable energy-efficient equipment, from electrical machines to geysers and lighting.

There is a shortage of qualified electrical engineers all over the world. An electrical engineer has a thorough understanding of the basic sciences and a good education in the theoretical and practical aspects (including design, installation and maintenance methodology) of electrical engineering. Due to the current worldwide power crisis, there is an urgent need for environmentally friendly ways to generate power and energy.

Our programme in electrical engineering was developed over many years to provide exactly what the industry expects from such an engineer. There are fascinating opportunities worldwide for electrical (high-current) engineers who are capable of taking the lead in respect of sustainable and environmentally friendly electrical energy generation, transmission and utilisation. Most car manufacturers have already introduced electric cars (including series and parallel hybrid vehicles), and there are many new entrants to the market.

Electrical engineering is prevalent in almost all application fields and technologies where electrical energy is consumed. Every known piece of equipment requires a source of energy—powered by mains, batteries or photovoltaic (PV) cells—and needs the skill of an electrical engineer. The transport and manufacturing industries are excellent examples of industries in which electrical engineers use their superior skills to design, develop and maintain electrical machines (motors and generators) with control systems for optimal performance. Most ships and trains are electrically powered.

Other applications of electrical engineering include power reticulation in cities, townships, shopping malls and factories. The lighting of indoor and outdoor areas forms the basis of our daily activities. It includes lighting at sports stadiums, street lighting, safety and security lighting, task and ambient lighting, as well as lighting for offices, entertainment and many other specialist applications. Regardless of whether it is medicine, the military, entertainment, sports, education or any other field of technology, electrical engineers will be there to provide the energy and control required. An electrical engineer needs to be innovative and has to keep abreast of new developments in the field of technology. Many electrical engineers move into management positions very quickly and use analytical, synthesis, managerial and leadership skills to reach the highest levels of corporate management.

Electrical engineering aims to change the world by discovering ways to generate, transmit, distribute and utilise electrical energy in an environmentally friendly and sustainable way. Typical subsystems that may form part of larger electrical systems are electrical machines of all

sizes and shapes, power electronics, control systems, power system components, power quality and network stability, lamps and lighting, power supplies, photovoltaic (PV) cells, solar geysers, space systems, robotics and energy management systems.

Career opportunities

Electrical engineering graduates have access to a wide range of job opportunities, which include working for electricity utility companies, mining houses, municipalities, consulting engineers, transportation (rail and sea) companies and research organisations, locally and abroad. The advances in electrical energy generation and distribution create tremendous opportunities for entrepreneurs in South Africa and in the rest of the world. Research and development opportunities are available locally at institutions such as Denel, Eskom, the Council for Scientific and Industrial Research (CSIR) and Transnet.

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continues on page 18 >>



School of Engineering

First year		Third year	
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Calculus ▪ General chemistry ▪ Materials science ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Physics ▪ Statics ▪ Electricity and electronics ▪ Humanities and social sciences 2 	<ul style="list-style-type: none"> ▪ Engineering management ▪ Electromagnetism ▪ Microprocessors ▪ Analogue electronics ▪ Electrical machines 	<ul style="list-style-type: none"> ▪ Power system components ▪ Engineering activity and group work ▪ Control systems ▪ Power electronics ▪ Electrical engineering design
Recess Training:		Recess Training:	
<ul style="list-style-type: none"> ▪ DSP Programming 		<ul style="list-style-type: none"> ▪ Project ▪ Engineering professionalism ▪ Electrical drives ▪ Power system analysis ▪ Automation 	
Second year		Fourth year	
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Dynamics ▪ Electrical engineering ▪ Imperative programming ▪ Professional and technical communication ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Engineering statistics ▪ Linear systems ▪ Digital systems ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Project ▪ Engineering professionalism ▪ Electrical drives ▪ Power system analysis ▪ Automation 	<ul style="list-style-type: none"> ▪ Project ▪ Research project
Recess Training:		Recess Training:	
<ul style="list-style-type: none"> ▪ Introduction to programming and computer simulations ▪ Practical wiring 		<ul style="list-style-type: none"> ▪ Practical training and report 	

YOU ARE NEVER TOO LATE TO REINVENT YOURSELF, MAKE IT HAPPEN, SURPRISE EVERYONE.

Dr Malika Khodja
Department of Materials Science and Metallurgical Engineering,
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

WE OFTEN LOOK FOR PRINCIPAL CHARACTERS IN BOOKS AND FILMS, BUT THE TRUTH IS THE STRONG PROTAGONIST IS RIGHT WITHIN US.

Dineo Ramatio
Department of Mechanical and Aeronautical Engineering,
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

BE BOLD IN THE PURSUIT OF YOUR GOALS AND TAKE UP YOUR SEAT AT THE DECISION-MAKING TABLES.

Nqobile Mashinini-Dlamini
Minority Fellow
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

ALWAYS SET GOALS IN YOUR LIFE, IT GIVES YOU GUIDANCE ON WHERE YOUR PATH SHOULD LEAD.

Prof Alta van der Merwe
Head of Department of Game Learning,
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

DON'T LET ANYONE ROB YOU OF YOUR IMAGINATION, YOUR CREATIVITY, OR YOUR CURIOSITY. IT'S YOUR PLACE IN THE WORLD; IT'S YOUR LIFE. GO ON AND DO ALL YOU CAN WITH IT, AND MAKE IT THE LIFE YOU WANT TO LIVE. – Mae Jemison

Prof Andrie Garbers-Craig
Department of Materials Science and Metallurgical Engineering,
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

Pursuing your passions, goals and dreams in times of challenge is an opportunity to uncover qualities of strength and perseverance within yourself.

Zakkya Khan
Associate Professor of Architecture,
Faculty of Engineering, Built Environment and Information Technology,
University of Pretoria

School of Engineering

Department of Industrial and Systems Engineering

BEng (Industrial Engineering)

What does the programme entail?

Industrial engineers are generally responsible for the analysis, design, planning, implementation, operation, management and maintenance of integrated systems. These systems consist of people, capital, materials, equipment, information and energy. They aim to increase the productivity of organisations and to create wealth.

Career opportunities

Since almost any organisation could benefit from the services of industrial engineers, they are employed in a wide variety of organisations in the industrial, business and service sectors.

Typical activities of an industrial engineer are:
designing, implementing and managing production processes and equipment;

- designing and improving plant layout;
- designing and improving business processes;
- functional design and implementation of information systems;
- developing and implementing performance criteria and standards;
- providing support with decision-making;
- scheduling activities;
- analysing systems with the aid of mathematical and simulation models;
- undertaking economic evaluations of alternatives; and
- integrating new systems in an existing environment.

Is engineering a profession intended mainly for men? As far as industrial engineering is concerned, the answer to this question is a resounding 'No'. Women who have completed their industrial engineering degrees at the University of Pretoria have come into their own in this profession and are counted among the top achievers, both as academics and as practising engineers.

This Department is the largest of its kind in South Africa and currently has more than 500 students. Academic staff are specialists in their respective fields. Alumni of the Department have made major contributions in several spheres of society and occupy important positions in organisations throughout South Africa, while many others are employed overseas. Currently, the demand for industrial engineers exceeds the supply, and young graduates are virtually assured of employment.

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First year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Physics ▪ Calculus ▪ Humanities and social sciences 1 ▪ Electricity and electronics 	<ul style="list-style-type: none"> ▪ Mathematics ▪ General chemistry ▪ Statics ▪ Materials science ▪ Humanities and social sciences 2 ▪ Workshop practice

Second year

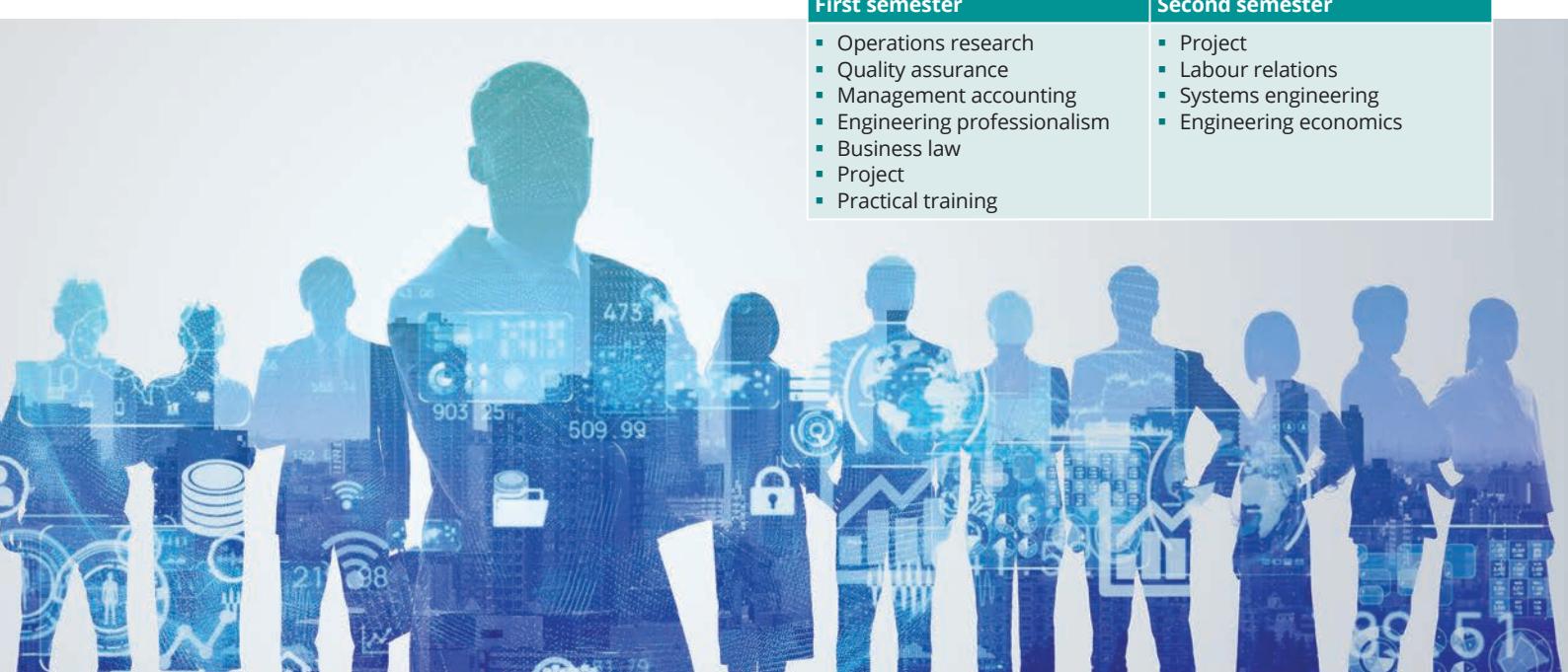
First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Dynamics ▪ Programming and information technology ▪ Manufacturing and design ▪ Professional and technical communication ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Engineering statistics ▪ Productivity ▪ Thermodynamics ▪ Community-based project

Third year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Engineering management ▪ Manufacturing systems ▪ Operational management ▪ Operations research ▪ Financial management ▪ Industrial analysis ▪ Practical training 	<ul style="list-style-type: none"> ▪ Engineering activity and group work ▪ Industrial logistics ▪ Information systems design ▪ Simulation modelling ▪ Facilities planning ▪ Business engineering

Fourth year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Operations research ▪ Quality assurance ▪ Management accounting ▪ Engineering professionalism ▪ Business law ▪ Project ▪ Practical training 	<ul style="list-style-type: none"> ▪ Project ▪ Labour relations ▪ Systems engineering ▪ Engineering economics



School of Engineering

Department of Materials Science and Metallurgical Engineering

BEng (Metallurgical Engineering)

What does the programme entail?

South Africa is not only blessed with the world's largest deposits of gold, chromium, platinum, vanadium and manganese but also has extensive reserves of iron, lead, zinc, copper, nickel, coal and diamonds. The minerals industry contributes 50% of South Africa's exports and is one of the largest employers in the country. Metallurgical engineers play a key role in the production of minerals and metals and help to process metals into final products with added value. In this way, the maximum income is generated in local and international markets. Components made from metals and other materials are designed to perform optimally in all aspects of modern life.

Career opportunities

Metallurgical engineers play a key role in the process of extracting wealth from the resources of South Africa and can be involved in three major fields of specialisation:

- **Minerals processing.** Processing the ore to release and concentrate the valuable minerals from the mineral resources.
- **Extractive metallurgy.** The processing of mineral concentrates to metals through pyrometallurgy or hydrometallurgy as recovery steps.
- **Materials production, performance and integrity.** The development of new alloys, the production of useful materials from raw metals, forming through casting and laser-assisted 3D printing, as well as joining through welding are examples of metallurgical applications. The forensic investigation of failures is also of great importance as it contributes to insight into how materials function and fail.

Graduates in metallurgical engineering are responsible for process/component design and optimisation, commissioning, marketing, business analysis and research. There is a place for everyone with the right attitude and interest in the field of metallurgical engineering!

Behind the scenes

As the leading metallurgical engineering department in South Africa, the Department of Materials Science and Metallurgical Engineering currently plays a prominent role in the education of metallurgical engineers for the South African metallurgical and mining industries, and its graduate students are in high demand. Many graduate engineers from other disciplines take postgraduate programmes in the Department to enhance their skills in the rich minerals industry in South Africa and abroad.

Unconditional accreditation by the Engineering Council of South Africa (ECSA) is a confirmation of the quality of undergraduate teaching in the Department, and the degree currently enjoys international recognition. Staff members consult with and conduct research for industry and maintain close contact with local metallurgical industries to ensure that teaching and research are in line with industry needs. Sophisticated research equipment is available in the Department, as well as in the Industrial Metals and Minerals Institute (IMMRI), which is situated in the Department. Bursaries for metallurgical engineering students are available from various industry partners (see the website for additional information: www.up.ac.za/metal).

Students are supported in several ways by the Department. To help them to overcome problems, a member of staff is appointed as a mentor for each student year group. For first-year students, in particular, there is an intensive mentorship programme. The normal programme runs over four years, but we also offer a five-year programme (ENGAGE) for students who require additional support and mentoring.

The Metallurgical Student Association is elected by the student body and organises social and sports functions.



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First year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ General chemistry ▪ Materials science ▪ Calculus ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Electricity and electronics ▪ Statics ▪ Physics ▪ Humanities and social sciences 2 ▪ Workshop practice

Second year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Calculus ▪ Differential equations ▪ Dynamics ▪ Programming and information technology ▪ Mineralogy ▪ Professional and technical communication ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Numerical methods ▪ Electrical engineering ▪ Materials science ▪ Process thermodynamics ▪ Engineering statistics

Third year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Materials science ▪ Minerals processing ▪ Engineering management ▪ Thermoflow ▪ Electrochemistry ▪ Practical training 	<ul style="list-style-type: none"> ▪ Hydrometallurgy ▪ Pyrometallurgy ▪ Refractory materials ▪ Mechanical metallurgy ▪ Engineering activity and group work ▪ Excursions

Fourth year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Process metallurgy and control ▪ Literature survey ▪ Hydrometallurgy ▪ Mineral's processing ▪ Metals processing ▪ Engineering professionalism ▪ Practical training 	<ul style="list-style-type: none"> ▪ Project ▪ Process design

Infographic



Materials Science and Metallurgical Engineering

South Africa has the world's largest mineral deposits of gold, chromium, platinum, vanadium and manganese. We also have large reserves of iron, lead, zinc, copper, nickel, coal and diamonds. The minerals industry contributes to some 50% of South Africa's exports and is one of the largest employers in the country.

The Department of Materials Science and Metallurgical Engineering, established in 1958, offers the BEng (Metallurgical Engineering) degree programme, fully accredited by ECSA (2017-2021). Professional metallurgical engineers who graduate from this programme, take minerals from the phase of exploration into successful utilisation of high-performance products.

The three main fields of specialisation in metallurgical engineering are:



Minerals processing

Processing the ore to release and concentrate the valuable minerals contained in it.



Extractive metallurgy

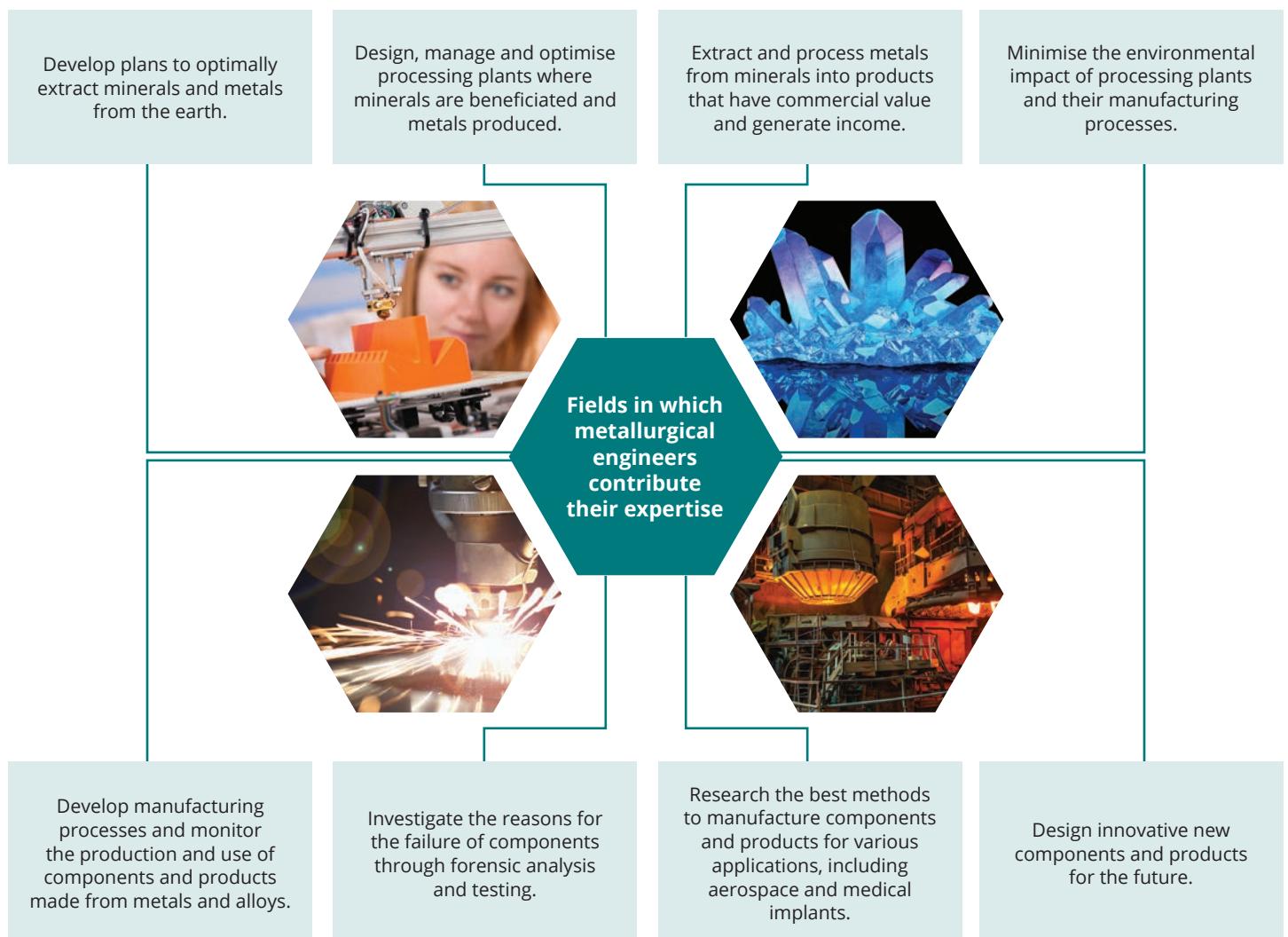
The processing of mineral concentrates to metals through pyrometallurgy (including smelting) or hydrometallurgy (including leaching) as refining steps.



Materials production, performance and integrity

This field entails the development of new alloys, the production of useful materials and products from raw metals, including forming through casting, 3D printing using lasers and joining through welding. The forensic investigation of failures is also of great importance.

Infographic



Careers:

Metallurgical engineers unlock the riches of deposits of metal ores and minerals and optimise the manufacture and performance of metallic components. You'll find metallurgical engineers where valuable minerals are recovered from ore, where metals are produced from the minerals and where the metals are converted into useful materials as well as into high-performance products. Areas of specialisation include minerals processing, extractive metallurgy, materials engineering and performance, advanced manufacturing processes, including laser-assisted additive manufacturing and welding, as well as failure analysis and forensic engineering.

Careers include production engineers, plant managers, consultants, forensic engineers and researchers.

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023				APS
	Achievement level				
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BEng (Metallurgical Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35	

The suggested second-choice programmes for BEng (Metallurgical Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics).

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

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School of Engineering

Department of Mechanical and Aeronautical Engineering

BEng (Mechanical Engineering)

What does the programme entail?

Mechanical and aeronautical engineering entails the application of science to design, manufacture, operate and maintain mechanical and aeronautical equipment and processes. The undergraduate programme focuses on the establishment of a broad knowledge of engineering and includes topics such as dynamics, strength of materials, thermodynamics, fluid mechanics and design.

The outputs of mechanical and aeronautical engineers include products and services that add value to the economy of the country. Mechanical and aeronautical expertise is instrumental in the design and manufacture of products and services such as the provision of electricity and water, transport (road, rail and air), mining activities, mechatronics and air conditioning.

As a result of their broad technical background, mechanical and aeronautical engineers either pursue professional careers in these fields or become very successful senior managers in these industries.

Behind the scenes

The Department of Mechanical and Aeronautical Engineering is the largest of its kind in South Africa and has modern and fully equipped laboratories and computer facilities. Prospective students may rest assured that they will receive first-class education that is comparable to the best in the world, as attested by the international accreditation of the undergraduate programme by the Engineering Council of South Africa (ECSA). Lecturers in the Department are all actively involved in the industry, either as consultants or as researchers, and the Department has already received eight design awards from the South African Bureau of Standards.

Our student body is diverse, and at the undergraduate level, approximately 20% of the students are female. Alumni of the Department have made valuable contributions in several spheres of society and occupy important positions in organisations throughout South Africa. Others are employed overseas.



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The curriculum is summarised in the tables below (students specialising in aeronautical engineering conduct their final-year research and complete design projects on aeronautical topics):

First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ Calculus ▪ Physics ▪ Electricity and electronics ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Statics ▪ Materials science ▪ Humanities and social sciences 2 ▪ General chemistry ▪ Workshop practice
Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Manufacturing and design ▪ Programming and information technology ▪ Dynamics ▪ Calculus ▪ Differential equations ▪ Professional and technical communication ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Structural design ▪ Thermodynamics ▪ Mathematics ▪ Numerical methods ▪ Engineering statistics ▪ Community-based project
Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Structural mechanics ▪ Thermodynamics ▪ Engineering management ▪ Machine design ▪ Fluid mechanics ▪ Practical training 	<ul style="list-style-type: none"> ▪ Vibration and noise ▪ Solid mechanics ▪ Engineering activity and group work ▪ Simulation-based design ▪ Electrical engineering
Fourth year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Computational fluid dynamics ▪ Heat Transfer ▪ Engineering professionalism ▪ Practical training ▪ Design project ▪ Research project 	<ul style="list-style-type: none"> ▪ Research project ▪ Thermal and fluid machines ▪ Mechatronics and Control Systems <p>Electives:</p> <ul style="list-style-type: none"> ▪ Aeronautics ▪ Maintenance engineering ▪ Nuclear engineering ▪ Mechatronics ▪ Heat and mass transfer ▪ Optimum design ▪ Fossil-fuel power stations

School of Engineering

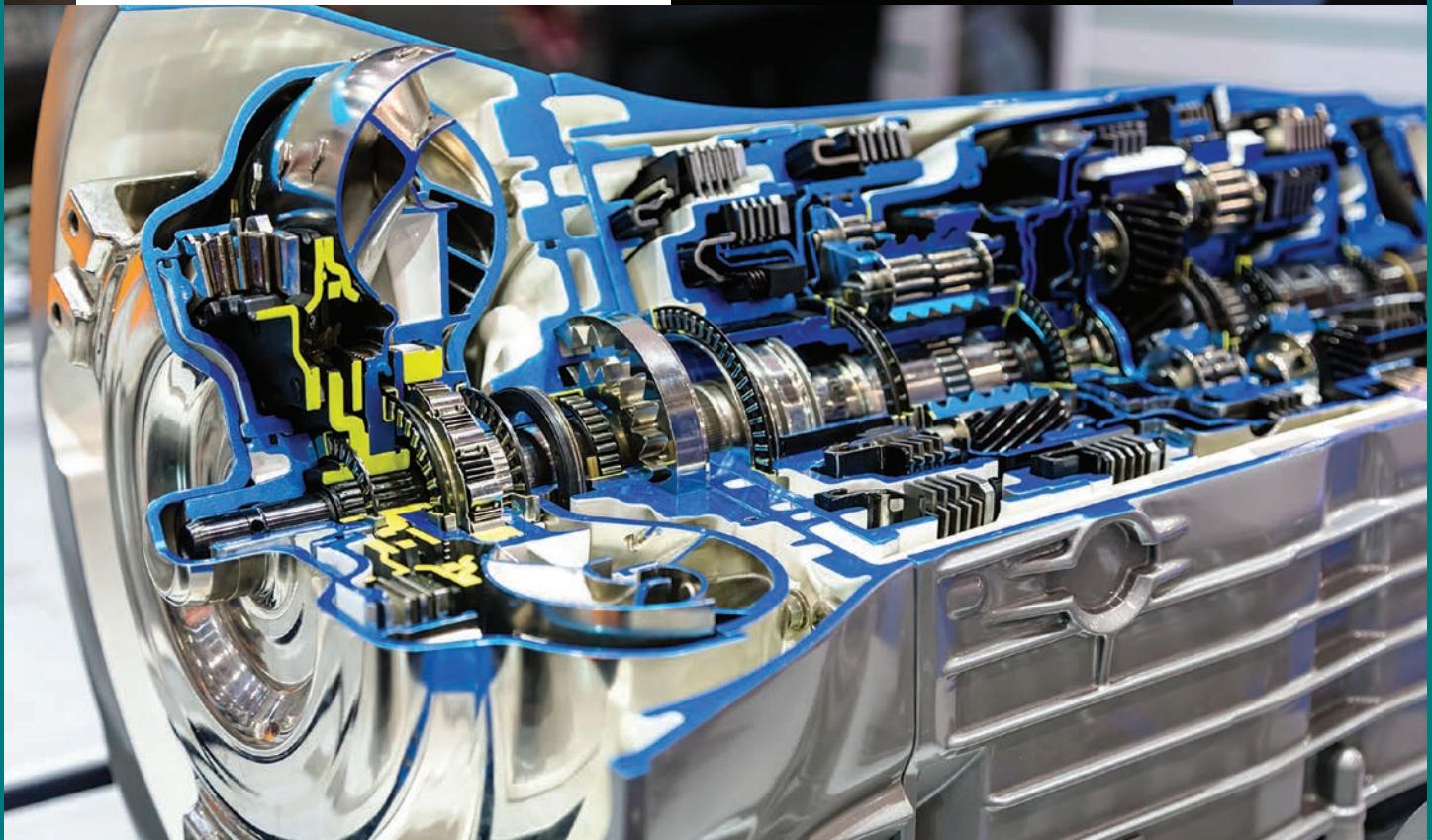
Music and motorsports

EBIT's BEng Mechanical Engineering twins are ready to take the music and motorsport worlds by storm. Justin and Darren Oates share identical interests in engineering, music and motorsport. They play the piano and have recorded music in English under the name Telepathy, and in Afrikaans under the name Alter Ego.

Justin and Darren specialised in motor vehicle engineering, which studies the behavioral characteristics of motor vehicles to predict or enhance specific dynamic or performance effects. Motorsport is about precision, which appeals to the brothers' calculated perfectionist personalities. They hit the main motor racing circuit in 2015, competing in the VW Polo GTI Cup Series, which is the most competitive level of racing in the country, with Total as their sponsor.



Much of our passion in motor vehicles is centred on performance: acceleration, braking, cornering and riding. With our passion for motorsport and the physics of vehicle behaviour, we finally decided that engineering was the way to go. We have always been entrepreneurial and are continuously thinking of new ideas. To our pleasant surprise, we learnt that engineering builds a solid platform for innovation and getting ideas into the real world.

School of Engineering

Department of Mining Engineering

BEng (Mining Engineering)

What does the programme entail?

As a profession, mining engineering encompasses a broad spectrum of engineering work—from mine evaluation to industrial control. For instance, mining engineers may assess a new mining project as soon as the geological confirmation of a newly discovered mineral deposit has been completed. If such a mineral deposit is found to be viable, mining engineers will design the mine to exploit the mineral deposit. Where the mineral deposit is close to the surface, an opencast mine is preferred, but for deeper deposits, an underground mine will be planned. Mining engineers will coordinate the construction of such a mine and bring it to the stage where it starts producing.

A typical mine has a lifespan of 15 to perhaps 100 years. The design of the mining excavations, with their equipment and services, the planning of all the activities and the management of the operation at all levels is the responsibility of the mining engineer. This professional will also provide expert advice on rock breaking, blasting, materials transport systems, mine planning and scheduling, mechanical tunnel development, mine climate control, rock mechanics, support of excavations, devising mining methods, as well as the design and development of equipment.

Career opportunities

In addition to operational management, mining engineers are often involved in the planning and execution of research and development work. To maintain the proud position of the South African mining industry as a world leader, it is necessary to accept the challenges of technological development through extensive research and development programmes. Mining engineers fulfil the role of expert consulting engineers in various mining groups, as well as in private practice. Universities, government departments and financial institutions also employ mining engineers.

The mining industry is one of the largest industries in the country and certainly one of the most important. It supplies raw materials and energy minerals to a large variety of domestic industries, while precious metals, non-precious minerals, energy minerals and diamonds are exported to earn foreign exchange. More than 70 different minerals are currently produced in South Africa and contribute directly to the gross domestic product. The mining industry provides job opportunities to more than 400 000 people. Among these, there are obviously many employment opportunities for professionals.



Behind the scenes

Classes are still relatively small, making it possible for staff to give individual attention to students. The many technical visits that are organised offer students the opportunity to become acquainted with every aspect of the mining industry. A characteristic of the mining engineering programme is the close group cohesion that develops among students and continues long after graduation.

Note: Prospective mining engineering students are advised to verify that they are medically compliant with the government requirements for working on a mine. More information can be found at www.dmr.gov.za.

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First year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Graphical communication ▪ General chemistry ▪ Materials science ▪ Calculus ▪ Humanities and social sciences 1 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Electricity and electronics ▪ Statics ▪ Physics ▪ Humanities and social sciences 2 ▪ Workshop practice

Second year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Dynamics ▪ Programming and information technology ▪ Calculus ▪ Differential equations ▪ Strength of materials ▪ Geology for engineering ▪ Professional and technical communication ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Surveying ▪ Numerical methods ▪ Engineering statistics ▪ Thermodynamics ▪ Mathematics ▪ Experiential training ▪ Community-based project ▪ Introduction to mining

Third year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Surface mining and geotechnics ▪ Thermofluids ▪ Minerals processing ▪ Engineering management ▪ Experiential training ▪ Industrial excursions 	<ul style="list-style-type: none"> ▪ Explosive engineering ▪ Mineral economics ▪ Engineering activity and group work ▪ Mining ▪ Introduction to project ▪ Historical geology

Fourth year

First semester	Second semester
<ul style="list-style-type: none"> ▪ Mine ventilation engineering ▪ Mine operational risk management ▪ Engineering professionalism ▪ Strata control ▪ Structural geology ▪ Mining 	<ul style="list-style-type: none"> ▪ Mine design ▪ Geodynamics ore formation ▪ Industrial excursions ▪ Project

School of Engineering



The Engineering Augmented Degree Programme (ENGAGE)

An engineering degree is very demanding. The workload is high, the pace is fast, and the modules are academically challenging. Many students also face challenges regarding background knowledge in mathematics and physical sciences, academic literacy and information technology. They may not have the study skills to cope with the mainstream four-year programme. Furthermore, many students—even some of those who attended high-performing schools—struggle with the transition to university life due to the very large first-year classes, freedom from strict discipline and many social activities.

For this reason, the School of Engineering offers a five-year programme, called the Engineering Augmented Degree Programme (ENGAGE). ENGAGE is available in all the engineering disciplines. It provides a carefully structured curriculum that helps students to adjust to university life and cope with the academic demands of engineering studies. In ENGAGE, the volume of work is gradually increased while the support provided is decreased over a period of three years. However, the workload—the time students must spend on their studies—is high from the very beginning, so ENGAGE is not for students who do not want to work!

Structure of the programme

In ENGAGE, students take the same first-year modules and attend the same classes as the four-year degree programme students, but the modules are spread out over two years. In addition, for every 16-credit 100-level (first-year) module, students also take an 8-credit augmented additional module. For example, in the first year, students take the same mathematics modules (16 credits) as the four-year degree programme students, as well as additional mathematics modules (8 credits). In additional modules, students are divided into groups of approximately 50 members to work on strengthening their problem-solving and other cognitive skills, developing conceptual understanding and acquiring the background knowledge needed for both the additional module and the corresponding four-year module.

In the first year of study, ENGAGE students take the basic sciences modules that form the foundation of engineering, namely chemistry, physics and mathematics. However, computer engineering students take mechanics instead of chemistry. ENGAGE students also take Professional Orientation, which provides an introduction to information technology skills and practice and develops their academic and communication skills. Furthermore, first-year engineering students are required to take a module in humanities and social sciences—the HAS module.

In the second year, ENGAGE students take all the introductory (100-level) engineering modules, as well as a compulsory additional module for each. They also take one 200-level mathematics module per semester. In the third year, they take the remaining 200-level modules, but since they have already completed two 200-level mathematics modules, their workload is slightly lighter than that of the four-year degree programme students. For the last two years of their studies, ENGAGE students follow exactly the same programme as the four-year degree programme students.

All the prescribed components of ENGAGE are compulsory. Attendance at all lectures and discussion classes in the modules is also mandatory.

Four-year programme modules	Foundation modules
First and second years	
<ul style="list-style-type: none"> ▪ 100-level science modules ▪ 100-level engineering modules ▪ 200-level mathematics modules 	
	<ul style="list-style-type: none"> ▪ An additional module for each science and engineering module ▪ No additional module (for 200-level Mathematics modules)
Third year	
▪ 200-level engineering modules	▪ None
Fourth year	
▪ 300-level engineering modules	▪ None
Fifth year	
▪ 400-level engineering modules	▪ None

Who may register for ENGAGE?

Students may apply for ENGAGE if:

- their marks in the National Senior Certificate meet the minimum admission requirements for the four-year programme, but they would like more support.
- Please refer to the table on page 3 for the 2023 admission requirements.

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Infographic



Mining Engineering

Southern Africa is abundant in platinum, gold, chrome, copper, cobalt, diamonds, coal and iron ore.

The South African mining industry is in transition and will require fresh and inspired minds to transform the industry from a labour-intensive and low productive industry to a motivated and productive industry capable of mining in excess of 4 000 metres below the surface in the gold mining sector and in excess of 2 000 metres in the platinum mining sector.

Currently, massive infrastructures advancements are taking place with new technologies being pursued. Automation and modernisation is taking place to access future ore bodies. The Department of Mining Engineering in this regard explores all potential new interventions so as to facilitate the learning experience. We also offer instructionally designed material for its mining-related subjects. This enhances the learning experience of students. The Mining Industry Study Centre, which opened its doors in October 2013, accommodates

758 students; has 252 workstations, 30 CDIO-type (conceive, design, implement and operate) venues and 296 study cubicles.

Virtual Reality applications in mining

The Department also involves students in immersive technology for mining applications. The Virtual Reality Centre in the Department allows this to be an important feature in mining engineering education.

The rewarding profession of being a mining engineer

Mining Engineering is the study and application of technological methods to effectively and safely operate a mining operation.

Mining engineers conduct mine evaluations as soon as geological confirmation of a mineral deposit, are confirmed.

Mining engineers will design the mine itself. If the mineral deposit is close to the surface, an opencast mine will be preferred, but for deeper deposits, an underground mine will be required.

Mining engineers coordinate the construction of such a mine, from the planning phase to full production phase.

Mining engineers design mining excavations; manage operations at all levels; provide expert advice on rock breaking, blasting materials, transport systems and scheduling; mechanical tunnel development, mine ventilation, rock mechanics, support of excavations, mining methods, as well as the design and development of equipment.

Mining engineers do mine planning and design. They also oversee mining projects. As consultants, they provide crucial information to decision-makers.

Infographic

The University of Pretoria provides excellent facilities to our Mining Engineering students and these include access to the:

- Kumba Mine Design Laboratory
- Kumba Virtual Reality 3D360 cylinder
- Kumba Virtual Reality 3D theatre
- ARM Laboratory
- Virtual Blasting Wall; and
- The Metallurgical, civil and mechanical engineering laboratories on the Hatfield Campus.

What career opportunities exist for mining engineers?

The mining industry is one of the largest industries in South Africa, producing more than **60 different minerals in over 1 000 mines and quarries**. Mining amounts to one eighth of the gross national product.

Mining engineers are employed at a wide range of companies, both locally and internationally. They are responsible for the effective, safe and profitable operation of mining undertakings.



The aptitudes and skills of successful engineers include the following:

- Be able to visualise objects in three dimensions
- Have good health and stamina
- Have mathematical and scientific ability
- Be curious
- Be disciplined
- Be passionate about mining
- Have creativity and initiative
- Be responsible
- Have self-confidence
- Have organisational skills
- Command respect
- Maintain a cool head and take charge of a situation
- Have listening, speech and writing skills

Mining engineering careers include that of rock engineer; mine ventilation engineer; explosives engineer; rock breaking engineer; drill and blast engineer; project engineer; mine planner and environmental engineer to mention but a few.

- Mining engineers are mining experts and they are engineers, who have a background in geology as well as in civil, mechanical and electrical engineering.
- Mining engineers research mining-related topics in order to improve safety and find better ways to extract minerals.
- Mining engineers also work in the banking sector and at the Stock Exchange, where they specialise in risk analysis and investment.
- Mining engineers are also needed for sales and marketing as well as business development of mining companies or supporting industries.

There is a shift in mining as it progresses towards mechanisation and automation through robotics. Mechanisation requires in-depth engineering skills to support and operate mobile mechanised equipment.

The Mining Engineering Leadership Academy

Our students have a sound academic foundation. To that, we add skills such as self-awareness, communication skills and the ability to work in multi-disciplinary settings and groups. The philosophy of the Leadership Academy programme is to expose final-year students to experiential situations, which teaches them intrapersonal and interpersonal skills. Psychometric assessments and real-life case studies hone well-rounded leadership habits.

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023				APS
	Achievement level				
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BEng (Mining Engineering) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	6	35	
The suggested second-choice programmes for BEng (Mining Engineering) are BSc (Chemistry), BSc (Mathematics) and BSc (Physics).					
Careers: Mining engineers have a wide range of opportunities, namely mining (mine management, technical management of ventilation, rock mechanics, rock breaking, mineral resources), financial evaluation and management (mine design, financial evaluation of mines, mine feasibility studies, mine environmental impact studies), mining and drilling contracting (mining, tunnelling, shaft sinking, mine development, ore evaluation), mining research, mining equipment design and manufacture, mining marketing and mining administration at national, provincial and international levels.					
Engineering Augmented Degree Programme (ENGAGE) [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	30	
For advice on a second-choice programme, please consult a Student Advisor. To make an appointment, send an email to carol.bosch@up.ac.za.					
Note: The admission requirements above are relevant to prospective students who will commence their studies in 2023. Admission to ENGAGE in the School of Engineering will be determined by the NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of 30. 2022 entries, will be determined by NSC results, achievement levels of 5 for Mathematics, Physical Sciences and English, and an APS of minimum 30. The National Benchmark Test (NBT) is no longer a requirement for any undergraduate programme in 2023.					

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

Contact information Prof Ronny Webber-Youngman (Head of Department)

Tel +27 (0)12 420 3763 | Email ronny.webber@eng.up.ac.za | Website www.up.ac.za/mining-engineering

Departmental administrator Tel +27 (0)12 420 3763 | Email daleen.gudmanz@up.ac.za

School for the Built Environment

School for the Built Environment: Highlights

The School for the Built Environment offers professional degree programmes in architecture, quantity surveying, construction management, real estate and town and regional planning. All these programmes are internationally recognised and accredited by their respective statutory councils, allowing students to register as members of their chosen professions.

As a School, we pursue the equitable and sustainable development of people through:

- accredited undergraduate and postgraduate programmes as professional qualifications;
- active and constructive involvement of students and lecturers in community development and service;
- academically rigorous and socially relevant research conducted by students and lecturers;
- contracted service provision to the local, provincial and national government as well as the private sector; and
- accredited continued professional development (CPD) opportunities for professionals.

Close relationships with industry and government expose students to regular engagements with practitioners and real-life projects and ensure curricula that are relevant to current and future challenges. These relationships also open doors to exciting research opportunities at the honours, master's and doctoral levels in fields such as environment behaviour studies; climate change adaptation; urban resilience; urban citizenship; green building; regenerative design and development; heritage and cultural landscapes; safe and sustainable housing and urban spaces; strategic development planning; construction cost databases, escalation and indices; well-being in the built environment; and contracts and property law.

School for the Built Environment

Department of Architecture

The Department of Architecture presents an undergraduate programme in architecture that explores the design of meaningful environments across varying scales, from intimate interior spaces to more significant interventions in landscapes. Specialised programmes in architecture, interior architecture and landscape architecture are introduced at the postgraduate level.

Our vision is to provide a learning environment that fosters critical and independent thinking, encourages social-ecological accountability and inspires responsive and responsible problem-solving that contributes to the improvement of society and its environment. We engage with spatial design with academic rigour that is theoretically grounded and technologically informed, and our academic programmes are locally and internationally accredited.

What does the programme entail?

The curriculum for the BSc (Architecture) programme integrates knowledge from the humanities and the natural sciences to develop students' spatial design skills, and aims to instil a culture of lifelong learning in graduates. Students attend classes in the following subject streams:

Design and Applied Theory

Architecture students attain half of the credits for every year of study in the significant module of design, which is presented in tandem with architectural theory to equip students with a pertinent vocabulary and theoretical underpinning. Design is a studio-based module in which projects over a range of scales and complexities are undertaken to encourage students to develop critical and independent design thinking, the ability to evaluate design within a social, cultural and ecological framework, and to explore imaginative and appropriate solutions. In the studio, design discernment is fostered through ongoing discussion, peer learning, and formal and informal assessment. The Department promotes design that is generative rather than stylistically or iconically driven, and students are encouraged to appreciate the universal (global) while engaging with the particular (local).

Community and Practice

Students participate in collaborative community projects that are directed by our research and initiatives in urban citizenship, as well as the Faculty's community engagement module. In the third year of study, the focus turns to the management of a professional practice and the legal context of construction contract law.

Construction

The study of construction theory, materials and methods is presented as an extension of design to enable the designer to give tangible expression to built form and realisation to an architectural concept.

Design Communication

Design communication offers students the opportunity to develop skills in harnessing especially the digital tools that are essential to designers in the twenty-first century. It deals with visual communication, digital visualisation and representation, and the management of document and building information.

Earth Studies

Earth studies introduce students to ecosystemic accountability and systems thinking to guide them towards designing for well-being in the built environment from social, cultural and environmental points of view. It includes ecological themes that extend to approaches that underpin and inform inclusive, ecological, passive and responsive design.

History of the Environment

History of the environment prepares students to define their role in society and find meaning in history through the study of the self and the cultures of others. It investigates the context and meaning of cultural artefacts, including space and place, to relate form and order to the environmental, political and philosophical conditions that influenced their making. It culminates in a reading of southern Africa in the third year of study.

Theory of Structures

The theory of structures equips students with the theoretical knowledge and practical understanding required to analyse, plan and design critical structural components such as beams, columns and trusses from a structural engineering perspective, using timber, steel, concrete and other materials.

Career opportunities

The BSc (Architecture) degree is accredited by the South African Council for the Architectural Professions and allows graduates to enter professional practice as technologists. To be able to register as a candidate architect, landscape architect or interior architect, they need to complete two additional professional postgraduate programmes. Note that the Department recommends at least one year of work or travel before postgraduate studies are undertaken. Through a commitment to innovation and internationally recognised programmes, the Department maintains professional qualifications of a high standard. The graduates of the Department are highly regarded both locally and abroad, in academia as well as in practice.

Architects design spaces and buildings to satisfy our daily needs and improve the environment in which we live. They need abilities and skills that range from the practical to the artistic, and from the technical to the theoretical. As professionals, they conceptualise, design and document building projects and oversee quality control during construction. Architects are ethically and legally bound through institutes and a government-controlled council, which protects the interests of the public. Architects may manage their own practices or work for other—often multidisciplinary—firms, or can make contributions to the government sector and education.

The majority of our graduates work in professional practice, often in multidisciplinary firms. Still, there is a wide range of other possibilities that branch out from the spatial design disciplines: from furniture to urban design, ecological planning to entrepreneurship, as well as in research and advisory positions in the public and private sector.

Admission by selection

A limited number of students are admitted to the Department annually. Admission is determined by a three-part selection process explicitly developed to level the playing field between students coming from different educational and cultural backgrounds. Please refer to www.up.ac.za/architecture for information on the selection requirements and process.

Important dates

Applications open on 1 April and close on 30 June.

Contact information

Dr Nico Botes

(Coordinator: Undergraduate Programme in Architecture)

Tel +27 (0)12 420 4600

Email arch@up.ac.za

Website www.up.ac.za/architecture

Academic enquiries: Prospective students

Email arch@up.ac.za

Website www.up.ac.za/architecture

School for the Built Environment

Undergraduate	Minimum duration	Outcome (registration with SACAP)
BSc (Architecture)	Three years (full-time, studio-based)	Candidate Architectural Technologist
At least one year of work or travel recommended before postgraduate studies are undertaken.		
Professional Postgraduate	Minimum duration	Outcome
Bachelor of Architecture Honours	One year (full-time, studio-based)	Candidate Senior Architectural Technologist
Bachelor of Landscape Architecture Honours	One year (full-time, studio-based)	Candidate Senior Landscape Architectural Technologist
Bachelor of Interior Architecture Honours	One year (full-time, studio-based)	Candidate Senior Interior Designer
Master of Architecture	One year (full-time, studio-based)	Candidate Architect
Master of Landscape Architecture	One year (full-time, studio-based)	Candidate Landscape Architect
Master of Interior Architecture	One year (full-time, studio-based)	Candidate Interior Architect

Department of Construction Economics

BSc (Construction Management)

What does the programme entail?

Construction management is the management of the physical construction process within the built environment and includes the coordination, administration and management of resources. The construction manager takes full responsibility in this process and can work as either the contractor or the project manager.

Career opportunities

Various job opportunities exist in the construction industry. On successful completion of the three-year programme, students can enter a career in construction management, or undertake subcontract and main contract work. On successful completion of the one-year honours degree, opportunities become far wider. The one-year honours degree focuses on further training in aspects such as financial, project and strategic management.

After registration with the South African Council for the Project and Construction Management Professions (SACPCMP), students will be able to become professional construction project managers.

Duration of programme

- **BSc (Construction Management):** The three-year programme will qualify BSc (Construction Management) graduates to support professionals in the construction industry with all types of construction work.
- **BScHons (Construction Management):** The one-year BScHons (Construction Management) programme qualifies graduates to start a professional construction management career in the construction industry and related industries. After submitting proof of prescribed professional practical experience and the successful completion of an assessment of professional competence, graduates may register with the South African Council for the Project and Construction Management Profession (SACPCMP). The honours degree requires students to work part-time at approved construction companies/firms for at least 240 hours to supplement their theoretical studies with hands-on practical experience. Students will be required to keep and submit a logbook on the prescribed template.

Selection process

Only a limited number of candidates can be accommodated, and admission is subject to selection.

Behind the scenes

The BSc (Construction Management) and BScHons (Construction Management) programmes are accredited nationally by the SACPCMP and internationally by the Chartered Institute of Building (CIOB) in the UK. The CIOB has a worldwide footprint and provides our degrees in construction management with international recognition.

The Department also offers master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Contact information

Mr Derick Booyens
(Programme Leader: Construction Management)

Tel +27 (0)12 420 4433
Email derick.booyens@up.ac.za

Website www.up.ac.za/construction-economics

First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building drawings ▪ Building science ▪ Academic information management ▪ Academic literacy ▪ Building services ▪ Quantities ▪ Introduction to structures ▪ Economics ▪ Mathematics 	<ul style="list-style-type: none"> ▪ Academic literacy ▪ Building organisation ▪ Building science ▪ Building services ▪ Quantities ▪ Structures ▪ Economics

Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building science ▪ Statistics ▪ Financial management ▪ Building services ▪ Construction quantities 	<ul style="list-style-type: none"> ▪ Property law ▪ Building science ▪ Statistics ▪ Building services ▪ Construction quantities ▪ Civil engineering services ▪ Community-based project ▪ Site surveying

Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Business law ▪ Building science ▪ Building services ▪ Construction management ▪ Financial management ▪ Construction quantities ▪ Labour Law 	<ul style="list-style-type: none"> ▪ Housing ▪ Building science ▪ Sustainable construction ▪ Construction management ▪ Construction quantities ▪ Financial management ▪ Introduction to construction contract law

School for the Built Environment

BSc (Quantity Surveying)

What does the programme entail?

Quantity surveyors are independent, professional consultants who are responsible for the financial management of construction projects. They provide specialised financial and contractual services, as well as advice to clients in the construction industry. They act in collaboration with, among others, architects, consulting engineers and contractors to promote the interests of the building client.

Career opportunities

Various job opportunities exist in the construction industry. The majority of quantity surveyors are employed in quantity surveying practices in the private sector.

After registration with the South African Council for the Quantity Surveying Profession (SACQSP), quantity surveyors may become partners or directors, or they could start their own professional practices. Quantity surveyors also act as project managers and valuers, provided that they are registered with the relevant councils.

Various government departments employ quantity surveyors. The property sector, banking, engineering and manufacturing industries offer further career options. Quantity surveyors also work for construction firms or establish their own building enterprises and construction companies.

Duration of the programme

- **BSc (Quantity Surveying):** This three-year programme qualifies BSc (Quantity Surveying) graduates to support professional quantity surveyors with all types of construction work, particularly buildings and infrastructure.
- **BScHons (Quantity Surveying):** The one-year BScHons (Quantity Surveying) programme qualifies graduates to start a professional quantity surveying career in the construction industry and related industries. After submitting proof of the prescribed professional practical experience and the successful completion of an assessment of professional competence, graduates may register with the South African Council for the Quantity Surveying Profession (SACQSP). The honours degree requires students to work part-time at approved quantity surveying firms for at least 240 hours to supplement their theoretical studies with hands-on practical experience. Students will be expected to keep and submit a logbook on the prescribed template.

Selection process

Only a limited number of candidates can be accommodated, and admission is subject to selection.

Behind the scenes

The three-year BSc (Quantity Surveying) and BScHons (Quantity Surveying) programmes are accredited nationally by the SACQSP and internationally by the Royal Institution of Chartered Surveyors (RICS). The RICS has a worldwide footprint, which provides our degrees in quantity surveying with international recognition. The Department also offers master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Contact information

Mr Danie Hoffman (Programme Leader: Quantity Surveying)

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Email danie.hoffman@up.ac.za

Website www.up.ac.za/construction-economics

First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building drawings ▪ Building science ▪ Academic information management ▪ Academic literacy ▪ Building services ▪ Quantities ▪ Introduction to structures ▪ Economics ▪ Mathematics 	<ul style="list-style-type: none"> ▪ Building organisation ▪ Building science ▪ Building services ▪ Quantities ▪ Structures ▪ Economics

Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building science ▪ Statistics ▪ Financial management ▪ Building services ▪ Quantities 	<ul style="list-style-type: none"> ▪ Building science ▪ Statistics ▪ Building services ▪ Quantities ▪ Civil engineering services ▪ Property law ▪ Community-based project ▪ Site surveying

Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Business law ▪ Quantity surveying practice ▪ Building science ▪ Building services ▪ Quantities ▪ Financial management 	<ul style="list-style-type: none"> ▪ Housing ▪ Quantity surveying practice ▪ Building science ▪ Sustainable construction ▪ Quantities ▪ Introduction to construction contract law



School for the Built Environment

BSc (Real Estate)

What does the programme entail?

The study of real estate covers all aspects relating to land and buildings, including the development of land, the management of buildings (including shopping centres), the valuation of land and buildings and decision making regarding the financing of, and investment in land and buildings. Real estate/Property practitioners are professional people who work in all spheres of the property industry—also as professional property valuers.

Career opportunities

Real estate (or property) studies has developed into a specialised field requiring unique expertise in areas where the property sector represents a significant part of the South African economy. Worldwide property/real estate comprises between 40% and 50% of the world's total assets.

Apart from a future in areas such as property investment, property finance and facilities management, further studies to obtain an honours degree in real estate can lead to registration as a professional property valuer.

Career opportunities exist in the entire spectrum of the property sector, and individuals with a qualification in real estate can work as entrepreneurs in the private sector, or as employees in the private, government or semi-governmental sectors.

Duration of the programme

- **BSc (Real Estate):** This is a three-year programme that will qualify graduates to work in the various spheres of the property industry, including management, development and marketing.
- **BScHons (Real Estate):** Students who complete this one-year programme will be qualified to start a professional career in the property industry. After submitting proof of having gained the prescribed professional practical experience, and the successful completion of a professional examination, graduates may register with the South African Council for the Property Valuers Profession (SACPVP).

The honours degree requires students to work part-time at approved property companies or related businesses for at least 240 hours to supplement their theoretical studies with hands-on practical experience. They will be expected to keep and submit a logbook on the prescribed template.

Selection process

Only a limited number of candidates can be accommodated, and admission is subject to selection.

Behind the scenes

The BSc (Real Estate) and BScHons (Real Estate) programmes are accredited nationally by the SACPVP and, apart from qualifying students to work in all spheres of the property industry, enable them to become professional property valuers.

The Department also offers an MSc (Real Estate) coursework degree, as well as master's and doctoral degrees, which can be obtained by submitting a thesis and passing an oral examination.

Internationally, the MSc RE Coursework degree is accredited by the Royal Institution of Chartered Surveyors (RICS). The worldwide footprint of the RICS provides our real estate degrees with international recognition.

Contact information

Ms Vita Wilkens (Programme Leader: Real Estate)

Tel +27 (0)12 420 3599

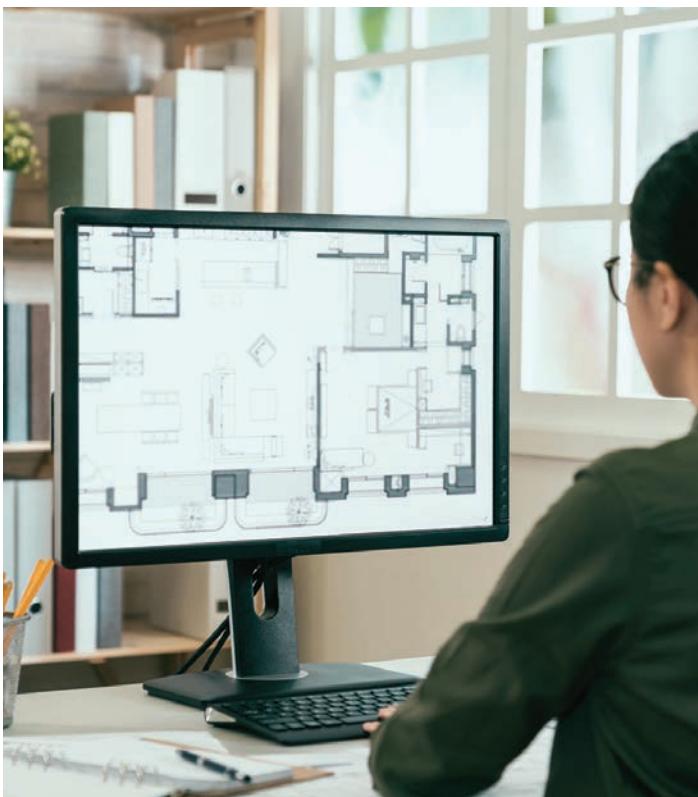
Email vita.wilkens@up.ac.za

Website www.up.ac.za/construction-economics

First year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building drawings ▪ Building science ▪ Academic information management ▪ Academic literacy ▪ Building services ▪ Quantities ▪ Economics ▪ Real estate ▪ Mathematics 	<ul style="list-style-type: none"> ▪ Building organisation ▪ Building science ▪ Building services ▪ Quantities ▪ Economics ▪ Real estate

Second year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Building science ▪ Statistics ▪ Financial management ▪ Building services ▪ Real estate 	<ul style="list-style-type: none"> ▪ Building science ▪ Statistics ▪ Building services ▪ Civil engineering services ▪ Real estate ▪ Property law ▪ Community-based project ▪ Site surveying

Third year	
First semester	Second semester
<ul style="list-style-type: none"> ▪ Business law ▪ Building science ▪ Building services ▪ Property valuation ▪ Real estate ▪ Financial management 	<ul style="list-style-type: none"> ▪ Housing ▪ Building science ▪ Sustainable construction ▪ Property valuation ▪ Real estate ▪ Introduction to construction contract law



School for the Built Environment

Construction management

Mashoto Tsogae

'I AM a BSc Construction Management student at the University of Pretoria. I am looking forward to graduating and starting the honours programme in EBIT.

Initially, it was difficult for me to decide which degree programme would suit me best. Fortunately, the Faculty has various options to guide one. I chose to study construction management because of the poor infrastructure, or lack thereof, in the township in which I grew up. I am passionate about ensuring that quality construction is provided in our communities, because people's safety should always be of the utmost importance.

My Department is located on the University's South Campus, which is always in close proximity to active construction projects. Construction is an ever-changing industry, which allows room for innovation. I look forward to forging my path in this field.

The Faculty aims to produce well-rounded students by encouraging us to not only excel academically, but also to engage in community outreach projects. EBIT serves students who are inquisitive, open minded, independent and hardworking. It has been a privilege to be lectured by experts in their respective fields, because they are always willing to shed light on current issues and how we should equip ourselves for the future.'

IAMEBIT

#ChooseUP

JCP

Community-based Project Module

In this module, all EBIT students engage with a section of society that is different from their own social background. The goal is for students to develop an awareness of personal, social and cultural values, as well as multidisciplinary and life skills, like communication, interpersonal and leadership skills.



School for the Built Environment

Department of Town and Regional Planning

BTRP – Bachelor of Town and Regional Planning

What does the profession entail?

Town and Regional Planning is a profession that promotes and manages societal transformation and progressive change through the planning, design, implementation and management of interventions in the development and use of land. These interventions range from site to supranational level, and have as their aim the widening of choice, promotion of equity, ensuring sustainable human settlements and improving people's quality of life.

The guiding motive of the profession is the pursuit of innovative, inclusive, sustainable and affordable alternatives to existing settlement types. At the current juncture in South Africa's history, town and regional planning is a crucial profession in the correction of the many spatial and other imbalances in both urban and rural areas, as well as the improvement of inefficient, unjust and underperforming human settlements.

The challenge for planning lies in the fact that the different interests and expectations of stakeholders, role-players and participants for the future are often contradictory and conflict-ridden.

A professional approach that combines sensitivity, empathy and care, coupled with strong analytical and strategic skills, is required to manage the various political, social, environmental and economic issues at stake. The ideal town and regional planner is a creative person who can put forward innovative solutions to complex problems. This mediator can reconcile diverse points of view, a strategic thinker, a passionate people's person and a good manager.



Given the enormous backlogs in the areas of housing and social services and the deep levels of poverty, marginalisation and despair in the country, planners also need a strongly developed sense of social and environmental justice. They should be committed to human and community development.

Career opportunities

While most town and regional planners are employed in the three spheres of government, or act as private consultants to the public and the private sectors, they are also employed by research agencies such as the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC), non-governmental and development organisations, community-based organisations, major financial institutions and property development groups.

The professional four-year BTRP qualification enables graduates to register as professional town and regional planners with the South African Council for Planners (SACPLAN), which is an official body established in terms of an Act of Parliament. The degree is internationally recognised.

Duration of the programme

The minimum period of study is four years' full-time study.

Selection process

Only a limited number of candidates can be accommodated, and admission is subject to selection.

Behind the scenes

Practice and theory are integrated into the programme. Lectures, practical projects and studio work focus on stimulating critical thinking, engaging students in discussion, and applying theory to real-world situations using practical problem-solving exercises. Instruction is student-centred, and the progress of each student is carefully monitored.

One of the characteristics of the Department is its desire to take on new challenges and develop innovative ways of serving the reconstruction and development of the country. We are actively immersed and involved in, and committed to inclusive and transformative community development in South Africa, mainly through research and contract work for a range of clients in all three spheres of government.

The programme

The programme in Town and Regional Planning equips planners with the necessary knowledge and skills to present interventions to deal with many problems on properties and in settlements and regions by focusing on the following themes: planning theory and history, land-use management and land development; settlement planning and design; strategic and integrated development planning; urban and rural regeneration; public policy preparation and review; and planning methods and techniques.

Several modules in related fields are also prescribed to ensure that students acquire a multidisciplinary perspective and the knowledge base that is necessary to provide innovative, inclusive, affordable and appropriate solutions to complex urban and rural problems.

For a list of all modules, visit: www.up.ac.za/en/town-and-regional-planning/article/50045/undergraduate

Contact information

Prof Mark Oranje (Head of Department)

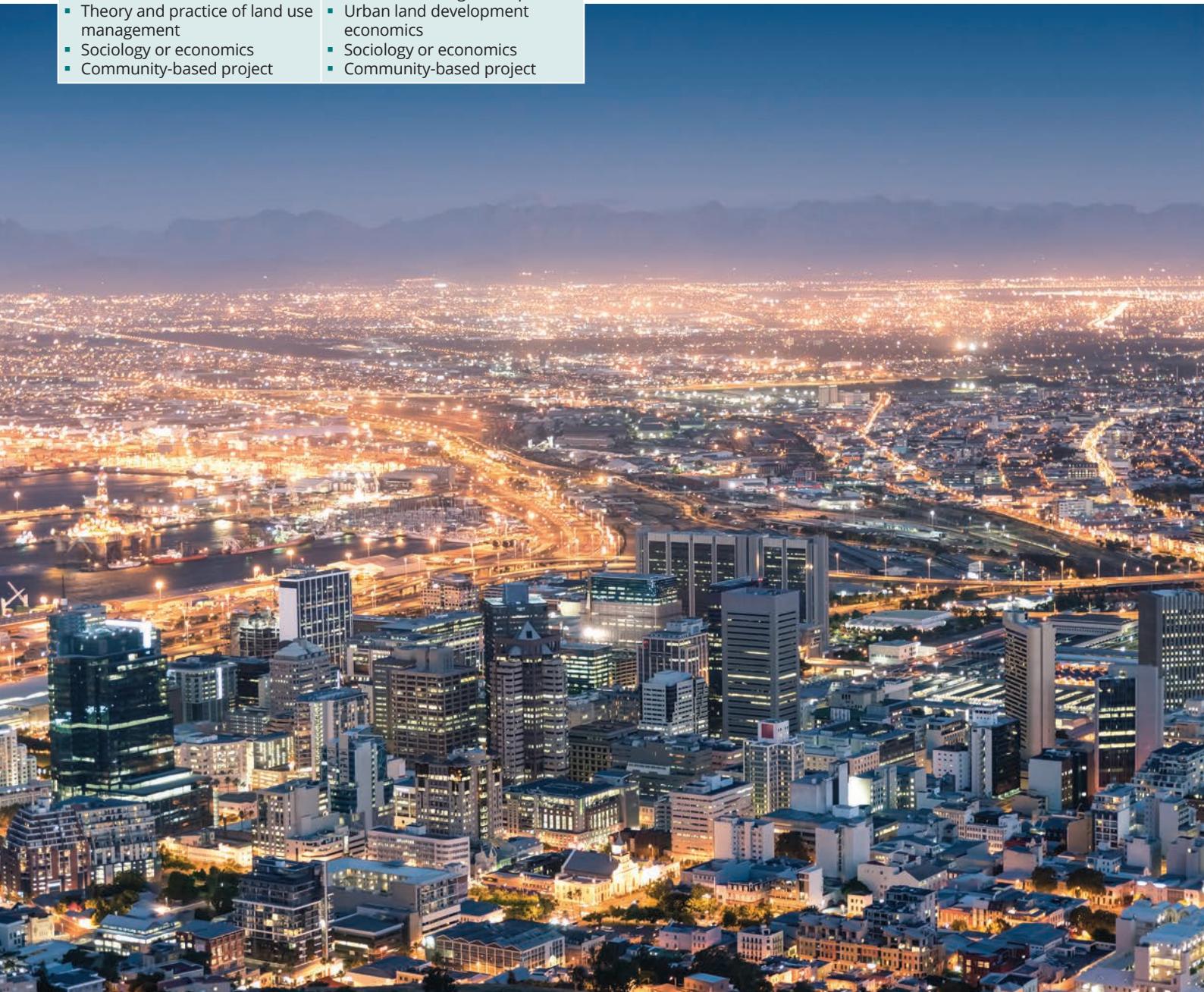
Tel +27 (0)12 420 3531

Email mark.oranje@up.ac.za

Website www.up.ac.za/townplanning

School for the Built Environment

First year		Third year	
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Planning and settlement histories before the Industrial Revolution ▪ Site analysis and assessment ▪ Introduction to planning ▪ Academic literacy for town and regional planning ▪ Academic information management ▪ Economics ▪ Statistics ▪ Sociology 	<ul style="list-style-type: none"> ▪ Planning and settlement histories since the Industrial Revolution ▪ Settlement analysis and assessment ▪ Principles of settlement design ▪ Economics ▪ Statistics ▪ Sociology 	<ul style="list-style-type: none"> ▪ Regional development planning ▪ Institutional and legal structures for planning ▪ Spatial concepts ▪ Sociology or economics 	<ul style="list-style-type: none"> ▪ Rural development planning ▪ Planning prospects ▪ Transport planning ▪ Municipal services provision ▪ Sociology or economics
Second year		Fourth year	
First semester	Second semester	First semester	Second semester
<ul style="list-style-type: none"> ▪ Settlement design concepts ▪ Introduction to development planning ▪ Plan and policy analysis and assessment ▪ Theory and practice of land use management ▪ Sociology or economics ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Settlement establishment, planning and housing delivery ▪ Municipal development planning ▪ Land use management practice ▪ Urban land development economics ▪ Sociology or economics ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Planning interventions: Peri-urban and rural scales ▪ Planning interventions: Supranational, national and regional scales ▪ Research methodology ▪ Professional practice 	<ul style="list-style-type: none"> ▪ Planning interventions: Metropolitan scale ▪ Planning interventions: Supranational precinct scale ▪ Research report



School of Information Technology

School of Information Technology: Highlights

The School of Information Technology (SIT) is unique and the first of its kind in South Africa. With modern laboratories and programmes in computer science, informatics and information science it offers students the advantage of an integrated approach to IT. The School, offers cross-disciplinary degrees such as MIT and PhD (IT), and each of the departments also has its own selection of undergraduate and postgraduate degrees. Staff members collaborate with industry and academic partners from the African continent and the rest of the world on a variety of research projects.

The research focus areas of the Department of Informatics are data science, IS and education, IS and organisations, ICT for sustainable development and human-computer interaction. The Department of Informatics has a fully-equipped User Experience (UX) Lab with sophisticated eye-tracking equipment and software. A coursework master's degree in ICT management, as well as research master's and doctoral degrees, are offered.

The Department of Information Science offers a two-year coursework master's degree in information technology (MIT), as well as research master's and doctoral degrees. It hosts the African Centre of Excellence for Information Ethics (ACEIE), which produces research on information ethics and presents awareness-raising workshops across Africa. The Department also hosts the Virtual Reality and Interaction Lab, which provides students with access to cutting-edge virtual reality equipment and is used for interaction and user experience research in virtual reality. The lab concentrates on using XR (extended reality) technology to create interactive user experiences for various applications. The main aim is to use commercial XR technologies to create user-centred solutions for complex problems from both academic and industry perspectives (<http://vri.up.ac.za>).

The Department of Computer Science is internationally recognised for its research in the fields of artificial intelligence, data science and digital forensics and computer and information security, and hosts the South African Initiative Chair in Artificial Intelligence, the DRS Chair in Cybersecurity, the ABSA Chair in Data Science and the Multichoice Joint Chair in Machine Learning. The Department offers a two-year coursework master's degree in big data science (MIT), as well as research master's and doctoral degrees.

School of Information Technology

Department of Informatics

BIT (Information Systems)

Students who enrol for this programme study the application and use of computer and information systems in organisations. The use of information technology by organisations is growing exponentially, and new, more complex and challenging applications are being explored and developed all the time.

Informatics specialists are trained to analyse business problems of organisations, which are associated with improving the efficiency, effectiveness and control of their business processes for commercial organisations, government, government departments, non-profit organisations or any other organisation where information is crucial. They not only analyse the needs but also address them by designing and implementing information systems.

Nowadays, the term information systems is used to refer to computer-based systems (including mobile applications) that store and manipulate data so that people can understand and interpret information and use it for decision-making.

What does the programme entail?

What makes the Informatics degree at the University of Pretoria unique is the Capstone Project, which gives third-year exposure to working with a real-life client.

In addition to the obvious fact that the work environment of the informatics specialist is particularly interesting, well-qualified informatics specialists can choose between many excellent job opportunities. The superiority of graduates in this field lies in their specialist stream, which may be computer auditing, information science, entrepreneurship, e-business, geography, data science management or e-taxation.

Duration of the programme

The BIT (Information Systems) programme takes a minimum of three years to complete.

Contact information

Dr Marié Hattingh (Programme Coordinator)

Tel +27 (0)12 420 3798

Email informatics@up.ac.za

Website www.up.ac.za/informatics

First year

First and second semesters

Compulsory modules

- Academic information management
- Academic literacy for information technology
- Informatics
- Business management

Elective module (Choose one stream)

- Computer auditing
- Information science
- Entrepreneurship
- e-Business
- Geography
- Data science management
- e-Taxation

Second year

First and second semesters

Compulsory modules

- Informatics
- Business ethics
- Community-based project

Elective modules (Choose one stream)

- Computer auditing
- Information science
- Entrepreneurship
- e-Business
- Geography
- Data science management
- e-Taxation

Third year

First and second semesters

Compulsory module

- Informatics

Elective modules (Choose one stream)

- Computer auditing
- Information science
- Entrepreneurship
- e-Business
- Geography
- Data science management
- e-Taxation



School of Information Technology

BCom (Informatics)

Focus area: Information Systems

What does the programme entail?

The BCom (Informatics) focus area is Information Systems, which is the study of the application and use of computer and information systems in organisations. The superiority of students in this field lies in their broad background in the field of economic and management sciences, which implies familiarity with the world of business.

The use of information technology by organisations is growing exponentially, and new, more complex and challenging applications are being continuously explored and developed. In addition to the fact that their work environment is particularly interesting, many job opportunities are available to well-qualified informatics specialists.

Informatics specialists are trained to analyse the information needs of businesses, government departments, non-profit organisations or any other organisation where information is crucial. They not only analyse the needs but also address those needs by designing and implementing information systems. The term information systems is used nowadays to refer to computer-based systems (including mobile applications) that store and manipulate data so that people can understand, interpret information and use it for decision making.

The BCom (Informatics) focus area: Information Systems degree offered by the University of Pretoria is the only degree in Africa that is internationally accredited by the Accreditation Board for Engineering and Technology (ABET) of the USA.

Duration of the programme

The BCom (Informatics) programme takes a minimum of three years to complete.

Contact information

Dr Riana Steyn (Programme Coordinator)

Tel +27 (0)12 420 3798

Email informatics@up.ac.za

Website www.up.ac.za/informatics

First year	
First and second semesters	
Compulsory modules	Elective module
<ul style="list-style-type: none"> ▪ Computer and information literacy ▪ Academic literacy levels ▪ Informatics ▪ Financial accounting ▪ Economics ▪ Statistics ▪ Business management 	<ul style="list-style-type: none"> ▪ Marketing management <p>An elective module that is taken only if chosen as an elective at the second- and third-year levels.</p>
Second year	
First and second semesters	
Compulsory modules	Elective modules (Choose one)
<ul style="list-style-type: none"> ▪ Statistics ▪ Informatics ▪ Business law ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Business management ▪ Financial accounting ▪ Taxation ▪ Statistics ▪ Internal auditing ▪ Marketing management
Third year	
First and second semesters	
Compulsory module	Elective modules (Choose one)
<ul style="list-style-type: none"> ▪ Informatics 	<ul style="list-style-type: none"> ▪ Business management ▪ Financial accounting ▪ Statistics ▪ Internal auditing ▪ Marketing management ▪ Taxation



School of Information Technology



Department of Computer Science

BSc (Computer Science)

BSc (Computer Science) is the ideal programme for students who are curious about how computers work, enjoy building things carefully and systematically, have logical minds, are good at reasoning in a step-by-step way, find it fun to design things that others can use, can pay attention to detail, can recognise good style and keep working at a task until they succeed.

A BSc (Computer Science) degree from the University of Pretoria provides breadth and depth in computing skills. It equips students with problem-solving abilities and ensures that they have a solid foundation for continued learning in an IT career and for producing high-quality software.

What does the programme entail?

The BSc (Computer Science) degree can be completed in a minimum of three years. The curriculum conforms to the highest international standards and will give students a foundation in all the important areas of computer science. Students will study a wide variety of computer science modules that emphasise the most up-to-date ways of developing software for use in the IT industry.

This programme includes a significant number of mathematics and natural sciences modules to strengthen the kind of thinking needed for the development of software and the enhancement of problem-solving abilities. It also provides a basis for research in computer science, which often relies on a certain level of mathematical skill and maturity.

Career possibilities

Graduates follow careers in programming, system analysis, system architecture, consulting, database administration and network analysis. They can also be employed as researchers.

Contact information

Dr Linda Marshall (Programme Coordinator)

Tel +27 (0)12 420 2361

Email compsci@up.ac.za

Website www.cs.up.ac.za

First year

First and second semesters

- Academic information management
- Academic literacy for IT

Computer science

- Program design
- Computers and algorithms
- Operating systems

Mathematics

- Mathematics
- Discrete structures
- Dynamical processes or mathematical modelling

Specified modules from:

- Statistics
- Science

Second year

First and second semesters

Computer science

- Computer organisation and architecture
- Data structures and algorithms
- Netcentric computer systems
- Theoretical computer science
- Introduction to database systems
- Concurrent systems
- Software modelling

Mathematics

- Discrete structures

Community-based project

Specified modules from:

- Chemistry
- Mathematics
- Mathematical statistics or statistics
- Physics

Third year

First and second semesters

Computer science

- Software engineering
- Computer security and ethics
- Computer networks
- Programming languages
- Compiler construction

Specified modules from:

- Computer science
- Data science
- Information science
- Mathematics
- Mathematical statistics or statistics
- Physics
- Chemistry

School of Information Technology

BSc (Information and Knowledge Systems)

BSc (Information and Knowledge Systems) is the ideal programme for students who are interested in computer science, and specifically in one of the following areas of specialisation: data science, genetics, geographical information systems, IT and enterprises, law, music or software development.

What does the programme entail?

The minimum period for the completion of the BSc (Information and Knowledge Systems) programme, which aims to prepare students for careers in the IT industry, is three years.

Computer science has a multidisciplinary application domain, and the purpose of the programme is reflected in the composition of the curriculum, which combines computer science with other fields of study. The possibility of taking a second major other than computer science broadens the scope of the curriculum for students.

Contact information

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Email compsci@up.ac.za

Website www.cs.up.ac.za

First year

First and second semesters

- Academic information management
- Academic literacy for IT

Mathematics

- Calculus
- Discrete structures

Computer science

- Program design
- Computers and algorithms
- Operating systems

Second year

First and second semesters

Computer science

- Computer organisation and architecture
- Data structures and algorithms
- Computer systems
- Concurrent systems
- Theoretical computer science
- Software modelling
- Introduction to database systems

Mathematics

- Discrete structures

Community-based project

Community-based project

Third year

First and second semesters

Computer science

- Software engineering
- Computer security and ethics
- Computer networks
- Programming languages

Information science

- Multimedia: Human-computer interaction

Additional modules, as needed for the application environment options at the first-, second- and third-year levels can be chosen from one of the following fields:

- Data science
- Genetics
- Geographic information systems
- IT and enterprises
- IT and law
- IT and music
- Software development



School of Information Technology

Department of Information Science



BIS (Multimedia)

BIS (Multimedia) is the ideal programme for students who enjoy working with computers and programming for multiple platforms, are interested in web design and development, would like to learn how to do animation and create computer games, and to do image, audio and video editing.

What does the programme entail?

Information can be communicated through various media, such as printed text, text with images, photographs, video, sound and animation. The information can be delivered in many different ways: from using a network-based technology such as the web to using personal computers and mobile devices. Information can thus be delivered in many different media (multimedia). The multimedia degree aims to provide students with the theoretical and technical know-how needed to build information products that use a variety of media and delivery systems.

Career possibilities

With the advent of all kinds of new devices that enable connection with information sources such as the web, there is a global shortage of content producers and developers.

The BIS (Multimedia) programme prepares graduates for employment in companies that require insight into both development and design. They could also become dedicated programmers or choose to further develop their skills in particular areas of interest, for example, digital video, front-end development, user experience design, game development or web development.

Contact information

Ms. Annique Smith (Programme Coordinator)

Tel +27 (0)12 420 4681

Email annique.smith@up.ac.za

Website www.up.ac.za/information-science

First year	
First semester	Second semester
Fundamental modules <ul style="list-style-type: none"> ▪ Academic information management ▪ Academic literacy levels 	Fundamental module <ul style="list-style-type: none"> ▪ Academic literacy levels
Core modules <ul style="list-style-type: none"> ▪ Information science ▪ Introduction to information science 	Core modules <ul style="list-style-type: none"> ▪ Information science ▪ Organisation and representation of information ▪ Information and communication technology
Multimedia <ul style="list-style-type: none"> ▪ Mark-up languages 	Multimedia <ul style="list-style-type: none"> ▪ Multimedia for the web
Computer science <ul style="list-style-type: none"> ▪ Imperative programming ▪ Introduction to computer science 	Computer science <ul style="list-style-type: none"> ▪ Introduction to program design ▪ Operating systems
Other compulsory module <ul style="list-style-type: none"> ▪ Visual design 	Other compulsory modules <ul style="list-style-type: none"> ▪ Visual design ▪ Computer architecture

Second year	
First semester	Second semester
Fundamental module <ul style="list-style-type: none"> ▪ Community-based project 	Fundamental module <ul style="list-style-type: none"> ▪ Community-based project
Core modules <ul style="list-style-type: none"> ▪ Multimedia ▪ Advanced mark-up languages I ▪ Multimedia and hypermedia theory 	Core modules <ul style="list-style-type: none"> ▪ Multimedia ▪ Advanced mark-up languages II
Publishing <ul style="list-style-type: none"> ▪ Copy-editing 	
Computer science <ul style="list-style-type: none"> ▪ Data structures and algorithms ▪ Netcentric computer systems 	Computer science <ul style="list-style-type: none"> ▪ Software modelling ▪ Concurrent systems
Other compulsory module <ul style="list-style-type: none"> ▪ Visual design 	Other compulsory module <ul style="list-style-type: none"> ▪ Visual design

Third year	
First semester	Second semester
Core modules <ul style="list-style-type: none"> ▪ Multimedia ▪ Multimedia project ▪ Human-computer interaction 	Core modules <ul style="list-style-type: none"> ▪ Multimedia ▪ Multimedia project ▪ Trends
Computer science* Select at least two of the following semester modules: <ul style="list-style-type: none"> ▪ Software engineering ▪ Artificial intelligence ▪ Computer networks ▪ Programming languages ▪ Compiler construction ▪ Computer security and ethics ▪ Computer graphics ▪ Database systems 	

* The semester in which the modules are offered may vary from year to year.

School of Information Technology

BIS (Information Science)

The type of student for whom this qualification is ideal is interested in engaging with information and creating and sharing new knowledge across platforms, primarily digitally, but also in analogue formats.

This qualification will enable graduates to discover, organise, manage and utilise information in an ethical manner. Graduates with skills in this field are highly sought after to help information-intensive industries to meet their visions and missions and become globally competitive.

What does the programme entail?

The high prevalence of information and technology in the modern world implies that graduates are needed with specific competencies and skills related to the interaction between humans and information technologies. This is especially relevant concerning the technologies associated with the Fourth Industrial Revolution (and any further similar innovations).

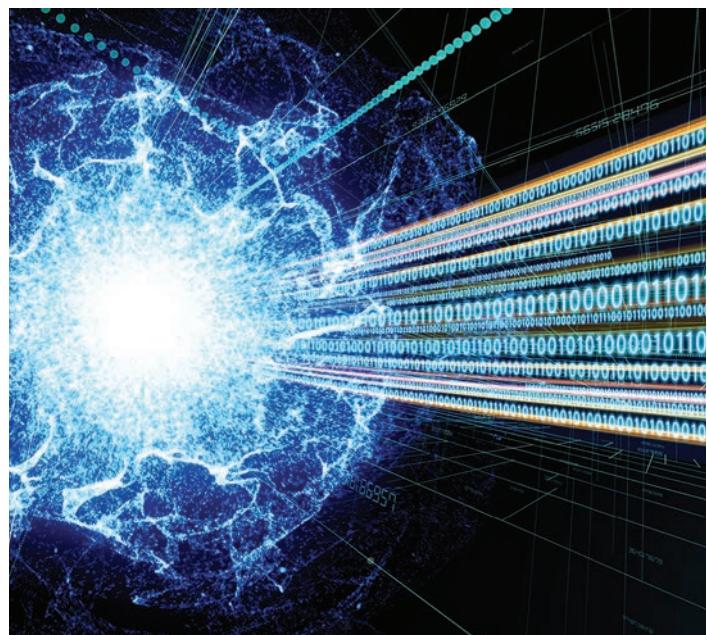
This programme focuses on the use of information technology and the processing of information products. It is designed to train students in the management, retrieval and organisation of information, as well as teach them to package, distribute and add value to information. Students will also have the opportunity to develop their knowledge and skills in the management of information and knowledge, which are the most important resources of enterprises.

Career opportunities

- Information managers (manage information and knowledge resources)
- Information specialists (organise, retrieve and add value to information)
- Information consultants (consult on information products, services and systems)
- Information brokers (become an infopreneur and buy and sell information products and services)
- Systems specialists (analyse and develop information systems)

Duration of the programme

The minimum period for the completion of the BIS (Information Science) programme is three years.



Contact information

Prof Marlene Holmner (Programme Coordinator)

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Website www.up.ac.za/information-science

First year	
First semester	Second semester
Fundamental modules <ul style="list-style-type: none"> ▪ Academic information management ▪ Academic literacy levels 	Fundamental module <ul style="list-style-type: none"> ▪ Academic literacy levels
Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Introduction to information science ▪ Personal information management Business management 	Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Organisation and representation of information ▪ Information and communication technology Business management
Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics or ▪ Group B: Any subject(s) at the first-year level 	Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics or ▪ Group B: Any subject(s) at the first-year level

* If Informatics is selected as a subject at the first-year level, a minimum of 5 (60-69%) must be obtained for Mathematics.

Second year	
First semester	Second semester
Fundamental module <ul style="list-style-type: none"> ▪ Community-based project 	Fundamental module <ul style="list-style-type: none"> ▪ Community-based project
Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Information seeking and retrieval ▪ Social and ethical impact Business management 	Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Representation and organisation Business management
Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics or ▪ Group B: Information science 	Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics or ▪ Group B: Information science

* If Informatics is selected as a subject at the first-year level, a minimum of 5 (60-69%) must be obtained for Mathematics.

Third year	
First semester	Second semester
Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Information organisation ▪ Experimental learning project 	Core modules <ul style="list-style-type: none"> Information science <ul style="list-style-type: none"> ▪ Information and knowledge management ▪ Experimental learning project
Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics and Business management or ▪ Group B: Information science or ▪ Group C: *Informatics and Information science 	Elective modules <ul style="list-style-type: none"> ▪ Group A: *Informatics and Business management or ▪ Group B: Information science or ▪ Group C: *Informatics and Information science

* If Informatics is selected as a subject at first-year level, a minimum of 5 (60-69%) must be obtained for Mathematics.

Infographic

BIS (Information Science)

The high prevalence of information and technology in the modern world implies that graduates are needed with specific competencies and skills related to the interaction between humans and information technologies. This is especially relevant concerning the technologies associated with the Fourth Industrial Revolution (and any further similar innovations).

This programme focuses on the use of information technology and the processing of information products. It is designed to train students in the management, retrieval and organisation of information and teach them to package, distribute and add value to information.

Students will also have the opportunity to develop their knowledge and skills in managing information and knowledge, which are the most critical resources of enterprises—information and knowledge. This will include knowledge management, competitive intelligence and also digitisation and digital repositories.

Who is the ideal candidate?

The type of student for whom this qualification is ideal is interested in engaging with information and creating and sharing new knowledge across platforms, primarily digitally and in analogue formats.

This qualification will enable graduates to discover, organise, manage and utilise information in an ethical manner.

Graduates with skills in this field are highly sought after to help information-intensive industries to meet their visions and missions and become globally competitive.

Which companies employ our graduates?

Banks, telecommunication companies, consultancy agencies and information-intensive industries.



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level	Mathematics	APS
SCHOOL OF INFORMATION TECHNOLOGY	English Home Language or English First Additional Language		
BIS (Information Science) [3 years]			
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	-	28
The suggested second-choice programmes for BIS (Information Science) are BIS (Publishing), BCom (Informatics) and BA.			
If informatics is selected as a subject at the first-year level, an achievement level of 4 is required in Mathematics.			
Careers: Information and knowledge managers (manage information and knowledge resources), information or e-commerce specialists (organise, retrieve and add value to information), consultants on information products (services and systems), information brokers (act as infopreneurs and buy and sell information products and services), and system specialists/analysts/technologists (develop information systems).			

Infographic

BIS (Multimedia)

Modern information technology offers the possibility of information products being designed and created comprising various types of media over and above the traditional text medium. Information technology, therefore, results in the convergence of various previously separate traditional media. There is not a single discipline that handles the combination of information products.

The Multimedia qualification in the Department of Information Science addresses this shortcoming. Institutions in any economic sphere, including government, may profit from a multimedia approach to information design, organisation and retrieval.

Multimedia documents include text, graphics, sound, video and animation. This qualification aims to enable students to understand the necessary concepts to build multimedia products and maintain the products.

This programme is, therefore, a combination of theory and practice. The explosion of the web and the exponential growth and power of information technology require the introduction of this degree following international trends.

Who is the ideal candidate?

The ideal candidate is someone who is:

- Passionate about computing and technological advancements.
- Happy to spend many hours in front of a computer.
- Interested in creating and maintaining websites (both front- and back-end).
- Interested in learning about animation, image, sound and video editing.
- Interested in the intersection between technical aspects (programming) and design aspects (user experience, visual design).
- Interested in understanding how people interact with computing systems and how to design them based on this knowledge (user experience and interaction design).

What makes this programme unique?

A student with this degree will work in a team of developers and designers and communicate easily with both groups. They will also have the skills to move between these two types of roles within a company.

They will also be able to further their understanding of design, animation, and game design and development and then work in those fields.

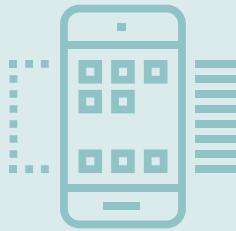


Infographic

Structure of the programme

Core modules

- Theory of information science
- Mark-up languages
- Multimedia theory and trends
- Multimedia authoring tools
- Human-computer interaction
- Programming and program design
- Computer science theory
- Visual design



Elective modules

- (3rd year computer science only)**
- Software engineering
 - Artificial intelligence
 - Computer networks
 - Programming languages
 - Compiler construction
 - Computer security
 - Database systems
 - Computer graphics



Which companies employ our graduates?

- RetroRabbit
- Gendac
- EPI-USE Labs
- Derivco
- bizAR Reality
- 5DT



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level	Mathematics	APS
English Home Language or English First Additional Language			
SCHOOL OF INFORMATION TECHNOLOGY			
BIS (Multimedia) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	5	30

The suggested second-choice programmes for BIS (Multimedia) are BIS (Information Science), BIS (Publishing), BSc (Information and Knowledge Systems) and BCom (Informatics).

Careers: Programmers, web designers, animation specialists, video editors and electronic artists. The programme prepares candidates for positions at any of the following content producers: paper publications, television, radio, phone technologies and the web. Graduates can become coders and work for programming companies. They can develop skills in their particular areas of interest, such as digital music or video programming, or graphic, games or web development.

School of Information Technology

BIS (Publishing)

The BIS (Publishing) programmes teaches publishing theory and skills: selecting and developing content based on the needs of the user, and appropriately packaging this content through a process of adding value. Publishing can happen in both paper-based and electronic format and includes a range of products such as books for the trade market, and publications for educational, academic and corporate readers. Publishing processes are also used in the production of mass media products such as newspapers and magazines.

What does the programme entail?

This programme aims to:

- provide students with knowledge of the publishing process and role-players, as well as trends and initiatives in the local and international publishing industry;
- provide students with the skills needed to perform specific tasks related to the publishing process;
- assist students in becoming responsible information intermediaries who add value to the production and dissemination of content; and
- make students aware of the social, ethical and legal responsibilities involved in the publishing process.

Career possibilities

A variety of career opportunities are available in the book publishing industry, the book retail industry and the corporate publishing environment. Content production for media houses, including magazines and other content creators, is also possible. Goal-oriented candidates can become part of this highly competitive environment at the entrance level. On-the-job experience will be needed for subsequent career development.

Some entrance-level career opportunities include the following:

- assisting specific role-players in the publishing value chain (for example, the managing director or the commissioning editor of a media house, or the editorial, production or marketing manager);
- market or picture research;
- copyright negotiations;
- copy-editing and proofreading;
- marketing and promotion; and
- distribution and delivery.

These career opportunities are available at the following places:

- local and international book publishing houses;
- bookshops and e-commerce vendors, journals, newspapers or magazines;
- the media and publicity industries;
- national and local government departments;
- the corporate and business environment;
- civil society;
- community-based publication initiatives; and
- self-publishing and consultancy enterprises.

Duration of the programme

The BIS (Publishing) takes a minimum of three years to complete.

Contact information

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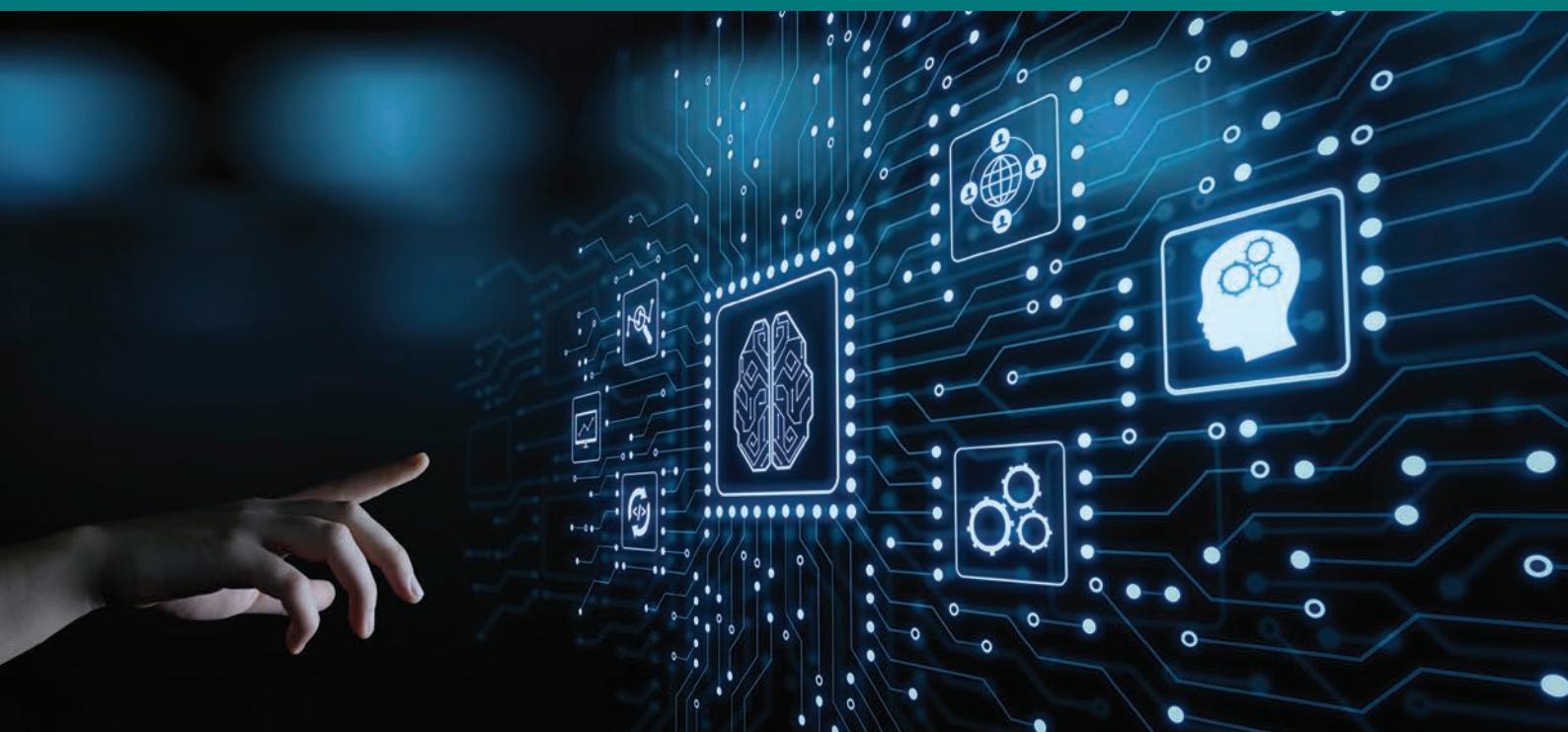
Website www.up.ac.za/information-science

First year	
First semester	Second semester
Fundamental modules <ul style="list-style-type: none"> ▪ Academic information management ▪ Academic literacy levels ▪ Visual culture studies 	Fundamental modules <ul style="list-style-type: none"> ▪ Academic literacy levels ▪ English for specific purposes
Core modules Information science <ul style="list-style-type: none"> ▪ Introduction to information science ▪ Personal information management ▪ Publishing: Introduction to publishing 	Core modules Information science <ul style="list-style-type: none"> ▪ Information and communication technology
Marketing	Marketing
Elective modules Select a modern language of your choice in consultation with the programme coordinator.	Elective modules Select a modern language of your choice in consultation with the programme coordinator.

Second year	
First semester	Second semester
Fundamental module <ul style="list-style-type: none"> ▪ Community-based project 	Fundamental module <ul style="list-style-type: none"> ▪ Community-based project
Core modules Information science <ul style="list-style-type: none"> ▪ Social and ethical impact 	Core modules
Publishing <ul style="list-style-type: none"> ▪ Copy-editing 	Publishing <ul style="list-style-type: none"> ▪ The visual and production dimensions of publishing
Type, image and applications	Text design
Elective modules Continue with the language selected earlier and select modules in consultation with the programme coordinator.	Elective modules Continue with the language selected earlier and select modules in consultation with the programme coordinator.

Third year	
First semester	Second semester
Core modules Publishing <ul style="list-style-type: none"> ▪ Publishing in the digital environment ▪ Commissioning 	Core modules Publishing <ul style="list-style-type: none"> ▪ Management in the publishing environment ▪ Publishing in the magazine and corporate environment
Elective modules Continue with the same language as selected in the first year of study and select one first- or second-semester module in consultation with the programme coordinator.	

EBIT WEEKS



EBIT Weeks are a four-day holiday programme presented by the Faculty of Engineering, Built Environment and Information Technology (EBIT) bi-annually for learners in Grade 10, 11 and 12.

Prospective students are offered this hands-on opportunity to obtain information regarding all the disciplines offered in the School of Engineering, Built Environment and the School of Information Technology. During this event, learners are introduced to the practical as well as the theoretical aspects in order to help them make sound career choices. Learners also obtain industry exposure on-site, or off-campus.

Programmes presented by the School of Engineering during the first and second EBIT Week are listed below:

- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Electronic Engineering
- Industrial Engineering
- Mechanical Engineering
- Metallurgical Engineering
- Mining Engineering

Programmes presented by the School for the Built Environment during the first EBIT Week are listed below:

- Architecture
- Construction Management
- Real Estate
- Quantity Surveying
- Town and Regional Planning

Programmes presented by the School of IT during the second EBIT Week are listed below:

- Computer Science
- Publishing
- Information and Knowledge Systems
- Information Science
- Information Systems
- Informatics
- Multimedia



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Faculty of Education

Fakulteit Opvoedkunde
Lefapha la Thuto

www.up.ac.za/education



Note: The minimum admission requirements reflected in this brochure are subject to changes in regulations relating to COVID-19. Amendments will reflect in the digital version of this brochure, which can be downloaded from www.up.ac.za/programmes > Undergraduate > Faculty brochures.

2023

UNDERGRADUATE
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Message from the Dean

The Faculty of Education, which is situated on the beautiful Groenkloof Campus, is internationally recognised for its high academic standards and for producing quality teachers. This Faculty is a place where staff and students can fulfil their career aspirations, and as Dean it is my vision to make it the Faculty of Choice.

Prof Chika Sehoole
Dean: Faculty of Education



Our Faculty accommodates more than 3 500 Bachelor of Education students and approximately 900 of our graduates annually enter the teaching profession. We also offer a one-year Higher Certificate in Sports Sciences. Our programmes are strengthened by our partnerships with other departments and faculties within the University of Pretoria. Our facilities are world-class and the infrastructure we have supports our vision of excellence in teaching and learning. We take our students seriously. They will find that we offer a supportive environment in which they can pursue their professional and personal dreams as they prepare to confidently enter the workplace anywhere in the world with competence and professionalism.

The Faculty produces quality teachers who are technologically literate and are able to respond to the rapidly changing teaching environment. We run the FLY@UP campaign that aims to ensure that students take responsibility for completing their degrees in the minimum period indicated for each programme. FLY stands for 'the Finish Line is Yours'. Students who have completed their undergraduate studies are strongly encouraged to pursue honours, master's and doctoral studies.

In the pursuit of teaching excellence, the Faculty supports the University's hybrid teaching and learning model, which offers students an optimal blend of learning opportunities in a physical and virtual learning environment, and drawing on a broad range of virtual teaching strategies, learning tools, and media such as YouTube videos, mobile apps and narrated PowerPoint presentations that equip our teachers with the skills and attributes to respond to the demands of tomorrow.

The Bachelor of Education (BEd) degree is the best option for those who want to become fully qualified and professionally registered teachers. If you are passionate about teaching, you could consider one of the following programmes:

- Foundation Phase Teaching [Grade R to Grade 3]
- Intermediate Phase Teaching [Grades 4 to 6]
- Senior Phase and Further Education and Training Teaching [Grades 7 to 12]

The Foundation Phase programme is perfect for the teacher who enjoys working with young children and wants to promote their development during the formative years. The Intermediate Phase teacher specialises in specific subjects and is able to address the developmental and remedial needs of children, while the Senior Phase and Further Education and Training Teaching qualification offers a teacher accreditation in a wide range of school subjects. From their second year onward, education students are placed in schools around Pretoria for short periods to gain practical teaching experience. In their fourth year, they spend fourteen weeks immersed in teaching at two different schools.

Teachers graduating from the University of Pretoria are well regarded and sought after, and most will find employment within six months of graduation. The reason for this is that our graduates are well prepared professionally, are adaptable and have the knowledge and ability to cope with the changing curriculum and societal needs. They are known to be highly creative, confident and excellent communicators.

I sincerely hope that the Faculty of Education at the University of Pretoria will be your Faculty of Choice. If you have a passion for learning and wish to enter the teaching profession, my staff and I are committed to assisting you in pursuing your dream of obtaining an excellent qualification that will lead to a rewarding career.

We are looking forward to welcoming you to the Faculty of Education and I wish you memorable and rewarding years of study at this institution.

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Email chika.sehoole@up.ac.za

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Undergraduate programmes

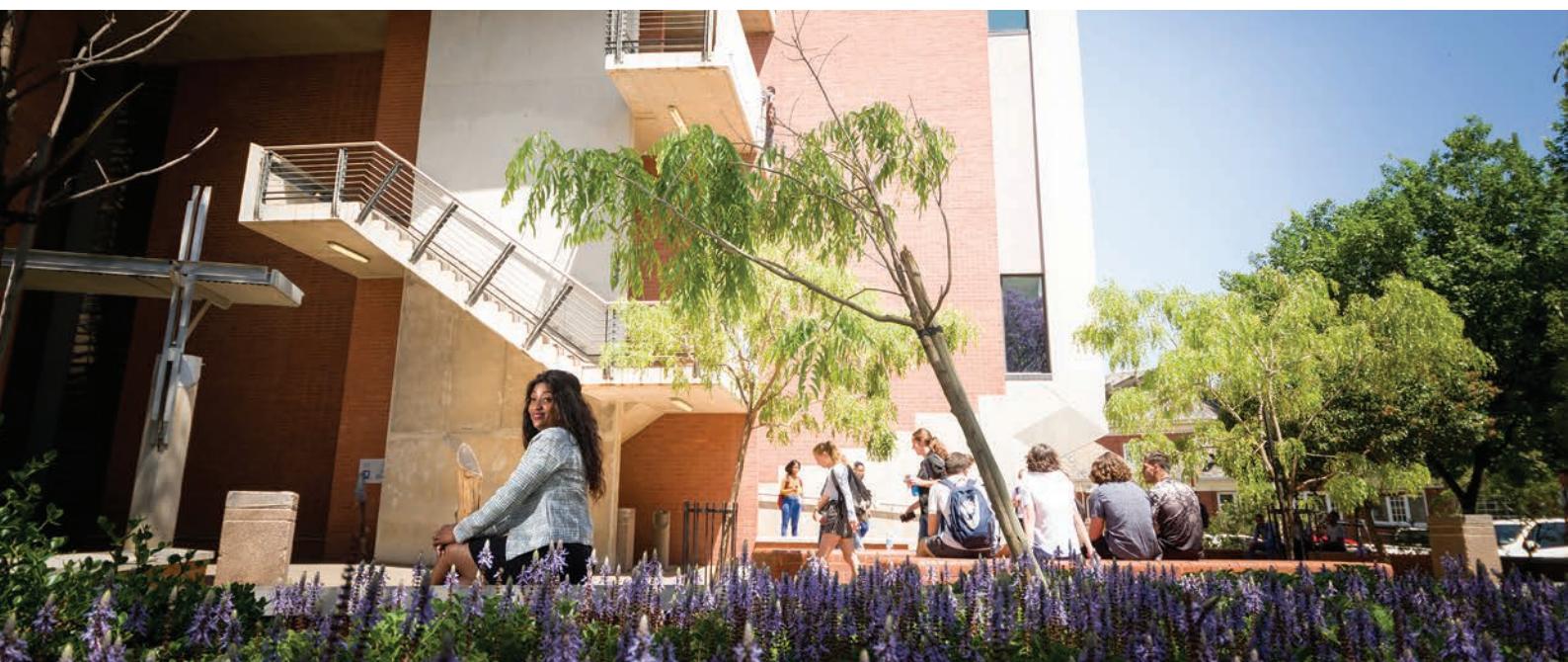
Important information for all prospective students for 2023

- The admission requirements and general information in this brochure 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 2023: Qualifications other than the NSC and IEB*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Brochure:** *Newcomers Guide 2022*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Website:** www.up.ac.za/international-cooperation-division.
- **School of Tomorrow (SOT) and Accelerated Christian Education (ACE):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **General Education Development (GED):** South African GED graduates who graduated up to 2019 may be considered for admission provided they qualify for an exemption certificate issued by USAf and comply with university admission requirements, as well as faculty subject requirements. South African GED graduates who graduated after 2019 cannot be considered for admission to UP as the diploma is not accredited by USAf and will not be considered for exemption. Applicants from the USA who completed the GED may apply for a Foreign Conditional Exemption Certificate issued by USAf accompanied by their SAT/TOEFL/IELTS results.
- **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.

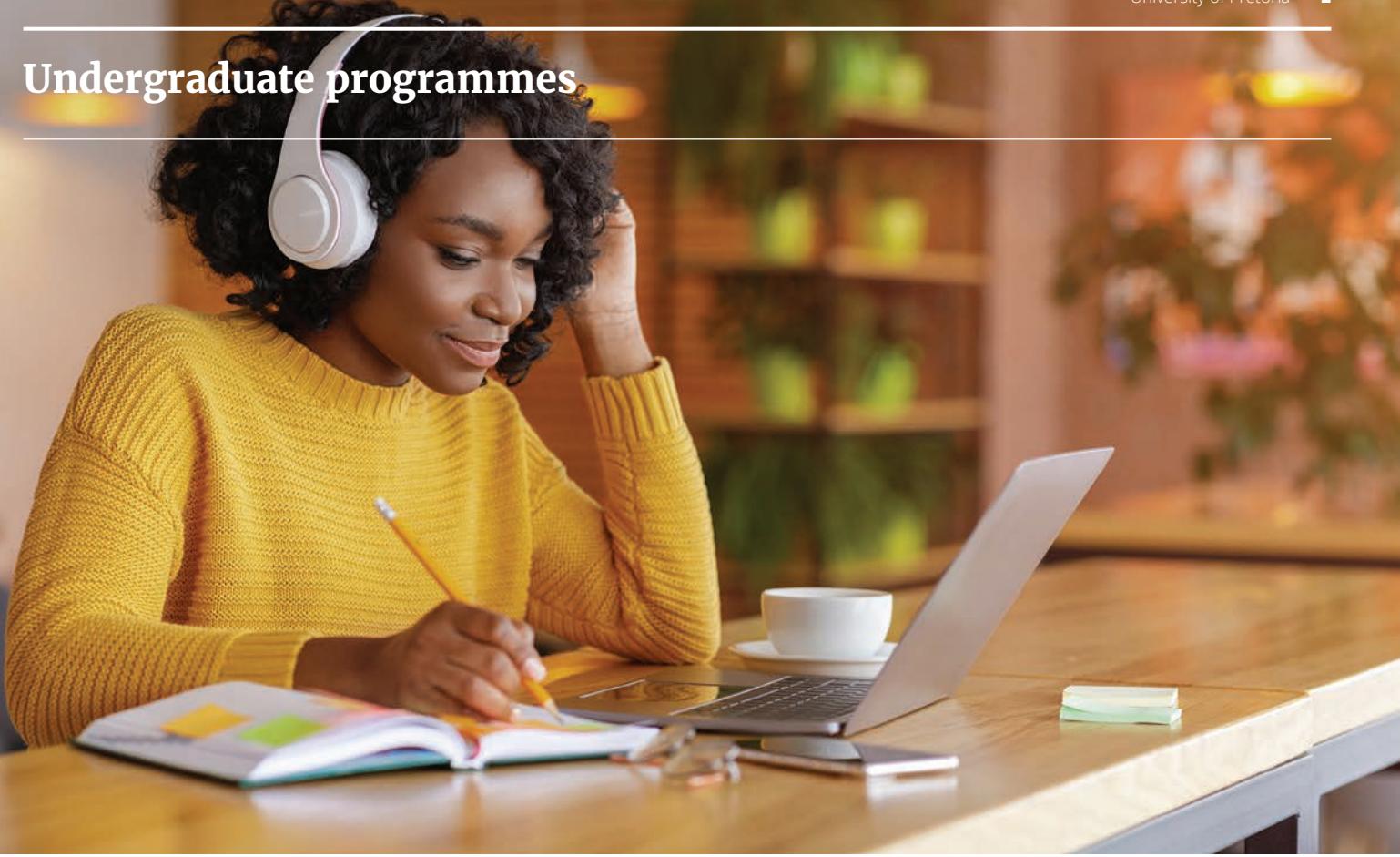
Important faculty-specific information on undergraduate programmes for 2023

The closing date for all selection programmes is **30 June 2022**. The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

- The following persons will be considered for admission: Candidates who are in possession of a certificate that is deemed by the University to be equivalent to the required National Senior Certificate 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 APS.
- As soon as candidates are admitted to the Bachelor of Education (BEd) degree, they will be informed that they must register at the University in January of the following year. It is in the interest of prospective students, in particular those who need financial support and/or placement in a residence, to apply as soon as possible.
- A valid police clearance certificate is required to register for a BEd or a Postgraduate Certificate in Education (PGCE) programme in the Faculty of Education. In addition, all registered students will be required to complete Form 30 of part B of the National Child Protection Register in accordance with the Children's Act 38 of 2005.
- English will be the only language of teaching and learning (in lectures, tutorials and assessments) for all academic modules in the undergraduate programmes, except in cases where the modules or programmes require a language other than English. Any modules providing professional preparation that requires separate English and Afrikaans classes will be identified and will be explicitly listed as such. Modules for the BEd (Foundation Phase Teaching) that are language context specific, namely English, Afrikaans and indigenous African languages, will continue to be offered in current language contexts due to the University's recognition of the need for home-language teaching in the foundation environment, as specified in the Policy on Minimum Requirements for Teacher Education Qualifications (Gazette 38487, 19 Feb 2015). The teaching practice modules will allow English and Afrikaans assessments according to the language of tuition of the schools in which the teaching practice was performed.



Undergraduate programmes



University of Pretoria website

www.up.ac.za/education

Programmes	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
	English Home Language or English First Additional Language	
BEd (Foundation Phase Teaching) [Grade R to Grade 3] [4 years]	4	28
Careers: Teachers and training officials in pre-primary or primary schools		
BEd (Intermediate Phase Teaching) [Grades 4 to 6] [4 years]	4	28
Careers: Teachers and training officials in primary schools		
BEd (Senior Phase and Further Education and Training Teaching) [Grades 7 to 12] [4 years]	4	28
Careers: Teachers and training officials in primary or secondary schools		
Higher Certificate in Sports Sciences [1 year]	4	20
Closing date: 30 June		
Selection process:		
<ul style="list-style-type: none"> ▪ Applicants who indicate the Higher Certificate in Sports Sciences as their first- or second-choice will be considered. ▪ All applicants will be considered by the Student Administration of the Faculty based on the academic admission requirements. ▪ Applicants who meet the academic requirements will then be further considered for the different sports codes in deliberation with TuksSport, according to their sports achievements. ▪ Students who have been nominated by an official sports club of the University will enjoy preference for selection. ▪ Applicants who obtained Diploma Studies endorsement for the NSC or equivalent qualification, may be considered for admission to the BEd Senior Phase and Further Education and Training Teaching degree (09133031), with specialisation in the elective combination of Human Movement Studies and Sports Management, if they successfully complete the Higher Certificate in Sports Sciences with a cumulative weighted average of at least 60% (excluding JRC 150 Sports Practical) (for the contact programme) 		
Careers: Sports coaching, sports and exercise industry		

Undergraduate programmes

BEd (Foundation Phase Teaching)

The BEd (Foundation Phase Teaching) programme entails the teaching of young children between 3 and 9 years. Students doing the programme have a choice to specialise in Early Childhood Development (3 to 6 years) or Foundation Phase (Grade 1 to 3) fields.

Students gain admission to the programme with appropriate combinations of recognised NSC subjects and certain levels of achievement in the said subjects.

In this regard, the determination of an admission point score (APS) is explained. In addition, a summary of faculty-specific requirements, ie the APS and the specific subjects required, is presented in the yearbook and programme. The calculation of the APS is based on a candidate's achievement in six 20-credit subjects using the NSC ratings—that is, the 1 to 7 scale of achievement. The highest APS that can be achieved is 42.

Who is the ideal candidate?



Students who are compassionate, hardworking, and committed to the teaching profession excel in this programme.

Career opportunities



Teachers and training officials in pre-primary or primary schools.

What makes this programme unique?



The BEd (Foundation Phase Teaching) degree programme is accredited. Students completing this degree programme possess diverse pedagogic skills to teach different learning areas (Home language, First additional language, Mathematics, and Life Skills) and differentiate the curriculum for access by learners in schools.

Additionally, the programme equips the student with unique skills and attributes to identify learning difficulties during formational stages of development and provide interventions for learning success.



Structure of programme



Core modules

- Education
- Research project
- Teaching practice (Work Integrated Learning)
- Foundation phase Mathematics
- Literacy practice: English or Literacy practices: Afrikaans (Geletterdheidspraktyke)
- Human movement studies
- Methodology of learning support
- Learning support
- Arts and culture (music and art)
- Natural sciences and technology
- Life skills programme
- Health and safety
- Conversational competence in an African language (for students taking English and Afrikaans as an elective)

Elective modules

One language elective up to second-year level:

- English
- Afrikaans
- isiZulu
- Sepedi
- isiNdebele
- Setswana

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
BEd (Foundation Phase Teaching) [Grade R to Grade 3] [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Teachers and training officials in pre-primary or primary schools	English Home Language or English First Additional Language	28

Contact information

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Dr S Thuketana | Tel +27 (0)12 420 4007 | Email susan.thuketana@up.ac.za

Undergraduate programmes

BEd (Intermediate Phase Teaching)

The BEd (Intermediate Phase Teaching) programme consists of fundamental, core and elective modules that prepare students to teach effectively in multilingual and multicultural classrooms.

Who is the ideal candidate?

Individuals with a passion for learners and learning should apply for this degree programme. Successful candidates should be dedicated and hardworking, and passionate about teaching and learning.



Structure of programme



Core modules

- Education
- Learning support
- Professional studies
- Research methodology
- Teaching practice
- Conversational competence in an African language

Elective modules

One language elective up to second-year level:

- One of four African languages/English/Afrikaans
- Mathematics (an achievement level of at least 4 in the final NSC/IEB examination is required)
- Geography/History
- Art education
- Music education
- Natural sciences and design and technology
- Life orientation and human movement studies

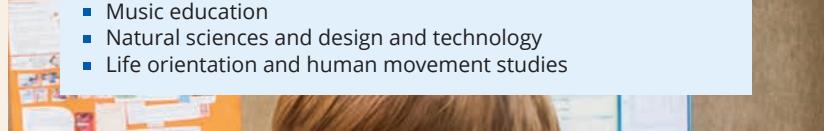
Career opportunities

Teachers and training officials in primary schools.



What makes this programme unique?

The BEd (Intermediate Phase Teaching) degree programme qualifies the successful candidate to teach a language and another subject/learning area. Languages serve as conduits/mediums through which effective communication is conducted in any classroom. Subsequently, the language elective will give the beginner-teacher the edge in providing quality education in the classroom.



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level English Home Language or English First Additional Language	APS
BEd (Intermediate Phase Teaching) [Grades 4 to 6] [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Teachers and training officials in primary schools	4	28

Contact information

Dr G Genis | Tel +27 (0)12 420 5547 | Email gerhard.genis@up.ac.za **Ms C Jones** | Tel +27 (0)12 420 5526 | Email cherese.jones@up.ac.za

Undergraduate programmes

BEd (Senior Phase and Further Education and Training Teaching)

Contact information and Programme coordinators
Languages and General package Dr Zelma Makobane Tel +27 (0)12 420 5522 Email zelma.makobane@up.ac.za
Human Movement Sciences package Ms E van Wyk Tel +27 (0)12 420 5539 Email elmarie.vanwyk@up.ac.za
Natural Sciences package Ms C Coetzee Tel +27 (0)12 420 5626 Email corene.coetze@up.ac.za
Dr H Botha Tel +27 (0)12 420 5623 Email hanlie.botha@up.ac.za
Economic and Management Sciences package Ms N Mhlanga Tel +27 (0)12 420 2766 Email nontuthuzelo.mhlanga@up.ac.za
Dr N Jaca Tel +27 (0)12 420 3340 Email nosipho.jaca@up.ac.za

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
BEd (Senior Phase and Further Education and Training Teaching) [Grades 7 to 12] [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. An additional subject requirement for elective modules in Economic and Management Sciences is Mathematics, passed with an achievement level of 4 (50%–59%) in the final NSC/IEB examination. Additional subject requirements for elective modules in Physical Sciences or Life Sciences are Physical Sciences, passed with an achievement level of 5 (60%–69%), and Mathematics passed with an achievement level of 5 (60%–69%) in the final NSC/IEB examination. Careers: Teachers and training officials in primary or secondary schools	4	28



Undergraduate programmes

Higher Certificate in Sports Sciences

The Higher Certificate in Sports Sciences aims to develop sports coaches and administrators who can function successfully in an interdisciplinary environment.

The qualification aims to equip students with applied competencies required to work within education settings to provide physical education through sports programmes and promote principles of good management in sport to improve athletes' and sports teams' performances.

The qualification further provides students with basic introductory knowledge and cognitive and conceptual tools, and practical techniques required for higher education studies in sports sciences and education.

Who is the ideal candidate?

The ideal candidate has a certificate that the University deems to be equivalent to the National Senior Certificate with an APS of 20 and at least a 4 (50%–59%) for English Home Language or English First Additional Language.

Students who excel in this programme are passionate about sport and physical education. Student-athletes and professional sportspeople who want to further their studies while competing in sporting events.

Career opportunities

Upon completing this qualification, students will have knowledge, skills and values related to the scope of physical education, sports coaching and sport management required to develop sporting codes for extramural programmes. This will prepare students for employment as trainers and coaches in various sporting codes, in the private and public sectors in the context of community sports clubs, school sport and sport coaching.



Structure of programme



Core modules

- Life Orientation 150 (JLO 150)
- Literacies in education 150 (JLZ 150)
- Literacies in education 151 (JLZ 151)
- Human movement studies and sport management 114 (JMB 114)
- Human movement studies and sport management 116 (JMB 116)
- Human movement studies and sport management 125 (JMB 125)
- Sports practical (JRC 150)
- Foundations of recreation and sports management 111 (JRM 111)
- Sports injuries 141 (JXE 141)
- Fundamental nutrition 143 (JXE 143)
- Exercise and training principles 151 (JXE 151)
- Coaching professionalism 151 (JXP 151)
- Exercise and training principles 151 (JXE 151)

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
Higher Certificate in Sports Sciences [1 year] Closing date: 30 June	4	20
Selection process:		
<ul style="list-style-type: none"> ▪ Applicants who indicate the Higher Certificate in Sports Sciences as their first- or second-choice will be considered. ▪ All applicants will be considered by the Student Administration of the Faculty based on the academic admission requirements. ▪ Applicants who meet the academic requirements will then be further considered for the different sports codes in deliberation with TuksSport, according to their sports achievements. ▪ Students who have been nominated by an official sports club of the University will enjoy preference for selection. ▪ Applicants who obtained Diploma Studies endorsement for the NSC or equivalent qualification, may be considered for admission to the BEd Senior Phase and Further Education and Training Teaching degree (09133031), with specialisation in the elective combination of Human Movement Studies and Sports Management, if they successfully complete the Higher Certificate in Sports Sciences with a cumulative weighted average of at least 60% (excluding JRC 150 Sports Practical) (for the contact programme) 		
Careers: Sports coaching, sports and exercise industry		

Contact information

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Postgraduate Certificate in Education (PGCE)



The PGCE consists of academic and teaching practice components. The academic learning components are presented in the format of integrated modules during which students construct a practice theory of and for education. The academic components run throughout the year. For the purpose of the teaching practice component, students are placed by the Faculty in partner-schools.

- The first placement generally takes place in quarter one, for a three-week shadow week.
- The second extended placement takes place in quarter three for eight weeks in a school in the Pretoria region. Students are fully engaged at the schools during teaching practice while they are supported and assessed by qualified mentor teachers and university lecturers.

Requirements for admission

An appropriate Bachelor's degree or accredited and approved diploma is required for all the programmes. All prospective students who hold a 360-credit diploma have to provide evidence that their diplomas are approved and accredited by the Department of Higher Education and Training.

Computer literacy

All students had to complete a computer literacy course as part of their first degree. If not, it will be expected of students to enrol for such a course concurrently. The Faculty of Education makes extensive use of blended learning formats and students are expected to have access to a laptop to participate in teaching and learning meaningfully.

African language competency

All students who successfully complete the PGCE should be partially proficient in at least one official African language or in South African Sign Language, as language of conversational competence. Students can write an exemption examination to determine the language competence.

Particular requirements for each phase

Senior Phase and Further Education and Training Teaching

One (or more) degree modules passed at a second-year academic level (200), which correspond with one or more relevant subjects at school level for Senior Phase and one other/different (or more) degree modules passed at a third-year academic level (300), which corresponds with a relevant school subject at Further Education and Training Phase Teaching (check programme modules).

Core and fundamental modules

- Global and social perspectives in education
- Foundations of education
- Learning theories and assessment in teaching
- Facilitating learning
- Learning support
- Information and communication technology
- Professional ethics and law in teaching
- Professional development
- Work Integrated Learning
- Conversational Competence: One of IsiZulu, or Sepedi, or Setswana

Elective modules

- Languages
- Mathematics
- Social sciences (Both History and Geography)
- Natural sciences (Physics, Chemistry, Biological sciences and Biology)

The following specialisations will only be presented if the number of students who qualify is sufficient:

- Art and culture (Art, Drama, Dance and Music)
- Economic and management sciences (Economics, Business economics, Entrepreneurship, Business management and Accounting)

Postgraduate Certificate in Education (PGCE)

Further Education and Training Phase (FET) Teaching

- **Option A:** One-degree module passed at a third-year academic level (300), which corresponds with a relevant school subject and a research project for students who do not qualify for a 2nd teaching specialisation;
- **Option B:** Two different degree modules passed at a third-year academic level (300), which correspond with a relevant school subject (check programme modules).

Core and fundamental modules	Elective modules
<ul style="list-style-type: none"> ▪ Global and social perspectives in education ▪ Foundations of education ▪ Learning theories and assessment in teaching ▪ Facilitating learning ▪ Learning support ▪ Information and communication technology ▪ Professional ethics and law in teaching ▪ Professional development ▪ Work Integrated Learning ▪ Conversational Competence: One of IsiZulu, or Sepedi, or Setswana 	<ul style="list-style-type: none"> ▪ Accounting ▪ Afrikaans ▪ African languages ▪ Business studies ▪ Economics ▪ English ▪ Geography ▪ History ▪ Life sciences ▪ Mathematics and Mathematical literacy ▪ Physical science ▪ Tourism ▪ Visual arts ▪ Music <p>In the event that the student does not have a second teaching specialisation:</p> <ul style="list-style-type: none"> ▪ Research project <p>The following specialisations will only be presented if the number of students who qualify is sufficient:</p> <ul style="list-style-type: none"> ▪ Consumer studies ▪ Dance studies ▪ Dramatic arts ▪ Hospitality studies

Contact information for applications

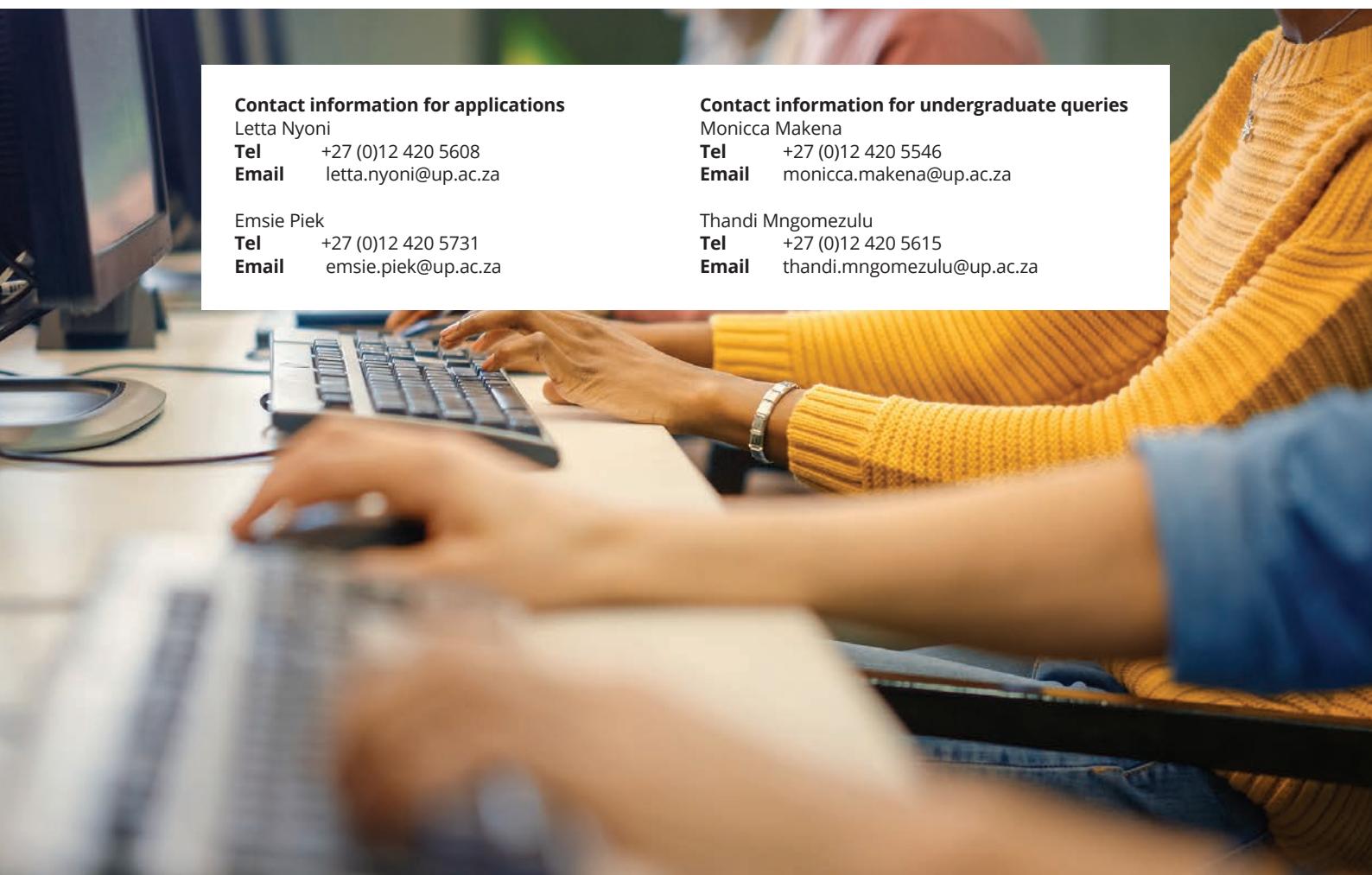
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Article

Blended learning in the Faculty of Education

By Professor Salome Human-Vogel

More than a year after the COVID-19 pandemic was announced and higher education institutions were faced with shifting to remote learning for the foreseeable future, the Faculty of Education—along with other faculties at UP—began the process of shifting teaching and learning online during a national state of disaster that saw everyone working, living, learning and teaching from home.

As can be expected, various institutions had varying levels of preparedness to take teaching online, but all had to make important decisions about the kind of learning experiences we would design to maintain continuity in our teaching, and more importantly, students' learning.

While the Faculty of Education could draw on important strengths in terms of a well-established user-base on clickUP with over 90% of modules in the Faculty of Education already having an online presence, it was still a challenge to shift from the blended learning module presence in the Faculty towards a completely online presence.

Staff generally share the experience of most other lecturers at UP that the preparation of online learning experiences requires a great deal more time than a contact session in a physical space would.

It has also been acknowledged that not all staff are equally prepared with the necessary design and technical skills required to teach in an online environment. Now, after a year of continued online teaching, we are beginning to draw on the lessons we have learned about blended learning in the past year so that we can provide better learning experiences for our students.



Prof Salome Human-Vogel

While most staff agree that access to online learning remains a challenge for some students, there is also a clear acknowledgement of the benefits of blended learning, such as:

- (i) increased engagement,
- (ii) more opportunity for authentic and interactive learning in well-designed online modules,
- (iii) increased flexibility that allows students to access recordings of synchronous sessions in a time that is suitable for them, and
- (iv) the ability of lecturers to track individual development better to act earlier to identify at-risk students.



Article

Many modules in the Faculty of Education embrace the UP Teaching and Learning flipped methodology of Prepare, Engage, Consolidate. In the Department of Early Childhood Education, blended learning has expanded the scope of learning materials and resources available for online accessibility within a wide variety of educational platforms which the lecturer could recommend for students. For example, in Literacy Practices (JGL 313), Dr Joyce West asks Foundation Phase students to **prepare** by reading an article before class and to provide a summary of the article using Jamboard.

Using Jamboard, students can collaborate online, share notes and comment on each other's posts to build their understanding of the material before class. During class, Dr West then embeds Peardeck into her Google slide presentation so that students can join in with their phones while **engaging** on their laptops and using an exit ticket to ensure students understand the material. **Consolidation** of the material takes place via interactive presentations using the H5P software integrated with ClickUP.

In the Department of Science, Mathematics and Technology Education, Prof Willem Rauscher employs a combination of theoretical and project work to teach Design and Technology Education (JOT 210 and

JOT 220). Again, students are prepared with slides that are provided before class and that are accompanied by exercises that must be completed. Being a design module, Prof Rauscher makes extensive use of his iPad and pen as he works through exercises with students in a synchronous Collaborate session. In the project, Prof Rauscher provides a brief to students that captures the outcomes of the module and runs parallel to the theoretical sessions they attend. Students could, for example, be asked to design an educational toy.

Due to its practical design nature, this is one of the modules in which blended and online learning have presented significant challenges because students do not have access to resources as they would in a physical classroom and have to make do with what they have available where they are. On the other hand, Prof Rauscher says that teaching continuity could be maintained and synchronous online sessions can be used very well as student-centred discussions, and live-recorded sessions make it possible for students to catch up on work if they miss live sessions.

Reflecting on blended learning, Prof Azwi Muthivhi, Head of the Early Childhood Education Department, worries that blended learning leads to a generic approach to learning that lacks a personal touch and is

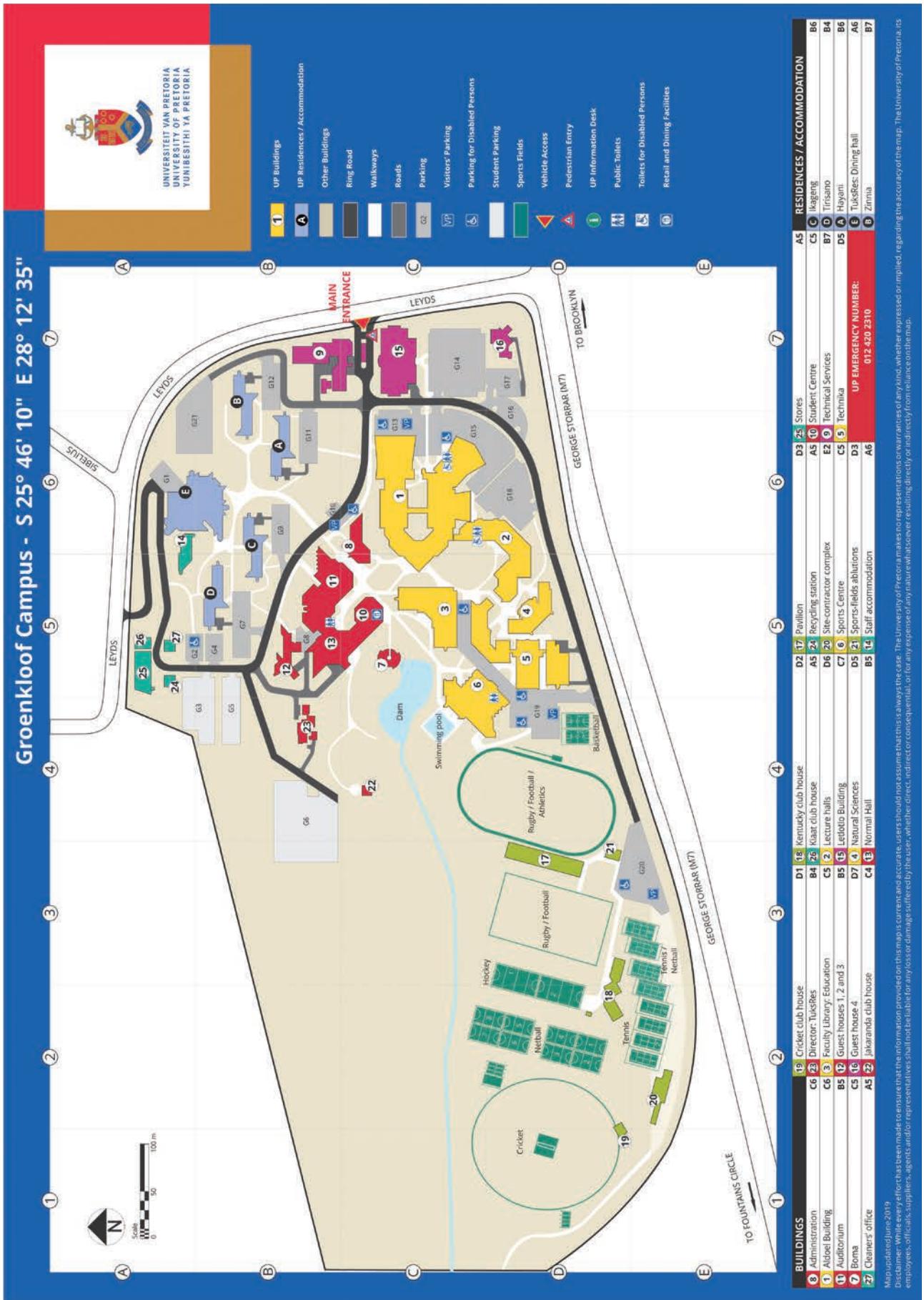
detached from the human experience of learning. Especially in large modules, such as Education (OPV 322) with an enrolment of about 1 200 students, it can be a challenge to maintain a social presence in the class. Dr André du Plessis, the module coordinator of OPV 322, makes sure that students can connect with the lecturer, and they are supplemented with tutors appointed to support students who need assistance.

Moving forward, the Faculty of Education plans to maintain an offering of modules that will be offered primarily online (EduOnline), flexibly in a blended format (Eduflex), and a limited number of modules that will be exclusively offered in contact mode (Educontact).

Planning resources around these instructional modalities will help to optimise the planning of the design of the kind of learning experiences we offer to students, as well as assist students to understand the expectations of each module in terms of attendance.



Groenkloof Campus map



UP EDUCATION AT A GLANCE



FACULTY OF CHOICE

The **Faculty of Education** is the largest contact Faculty of Education in the country and a leader in teacher education and training. Our core function is to train quality teachers, education psychologists, leaders and managers in education. Our admission criteria ensures that we attract high performing students from all over the world.

EXCELLENT ACADEMICS



66.88%
academic staff
with doctorates



21
NRF rated
researchers



94.18%
examination
undergraduate
pass rate

STRONG INTERNATIONAL PROFILE



81 048
Alumni worldwide

QS Rankings (250-300)



ACADEMIC OFFERINGS

4 Undergraduate programmes

2 initial teacher education qualifications:
Bachelor of Education (BEd)
Postgraduate Certificate in Education (PGCE)

1 Higher Certificate in Sports Science
Education

Distance Education programmes

Postgraduate programmes

1 Postgraduate Diploma in Technical and
Vocational Education and Training

1 Advanced Diploma in School Leadership
and Management

10 BEd Honours, 16 MEd and
14 PhD programmes

5 572

Total number of enrolled
undergraduate students

3 415

Total number of Distance
Education students

68.8%

Percentage of
black students

Total number of postgraduate students

226 PhD + **219** Master's + **425** Honours =

942

86.57%

Percentage of
international publications



University of Pretoria

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www.up.ac.za



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Faculty of Economic and Management Sciences

Fakulteit Ekonomiese en Bestuurswetenskappe
Lefapha la Disaense tša Ekonomi le Taolo

www.up.ac.za/ems



Note: The minimum admission requirements reflected in this brochure are subject to changes in regulations relating to COVID-19. Amendments will reflect in the digital version of this brochure, which can be downloaded from www.up.ac.za/programmes > Undergraduate > Faculty brochures.

2023

UNDERGRADUATE
FACULTY BROCHURE

Make today matter

Message from the Dean

The mission of the Faculty of Economic and Management Sciences is to advance relevant knowledge and develop employable, innovative and diverse graduates to co-create value for society. The key to our success lies in the emphasis we place on training a new generation of business leaders, entrepreneurs, managers and government officials who are well rounded and can maintain an innovative outlook in their respective working environments.

Prof Margaret Chitiga-Mabugu
Dean: Faculty of Economic and Management Sciences



The Faculty comprises eight departments, namely Accounting, Auditing, Taxation, Financial Management, Economics, Marketing Management, Human Resource Management and Business Management, and the School for Public Management and Administration.

Together, the departments and school present all the BCom and BAdmin degrees offered by the University of Pretoria, as well as postgraduate programmes at the honours, master's and doctoral levels.

To assure you that you will make the right decision by choosing the University of Pretoria (UP), I would like to highlight the following:

- UP employs highly qualified lecturers who are skilled in innovative teaching methods.
- UP offers state-of-the-art facilities and lecture halls.
- Students have the opportunity to interact in a highly diverse environment, which equips them well for the world of work.
- Approximately 93% of UP students are either employed or continuing their studies six months after graduation.
- The Faculty is a member of the international Association to Advance Collegiate Schools of Business (AACSB).
- The Faculty offers programmes that are accredited by the following national and international professional and statutory bodies: Association of Chartered Certified Accountants (ACCA), CFA Institute*, Chartered Institute of Management Accountants (CIMA), European Logistics Association (ELA), Health Professions Council of South Africa (HPCSA), South African Board for People Practices (SABPP), South African Institute of Chartered Accountants (SAICA) and South African Institute of Tax Practitioners (SAIT).
- In the 2022 Quacquarelli Symonds (QS) World University Rankings, UP was ranked in the 251–300 band for graduate employability. This Faculty boasts the following subject rankings:

* CFA Institute offers the Chartered Financial Analyst® qualification.

International Rankings		
QS World University Rankings by Subject 2021 Accounting and Finance Economics and Econometrics	101–150 251–300	
Times Higher Education World University Rankings by Subject 2021 Business and Economics (includes business and management, accounting and finance, economics and econometrics, and public administration)	301–400	
Shanghai Ranking's Global Ranking of Academic Subjects 2021 Economics Finance	201–300 151–200	

The Faculty actively collaborates with several leading international institutions. Through these partnerships, students can participate in various exchange programmes and are exposed to the latest global trends in business education. They are also given numerous other opportunities to put theory into practice, which ensures that our graduates are well rounded and equipped to enter the world of work.

To ensure that our students maintain a balanced lifestyle, the University and the Faculty offer a wide range of social, cultural and sporting activities in which you can participate. Our eight student societies can assist you with your integration into Faculty and student life, and the Faculty Student Advisors are available to support you with problems related to academic performance.

For more information about the Faculty's academic offerings, please visit www.up.ac.za/bcom. We are looking forward to welcoming you as a UP student!

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Email emsdean@up.ac.za

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Scan this QR code to view detailed infographics about our programmes and the related career options or visit www.up.ac.za/ems-graphics.

Undergraduate programmes

Important information for all prospective students for 2023

- The admission requirements and general information in this brochure 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 2023: Qualifications other than the NSC and IEB*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Brochure:** *Newcomers Guide 2022*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Website:** www.up.ac.za/international-cooperation-division.
- **School of Tomorrow (SOT) and Accelerated Christian Education (ACE):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **General Education Development (GED):** South African GED graduates who graduated up to 2019 may be considered for admission provided they qualify for an exemption certificate issued by USAf and comply with university admission requirements, as well as faculty subject requirements. South African GED graduates who graduated after 2019 cannot be considered for admission to UP as the diploma is not accredited by USAf and will not be considered for exemption. Applicants from the USA who completed the GED may apply for a Foreign Conditional Exemption Certificate issued by USAf accompanied by their SAT/TOEFL/IELTS results.
- **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.

Important faculty-specific information on undergraduate programmes for 2023

The closing date for all selection programmes is **30 June 2022**. The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

- The following persons will be considered for admission: Candidates who have a certificate that is deemed by the University to be equivalent to the National Senior Certificate (NSC) with admission to bachelor's degree studies; candidates who are graduates from other tertiary institutions or have been granted the status of graduates of such institutions; and candidates who are graduates of another faculty at the University of Pretoria.
- Life Orientation is excluded when calculating the APS.
- All modules will only be presented in English, as English is the language of tuition, communication and correspondence.

University of Pretoria website

www.up.ac.za/ems

Programmes	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level		Mathematics		
	English Home Language or English First Additional Language				
BCom (Accounting Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6		34	
Careers: First step towards qualifying as chartered accountants, external auditors, taxation professionals and advisors, and financial directors or managers					
BCom (Investment Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6		34	
Careers: Portfolio/fund manager, investment analyst, risk manager/analyst, quantitative analyst, financial advisor/planner, wealth manager, investment strategist.					
BCom (Financial Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5		32	
Careers with a focus on:					
<ul style="list-style-type: none"> ▪ Business accounting: Financial accountants, credit controllers, SAIPA (South African Institute of Professional Accountants) and ACCA (Association of Chartered Certified Accountants) ▪ Financial management: Management accountants, management consultants, financial advisors, cost accountants and financial managers ▪ Taxation: Tax advisors, tax auditors in public practice, tax policy designers, tax professionals, tax compliance managers, SARS auditors and tax risk managers ▪ Internal auditing: Internal auditors, risk officers, forensic auditors, IT auditors, performance auditors, environmental auditors, compliance officers, government auditors and governance auditors 					
BCom (Econometrics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6		32	
Careers: Econometricians are employed by the government, the central bank, private and commercial banks, leading stockbrokers and consultancies, both locally and internationally. Positions include analysts, consultants, researchers, traders or brokers, and academics. The work mostly entails statistical analysis (forecasting, structural and policy analysis) of economic and financial markets and interrelationships.					

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Undergraduate programmes



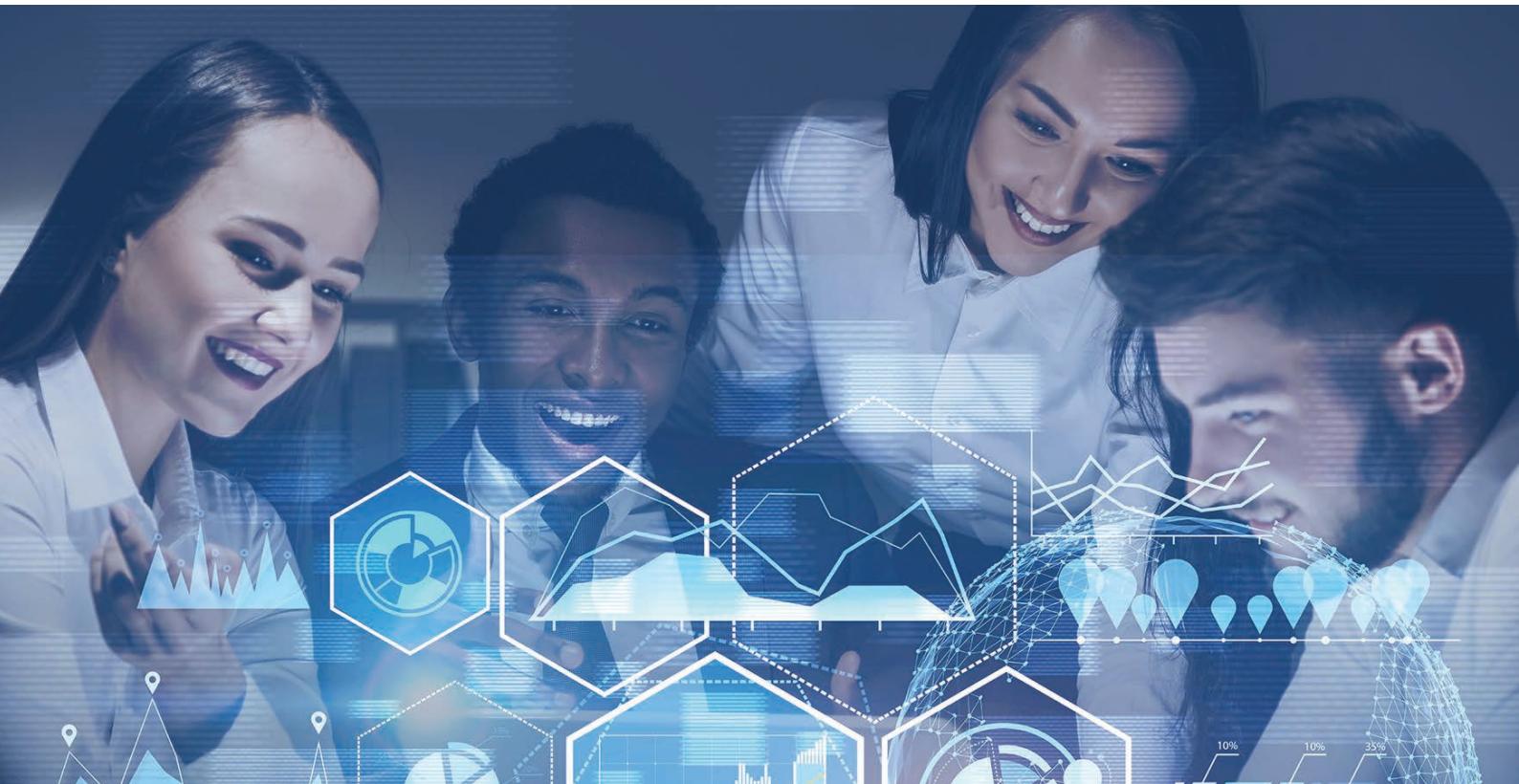
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Economics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32
Careers: Economists may specialise in banking, public finance, international trade and investment or economic development. They are employed by the government, the central bank, private and commercial banks, stock brokerage firms and consultancies, both locally and internationally. Positions include analysts, consultants, researchers, traders and academics.			
BCom (Law) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32
Careers: First step towards becoming attorneys, legal advisors, advocates, prosecutors, presiding officers (magistrates or judges) and academics in the legal field			
BCom (Statistics and Data Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32
Careers: Data scientists, statistical analysts in several industries, researchers, consultants and lecturers			
BCom (Informatics) Focus area: Information Systems [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30
Careers: Managers in the information technology environment, computer software or hardware support services, computer systems analysts, financial information systems analysts, business analysts, information facilitators, IT training officers, systems developers, business systems analysts			
BCom (Agribusiness Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30
Careers: The degree offers diverse career choices. Opportunities exist in banking, finance and insurance; policy design and implementation; research and consultation; food processing and manufacturing; commodity trading on global and local stock markets; logistics and supply chain operations; and business management in agricultural companies, to name but a few.			
BCom [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	30
Careers: The degree does not lead to a specific vocational outcome but, to some extent, offers opportunities to determine your own career outcome. Students can compile their own curricula with a view to future work opportunities in all sectors.			
BCom (Business Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	30
Careers: A wide variety of opportunities exist in the areas of administration, finance, marketing and human resources management, including employment as teachers, lecturers, general managers and management consultants.			

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics			
BCom (Supply Chain Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: The purpose of this programme is to equip students with the ability to participate in functional management within an integrated supply chain. This includes supply management, production and operations management, warehousing, transport management and supply chain strategy.	5	4	30		
BCom (Marketing Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Product management, customer service management, customer relationship management, strategic marketing, sales management, brand management, advertising management, media planning, marketing research management and promotions management	5	4	30		
BCom (Human Resource Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Human resources practitioners, human resources consultants, mediators, labour relations specialists, human resources managers, personnel managers, training officers, liaison officers, psychometrists and industrial psychologists. In their capacity as human resources practitioners, graduates will be responsible for matters such as developing human resource strategies and policies, human resource planning, recruitment and selection of employees, training and development of staff, labour relations and personnel administration.	5	4	30		
BCom – Extended programme [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Note: The first year of study is presented at the Mamelodi Campus. Admission to the second year of study at the Hatfield Campus is subject to selection. Careers: Career opportunities depend on the field of study chosen by students in their second year of study.	4	3	26		
BAdmin (Public Management and International Relations) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Diplomats, political analysts, managers in the public sector, local government and the private sector, non-governmental organisations, international organisations and embassies. Graduates are often employed in human resources sections and planning and general administrative divisions.	5	Mathematics 3 or Mathematical Literacy 4	28		

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.



Undergraduate programmes

To register for a first bachelor's degree at the University of Pretoria, an applicant should have completed the National Senior Certificate or equivalent qualification and meet the minimum requirements for the relevant programme.

The calculation of an Admission Point Score (APS) is based on a candidate's achievement in any SIX recognised NSC 20-credit subjects. Achievement is measured by using the NSC seven-point rating scale. Life Orientation is a 10-credit subject and is excluded from the APS calculation. Life Orientation is also not a Faculty-specific subject requirement.

National Senior Certificate (NSC) seven-point rating scale

Achievement level	Description	Percentage
7	Outstanding achievement	80–100%
6	Meritorious achievement	70–79%
5	Substantial achievement	60–69%
4	Adequate achievement	50–59%
3	Moderate achievement	40–49%
2	Elementary achievement	30–39%
1	Not achieved	0–29%

National Benchmark Test (NBT)

Please take note that due to the impact of the COVID-19 pandemic, the National Benchmark Test (NBT) will no longer be used to assist students in gaining admission or being a minimum requirement for admission into any undergraduate programme offered by the University of Pretoria in 2023.

Contact information

Programmes	Departmental telephone	Student administration advisor	Telephone
BCom (Accounting Sciences)	+27 (0)12 420 3211	fhumulani.badugela@up.ac.za	+27 (0)12 420 2289
BCom (Investment Management)	+27 (0)12 420 3795	dire@up.ac.za	+27 (0)12 420 5278
BCom (Financial Sciences)	+27 (0)12 420 3795	khomotso.matabane@up.ac.za	+27 (0)12 420 3064
BCom (Econometrics)	+27 (0)12 420 2423	nellie.bahula@up.ac.za	+27 (0)12 420 5279
BCom (Economics)	+27 (0)12 420 2423	nellie.bahula@up.ac.za	+27 (0)12 420 5279
BCom (Law)	+27 (0)12 420 2363	ronel.steenkamp@up.ac.za	+27 (0)12 420 3347
BCom (Statistics and Data Science)	+27 (0)12 420 3774	johannes.ngobeni@up.ac.za	+27 (0)12 420 5394
BCom (Informatics) Focus area: Information Systems	+27 (0)12 420 3798	ronel.steenkamp@up.ac.za	+27 (0)12 420 3347
BCom (Agribusiness Management)	+27 (0)12 420 3251	sibabalwe.qokose@up.ac.za	+27 (0)12 420 3328
BCom		johannes.ngobeni@up.ac.za	+27 (0)12 420 5394
BCom (Business Management)	+27 (0)12 420 2411	tshegofatso.chauke@up.ac.za	+27 (0)12 420 3063
BCom (Supply Chain Management)	+27 (0)12 420 2411	tshegofatso.chauke@up.ac.za	+27 (0)12 420 3063
BCom (Marketing Management)	+27 (0)12 420 3004	sibabalwe.qokose@up.ac.za	+27 (0)12 420 3328
BCom (Human Resource Management)	+27 (0)12 420 4756	sibabalwe.qokose@up.ac.za	+27 (0)12 420 3328
BCom – Extended programme		sibabalwe.qokose@up.ac.za	+27 (0)12 420 3328
BAdmin (Public Management and International Relations)	+27 (0)12 420 4143	nellie.bahula@up.ac.za	+27 (0)12 420 5279

Postgraduate programmes

The Faculty of Economic and Management Sciences offers postgraduate opportunities in numerous areas of specialisation. For more information, refer to the online Yearbook at www.up.ac.za/yearbooks/home, or visit www.up.ac.za/bcom.

Student contributions



UP makes history with unprecedented 100% pass rate in SAICA ITC exams

The University of Pretoria made history with its Accounting Sciences students achieving an unprecedented 100% pass rate in the South African Institute of Chartered Accountants (SAICA) April 2021 Initial Test of Competence (ITC) results.

The ITC is the first of two professional exams which have to be written and passed by all aspiring chartered accountants in the country.

UP made history and obtained a 100% pass rate in the SAICA ITC exam for first-time writers and an overall pass rate of 99.4% for all candidates. These historically exceptional results ensured that UP retained its first place in South Africa in this challenging ITC exam.



VC awards top-performing graduate for undergraduate excellence

Mónica Manilal received the Vice-Chancellor and Principal's medal for excellent undergraduate academic achievement in the Faculty of Economic and Management Sciences, when her BCom (Financial Sciences) degree was conferred on her during the Autumn 2021 graduation season.

She has the highest regard for her Faculty and University. 'My school friends and I had always wanted to go to the University of Pretoria, and when we got accepted, it was like a dream come true. I had a really good time at UP and the Faculty of EMS. It's a beautiful, huge campus with helpful and friendly lecturers from whom I got to learn a lot.'

Undergraduate programmes

BCom (Accounting Sciences)

(See page 13 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module on professional ethics.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Financial accounting* ▪ Commercial law ▪ Informatics ▪ Economics ▪ Statistics ▪ Business management ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Financial accounting* ▪ Financial management* ▪ Auditing* ▪ Taxation* ▪ Commercial law ▪ Informatics ▪ Communication management 	<ul style="list-style-type: none"> ▪ Financial accounting* ▪ Financial management* ▪ Auditing* ▪ Taxation*

* The specialisation modules for the first to the final year of study for a BCom (Accounting Sciences) degree may be taken only by students who have been selected for this degree.

BCom (Accounting Sciences) is an accredited programme that forms part of the requirements for training as a chartered accountant (CA(SA)) and an auditor (RAA). The designations CA(SA) and RAA are the highest professional qualifications in accounting in South Africa and enjoy international recognition.

BCom (Investment Management)

(See page 14 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Financial accounting ▪ Economics ▪ Statistics ▪ Informatics ▪ Business management ▪ Commercial law ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Business accounting ▪ Economics ▪ Investment management ▪ Statistics 	<ul style="list-style-type: none"> ▪ Business accounting ▪ Economics* ▪ Investment management ▪ Financial management ▪ Mathematical statistics ▪ Statistics*

* One Statistics module is compulsory for final-year students. Students choose between Economics or additional modules in Statistics as a third major in the final year.

Those graduating with this degree tend to pursue the following professional qualifications: Chartered Financial Analyst (CFA®)**, Certified Financial Planner (CFP®) and Chartered Alternative Investment Analyst (CAIA).

** CFA Institute and CFA are registered trademarks of CFA Institute.

BCom (Financial Sciences)

(See page 15 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Financial accounting ▪ Informatics ▪ Statistics ▪ Economics ▪ Business management ▪ Informatics (accounting software) ▪ Communication management 	<ul style="list-style-type: none"> ▪ Internal auditing ▪ Taxation ▪ Financial management ▪ Informatics ▪ Business law 	<ul style="list-style-type: none"> ▪ Business accounting* ▪ Internal auditing* ▪ Taxation* ▪ Financial management*

* Final-year students may choose any three majors.

Graduates with a BCom (Financial Sciences) degree tend to pursue the following professional qualifications: CIA (Certified Internal Auditor), CIMA (Chartered Institute of Management Accountants), SAIPA (South African Institute of Professional Accountants), ACCA (Association of Chartered Certified Accountants) and SAIT (South African Institute for Tax Professionals). The University of Pretoria is one of only ten universities in the world accredited as a Centre for Internal Audit Excellence—the highest level of accreditation awarded by the International Institute of Internal Auditors.

BCom (Econometrics)

(See page 16 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Economics ▪ Mathematical statistics ▪ Mathematics ▪ Financial accounting ▪ Business management ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Economics ▪ Mathematical statistics ▪ Mathematics ▪ Informatics ▪ Communication management 	<ul style="list-style-type: none"> ▪ Economics ▪ Mathematical statistics

Student contributions



An exciting student life awaits

Commercii is the faculty house of Economic and Management Sciences at the University of Pretoria. It is a society that caters for the needs of BCom and BAdmin students registered in the Faculty, providing assistance to first-year students as well as academic development skills, opportunities for community outreach, leadership and social interaction that make student life worthwhile. Commercii works in close collaboration with the various sub-houses to valuable experiences and opportunities for students to learn skills that will empower them to be leaders both on campus and in the workplace after completing their studies.



Economics student named first runner-up in Budget Speech Competition

Stanley Mabuka, a master's student in economics at UP, was named the first runner-up in the postgraduate category of the 2020 Nedbank Old Mutual Budget Speech Competition.

He took home a R100 000 cash prize and during the competition he had the opportunity to interact with seasoned economists, industry experts and fellow students from other universities. 'The competition was enriching and rewarding. I found it worthwhile because it confirmed that I could become a future leader,' Mabuka said.

Undergraduate programmes

BCom (Economics)

(See page 16 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Economics ▪ Statistics ▪ Business management ▪ Financial accounting ▪ Mathematics ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Economics ▪ Statistics ▪ Business law ▪ Communication management 	<ul style="list-style-type: none"> ▪ Economics ▪ Statistics

BCom (Law)

(See page 17 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management, jurisprudence and English.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Financial accounting ▪ Economics ▪ Business management ▪ Statistics ▪ Roman law ▪ Law of persons ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Consumer protection ▪ Law of contract ▪ Law of succession ▪ Specific contracts 	<ul style="list-style-type: none"> ▪ Insolvency law ▪ Law of things ▪ Law of delict ▪ Entrepreneurial law ▪ Payment methods

Elective modules

(Refer to the online Yearbook at www.up.ac.za/yearbooks/home)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Business management ▪ Informatics 	<ul style="list-style-type: none"> ▪ Business management ▪ Economics ▪ Financial management ▪ Business accounting ▪ Taxation ▪ Statistics 	<ul style="list-style-type: none"> ▪ Business management ▪ Economics ▪ Financial management ▪ Business accounting ▪ Taxation ▪ Statistics



BCom (Statistics and Data Science)

(See page 18 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Statistics or Mathematical statistics^{1,2} ▪ Economics ▪ Financial accounting ▪ Business management ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Statistics or Mathematical statistics^{1,2} ▪ Communication management 	<ul style="list-style-type: none"> ▪ Statistics or Mathematical statistics^{1,2}

Elective modules

(Refer to the online Yearbook at www.up.ac.za/yearbooks/home)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Mathematics^{1,2} ▪ Informatics ▪ Financial management¹ ▪ Economics¹ ▪ Computer science^{1,2} 	<ul style="list-style-type: none"> ▪ Mathematics^{1,2} ▪ Informatics ▪ Agricultural economics ▪ Actuarial mathematics^{*1} ▪ Economics² ▪ Business accounting ▪ Introduction to moral and political philosophy 	<ul style="list-style-type: none"> ▪ Mathematics ▪ Agricultural economics ▪ Actuarial mathematics^{*1} ▪ Economics² ▪ Business accounting

* Refer to the prerequisites for Actuarial Mathematics in the online Yearbook (www.up.ac.za/yearbooks/home)

¹ Mathematical statistics students, who also want to be trained for the insurance industry, select these modules, among others, as part of their core and elective modules.

² Mathematical statistics students who also want to be trained in econometrics select these modules, among others, as part of their core and elective modules.

Other students choose modules from any other subject or faculty according to their own specific career requirements.

Undergraduate programmes

BCom (Informatics)

Focus area: Information Systems

(See page 19 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for IT.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Informatics ▪ Financial accounting ▪ Economics ▪ Business management ▪ Statistics ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Informatics ▪ Mathematical statistics ▪ Business law ▪ Community-based project 	<ul style="list-style-type: none"> ▪ Informatics

Elective modules

Choose one elective.

(Refer to the online Yearbook at www.up.ac.za/yearbooks/home)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Marketing management 	<ul style="list-style-type: none"> ▪ Marketing management ▪ Business management ▪ Internal auditing ▪ Statistics ▪ Business accounting ▪ Taxation 	<ul style="list-style-type: none"> ▪ Marketing management ▪ Business management ▪ Internal auditing ▪ Statistics ▪ Business accounting ▪ Taxation

The BCom (Informatics) Focus area: Information Systems degree is the only information systems programme offered in Africa that is accredited by the international Accreditation Board for Engineers and Technology (ABET).

BCom (Agribusiness Management)

(See page 20 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Economics ▪ Statistics ▪ Business management ▪ Financial accounting ▪ Marketing management ▪ Informatics (accounting software) ▪ Communication management 	<ul style="list-style-type: none"> ▪ Economics ▪ Business management ▪ Agricultural economics ▪ Business law 	<ul style="list-style-type: none"> ▪ Economics ▪ Agricultural economics

BCom

(See page 21 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year
<ul style="list-style-type: none"> ▪ Economics ▪ Financial accounting ▪ Commercial law (first-year level) or Business law (second-year level) ▪ Statistics or Mathematical statistics ▪ Business management ▪ Informatics (accounting software) 	<ul style="list-style-type: none"> ▪ Business law ▪ Communication management

Elective modules

(Refer to the online Yearbook at www.up.ac.za/yearbooks/home)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Marketing management ▪ Industrial and organisational psychology ▪ Public administration ▪ Mathematics ▪ Informatics 	<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Industrial and organisational psychology ▪ Public administration ▪ Statistics or Mathematical statistics or Mathematics ▪ Informatics ▪ Economics ▪ Business accounting ▪ Taxation ▪ Financial management 	<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Industrial and organisational psychology ▪ Public administration ▪ Statistics or Mathematical statistics or Mathematics ▪ Economics ▪ Business accounting ▪ Taxation ▪ Labour relations ▪ Labour law



Undergraduate programmes

BCom (Business Management)

(See page 22 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Financial accounting ▪ Statistics ▪ Economics ▪ Informatics (accounting software) ▪ Communication management 	<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Financial management ▪ Business law ▪ Design thinking and business innovation ▪ Business creation ▪ Responsible management 	<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ International business management ▪ Business analytics ▪ Responsible leadership ▪ Human resource management

BCom (Supply Chain Management)

(See page 23 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Financial accounting ▪ Supply chain management ▪ Informatics ▪ Statistics ▪ Economics ▪ Informatics (accounting software) ▪ Business law ▪ Responsible management 	<ul style="list-style-type: none"> ▪ Business management ▪ Marketing management ▪ Supply chain management ▪ Financial management ▪ Communication management ▪ Business law ▪ Responsible management 	<ul style="list-style-type: none"> ▪ Business management ▪ Supply chain management ▪ International business management ▪ Business analytics

This programme is accredited by the European Logistics Association (ELA), based on the ELA Standards Level 4.

A vibrant student life

EMS students are encouraged to enhance their personal and academic development by taking part in the activities of their discipline-specific student society:

Sub-houses and eligible members

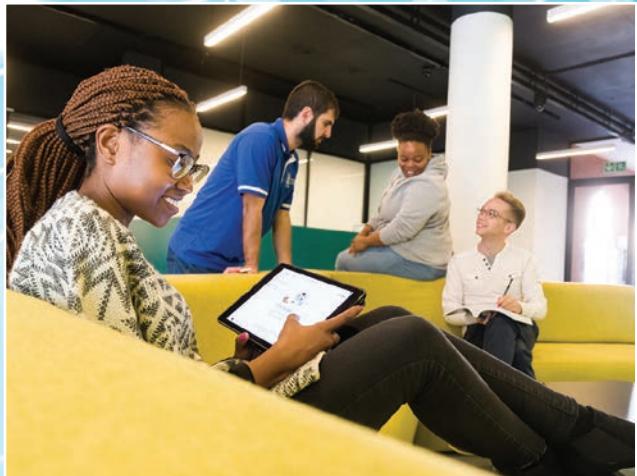
 BAdmin@Tuks: Public Management and International Relations students	 HR Tuks: Human Resource Management students
 Fin'est: Financial Sciences, Investment Management and Informatics students	 MC Experience: Marketing Management, Business Management and Supply Chain Management students
 House CA: Accounting Sciences students	 Tax@Tuks: Taxation students
 House IA: Internal Auditing students	 Y.E.S@Tuks: Economics, Econometrics, Agribusiness Management and Statistics students

Student contributions



Hands-on experience for marketing students

Through the Department of Marketing Management's strong ties with industry, students are empowered to put the theory they have learned during their studies into practice by solving marketing challenges for industry partners. During these collaborations with leading brands, students gain hands-on experience in the various modules by proposing solutions and developing integrated marketing communication plans for clients.



A new generation of tech savvy leaders

The Faculty prides itself on training a well-rounded new generation of business leaders, entrepreneurs, managers, and government officials who can maintain an innovative outlook in their respective working environments. As such, the Faculty has embraced digital technology to engage with and support students at various stages of their journeys. From lecturers virtually meeting with prospective students, current students flourishing online in their academics and maintaining a vibrant student life to graduates receiving the degrees they have worked so hard for, it is evident that nothing is impossible in the online realm.

Undergraduate programmes



BCom (Marketing Management)

(See page 24 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take the module Responsible management.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Marketing management ▪ Business management ▪ Financial accounting ▪ Statistics ▪ Economics ▪ Informatics (accounting software) ▪ Communication management 	<ul style="list-style-type: none"> ▪ Consumer behaviour ▪ Integrated brand communications ▪ Market offering ▪ Business management ▪ Financial management ▪ Business law ▪ Design thinking and business innovation 	<ul style="list-style-type: none"> ▪ Marketing management ▪ Marketing research ▪ Personal selling and account management ▪ Integrated practical marketing project ▪ International business management ▪ Business analytics

BCom (Human Resource Management)

(See page 25 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and academic literacy for EMS, and all second-year students take an introduction to moral and political philosophy.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Industrial and organisational psychology ▪ Business management ▪ Economics ▪ Financial accounting ▪ Statistics ▪ Informatics (accounting software) ▪ Communication management 	<ul style="list-style-type: none"> ▪ Industrial and organisational psychology ▪ Business management ▪ Business law 	<ul style="list-style-type: none"> ▪ Industrial and organisational psychology ▪ Business management ▪ Labour law ▪ Labour relations

BCom – Extended programme

(See page 26 for an infographic)

The first year of study is offered at the Mamelodi Campus. This is the ideal starting point for students who are interested in studying towards a BCom degree in management and financial sciences. During October of their first year of study, students have to apply to be transferred to the Faculty of Economic and Management Sciences on the Hatfield Campus. Placement in BCom (Accounting Sciences) and BCom (Investment Management) cannot be guaranteed. All first-year modules must be passed before a student can be transferred to any of the BCom programmes.

Core modules (compulsory)

1st year	2nd to final year
<ul style="list-style-type: none"> ▪ Academic information management ▪ Language, life and study skills ▪ Mathematics ▪ Financial accounting ▪ Statistics/Mathematical statistics ▪ Business management 	Complete the outstanding modules of the chosen programme, which are presented on the Hatfield Campus.

BAdmin (Public Management and International Relations)

(See page 27 for an infographic)

Note: All first-year students take the compulsory fundamental modules on academic information management and the module academic literacy for EMS.

Core modules (compulsory)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Public administration ▪ Politics ▪ Economics ▪ Public resource management 	<ul style="list-style-type: none"> ▪ Public administration ▪ Political science or International relations ▪ Communication management 	<ul style="list-style-type: none"> ▪ Public administration ▪ Political science or International relations

Elective modules

(Refer to the online Yearbook at www.up.ac.za/yearbooks/home)

1st year	2nd year	Final year
<ul style="list-style-type: none"> ▪ Industrial and organisational psychology or Economics ▪ Statistics ▪ French ▪ German ▪ Informatics 	<ul style="list-style-type: none"> ▪ Industrial and organisational psychology ▪ Economics ▪ Public law ▪ Public management 	<ul style="list-style-type: none"> ▪ Industrial and organisational psychology ▪ Economics

Note: Candidates who did not obtain at least a 4 (50-59%) in Mathematics in the final NSC/IEB examination, or did not pass Statistics (STK) 113 and 123, may not include Economics (EKN) 120, 234, 244, 310 and 320, and Statistics (STK) 110 and 120 in their curriculum. Refer to the online Yearbook at www.up.ac.za/yearbooks/home.

Infographics

BCom (Accounting Sciences)

What can be achieved with the BCom (Accounting Sciences) degree?

The BCom (Accounting Sciences) is a SAICA accredited programme that forms part of the requirements for training as a chartered accountant (CA(SA)) as well as a registered accountant and auditor (RAA). The CA(SA) and RAA qualifications are the highest professional qualifications in accounting available in South Africa, enjoy international recognition and qualified CAs are highly sought-after as employees.



Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level		Mathematics		
	English Home Language or English First Additional Language				
BCom (Accounting Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	34		

Careers: First step towards qualifying as chartered accountants, external auditors, taxation professionals and advisors, and financial directors or managers

PLEASE NOTE: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes, but is recommended.

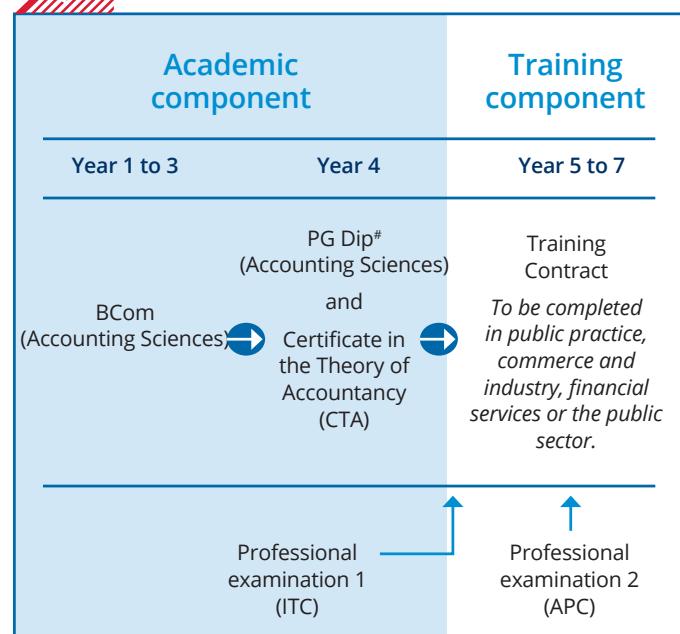
Students of the University of Pretoria consistently achieve excellent pass rates in the challenging first national Chartered Accountants' examination (ITC) as can be seen from these figures:



UP's average first-time January ITC pass rate over the past 14 years is an exceptional 94%



How do you become a Chartered Accountant in South Africa?



The CA(SA) designation is sought after and offers great national and international employment and entrepreneurial opportunities. Over and above the prestigious CA(SA) qualification, the 3-year BCom (Accounting Sciences) degree also provides access to the following BCom Honours degrees (subject to selection):

- BComHons (Financial Management)
- BComHons (Internal Auditing)
- BComHons (Taxation)



Although the above Honours programmes do not provide access to the CA(SA) qualification, these also provide access to the professional qualifications mentioned under the BCom (Financial Sciences) programme.

Contact information

Email pgd-acc-ems@up.ac.za
UP website www.up.ac.za/ca-more-info
SAICA website www.saica.co.za

Infographics

BCom (Investment Management)

The BCom (Investment Management) programme focuses on the global investment environment and includes topics covering all facets of investment management. The BCom (Investment Management) degree at UP is an Affiliated Program with CFA Institute®. Academic institutions that embed a significant portion of the CFA Program Candidate Body of Knowledge (CBOK)—including the Code of Ethics and Standards of Professional Conduct—into their curriculum may be eligible to participate in the University Affiliation Program.

An Affiliated University signals to their students and to employers that their curriculum is closely aligned with the practice of investment management and is helpful to students preparing for the CFA® Program exams.

CFA Institute and CFA are registered trademarks owned by CFA Institute

What can you do with a BCom (Investment Management) degree?

The degree prepares you for career opportunities in the dynamic world of investments, offering access to money markets, fixed-income markets, equity markets, derivatives markets and portfolio management.

The degree is suited for you if you have:

- Strong mathematical skills
- Diligence
- Analytical skills
- The ability to think independently
- Problem-solving skills
- An inquiring mind
- Integrity
- Attention to detail

Career opportunities

- Portfolio/Fund Manager
- Investment Analyst
- Risk Manager/Analyst
- Quantitative Analyst
- Financial Advisor/Planner
- Wealth Manager
- Investment Strategist

For more information:
www.up.ac.za/financial-management

Study options after obtaining your degree:

- BComHons (Investment Management)
- BComHons (Statistics and Data Science)
- BComHons (Economics)
- Pursue a professional qualification
 - Chartered Financial Analyst (CFA)
 - Chartered Alternative Investment Analyst (CAIA)
 - Certificate in Investment Performance Measurement (CIPM)
 - Certified Financial Planner (CFP)

Major subjects:

- Investment Management and
- Statistics or
- Economics

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Investment Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	34

Careers: Portfolio/fund manager, investment analyst, risk manager/analyst, quantitative analyst, financial advisor/planner, wealth manager, investment strategist.

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Infographics

BCom (Financial Sciences)

The BCom (Financial Sciences) degree combines three disciplines, namely Taxation, Internal Auditing and Financial Management into one degree with the aim of giving students more options for further study. Students will be exposed to all three these disciplines as part of the degree, empowering them to choose their field of specialities at honours level.

What are my options?

Chartered Institute of Management Accountants (CIMA)**

- CIMA Certificate in Business Accounting (CIMA Cert BA)
- CIMA Diploma in Management Accounting (CIMA Dip MA)
- CIMA Advanced Diploma in Management Accounting (CIMA Adv Dip)
- Associates of the Chartered Institute of Management Accountants (ACMA)
- Chartered Global Management Accountant (CGMA)

Financial Planning Institute of Southern Africa (FPI)**

- Registered Financial Planner™ (RFP)™
- Associate Financial Planner™ (AFP)™
- Certified Financial Planner® (CFP)®

South African Institute of Professional Accountants (SAIPA)**

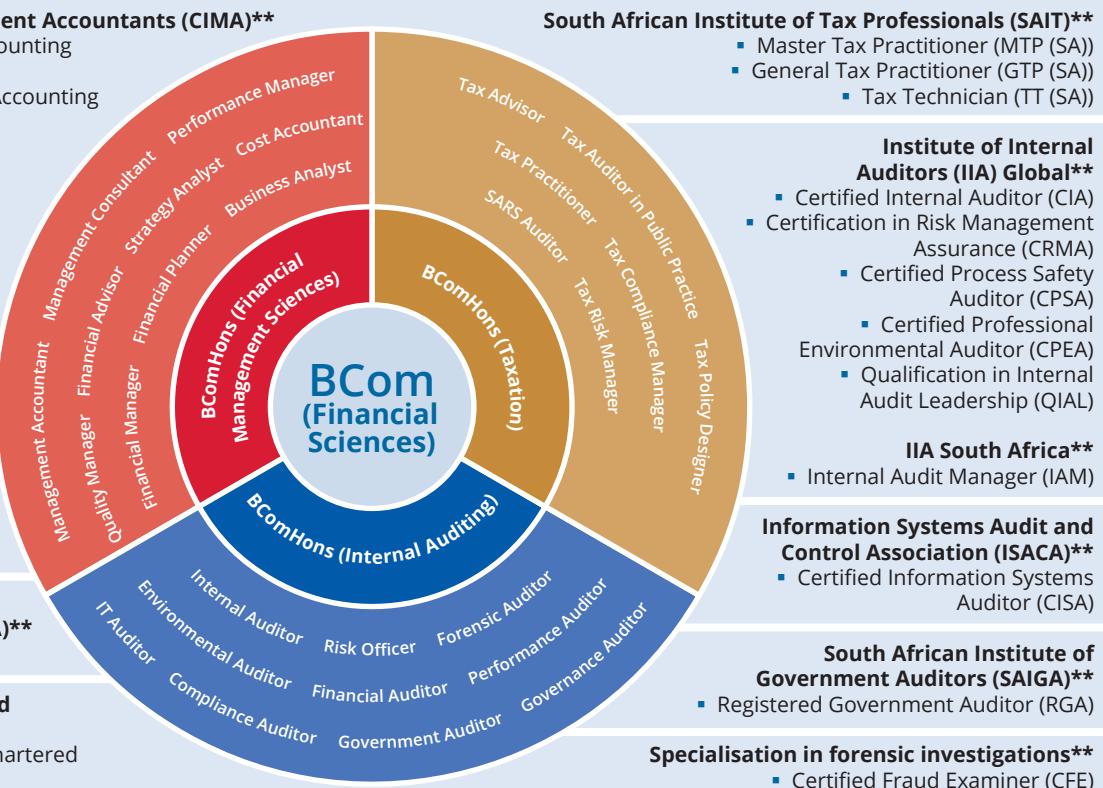
- Professional Accountant (SA)

Association of Chartered Certified Accountants (ACCA)**

- Member of the Association of Chartered Certified Accountants (ACCA)
- Fellow of the Association of Chartered Certified Accountants (FCCA)

Core Modules	1st Year	2nd Year	3rd Year
Financial accounting	X		
Business accounting		X	X*
Financial management		X	X*
Internal auditing		X	X*
Taxation		X	X*
Informatics	X	X	
Business law		X	
Business management	X		
Economics	X		
Statistics	X		

*Students choose any three majors at third-year level



**Subject to the education, experience, examination and ethics requirements of the various institutes.

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Financial Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

For more information visit www.up.ac.za/financial-management or send an email to financial.sciences@up.ac.za

Infographics

BCom (Economics) and BCom (Econometrics)

A career in economics entails uncovering and forecasting economic trends as well as the effects of policy changes on our society and the global economy. This is supported by econometrics, which is the collection, measurement and analysis of economic and social phenomena.

What is the difference between Economics and Econometrics?

Economics

An understanding of how the world works through concepts such as: growth in production (output); money, prices and inflation; international trade; unemployment; inequality and social infrastructure.

Econometrics

Econometrics is concerned with the measurement of economic behaviour, economic outcomes and the impact of economic policies. This is done using economic theory, data and statistical techniques. Econometricians are statistically and mathematically inclined.

Are you?

- Logical and analytical
- Curious and creative
- Motivated and open-minded

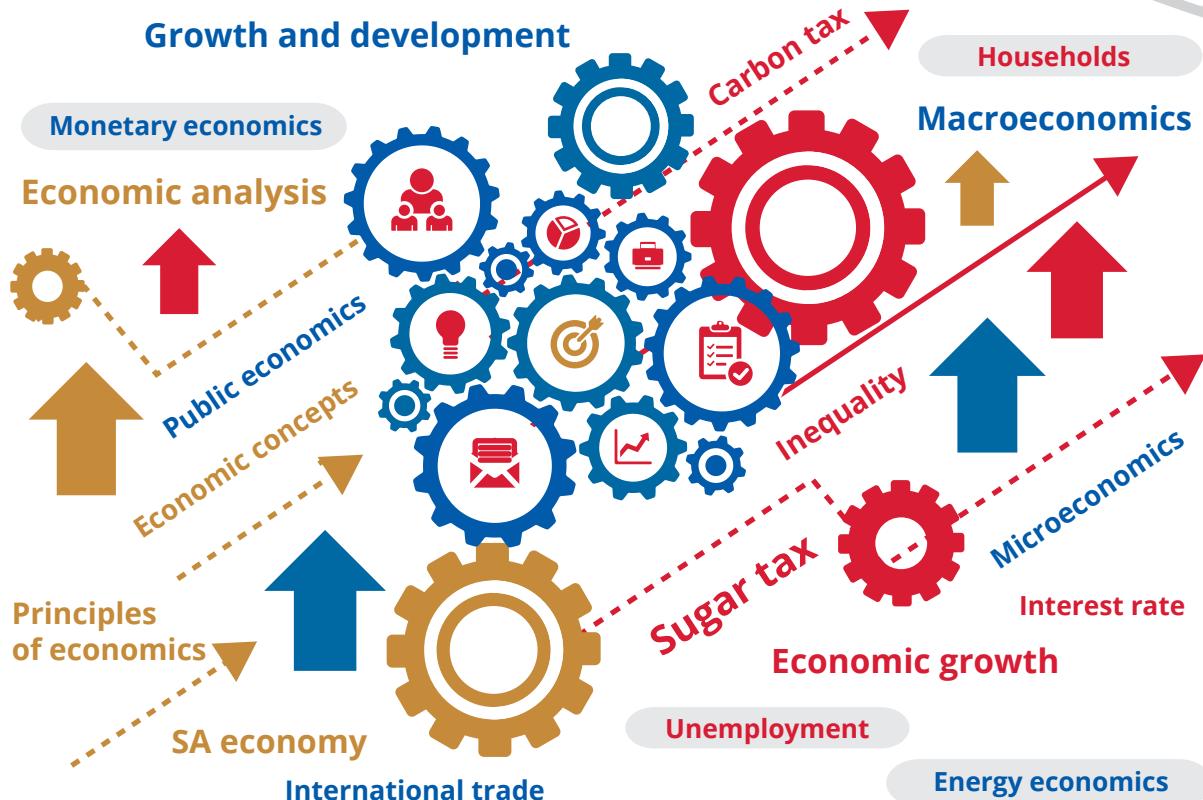
Then you should consider a career in economic sciences!

What career opportunities exist for graduates?

Fields of specialisation include banking, public finance, international trade and investment, and economic development. Economists and econometricians are employed by government, the South African Reserve Bank, National Treasury, private and commercial banks, stock brokerage firms and consultancies, both locally and internationally.

Positions include analysts, consultants, researchers, traders and academics.

Growth and development



Infographics

BCom (Law)

If you have a strong interest in commercial and economic disciplines and eventually would like to practice law in one of these fields, it is recommended to first enrol for a BCom (Law) degree, followed by an LLB degree. To excel in this programme, prospective students should possess the required aptitude, passion and skills for commercial, economical, numeracy and mathematical disciplines.

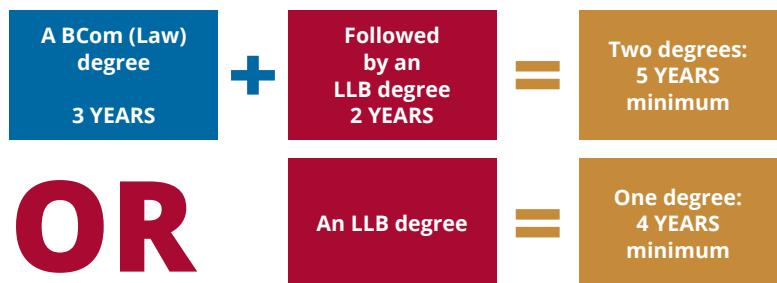
The BCom (Law) degree, followed by an LLB degree, offers a combination of BCom and law subjects with the aim of preparing students for the law profession, with a broad commercial academic background and providing an alternative route to the eventual attainment of an LLB degree. The combination of BCom (Law) and LLB degrees is highly recommended for students that have a dual interest in business and law. The BCom (Law) degree allows one to pursue other options upon completion, depending on specific career goals and legal fields.



Do you have what it takes to become a successful law student and lawyer?

- Committed to a successful, honourable career in law and justice
- Good listening and interpersonal skills
- Logical reasoning, persuasiveness and sound judgement
- Value honesty and integrity
- Ability to digest and convert loads of information, scientific data and paperwork generated by cases
- Emotional intelligence to view a challenge objectively and address it proactively
- Attention to detail
- Ability to prioritise tasks and manage time effectively

The University of Pretoria offers several paths toward the legal profession:



Note: This is one of several paths to secure professional employment and advance in the workplace. Combined programmes are more expensive and take longer to complete than the four-year LLB degree programme. Please consult the websites of the University of Pretoria's Faculty of Humanities (www.up.ac.za/faculty-of-humanities) and the Faculty of Law (www.up.ac.za/law) for information about alternative routes to obtaining an LLB.

Career opportunities

An LLB degree, and preferably admission as an attorney or advocate, irrespective of whether you wish to practice one day as an attorney or advocate, is currently the minimum requirement to join the organised legal profession in South Africa. Some of the careers you may pursue include:

Officers of the court	■ Attorneys ■ Advocates
Court administration	■ Registrars of the High Court ■ Clerks of the Magistrates Court
Judiciary	■ Magistrates ■ Judges
Other officials in the administration of justice	■ Masters of the High Court (administration of estates) ■ Registrars of deeds, companies, patents and trademarks
Legal aid and advice	■ Legal Aid Board ■ Legal Resource Centre/Justice Centres

Programmes	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level		Mathematics		
	English Home Language or English First Additional Language	Mathematics			
BCom (Law) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: First step towards becoming attorneys, legal advisors, advocates, prosecutors, presiding officers (magistrates or judges) and academics in the legal field	5	5	32		

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Infographics

BCom (Statistics and Data Science)

Statistics can be described as the science of extracting information from data. We use statistics every day to make sense of the world around us: from the friend suggestions offered by Facebook to the way Apple Music recommends new music for you. Statistics is a vital part of modern life and business. Knowledge gained in the BCom (Statistics and Data Science) programme can increase the scope of possible jobs you could consider in practically any industry.

The skills needed and the personality traits of a statistician

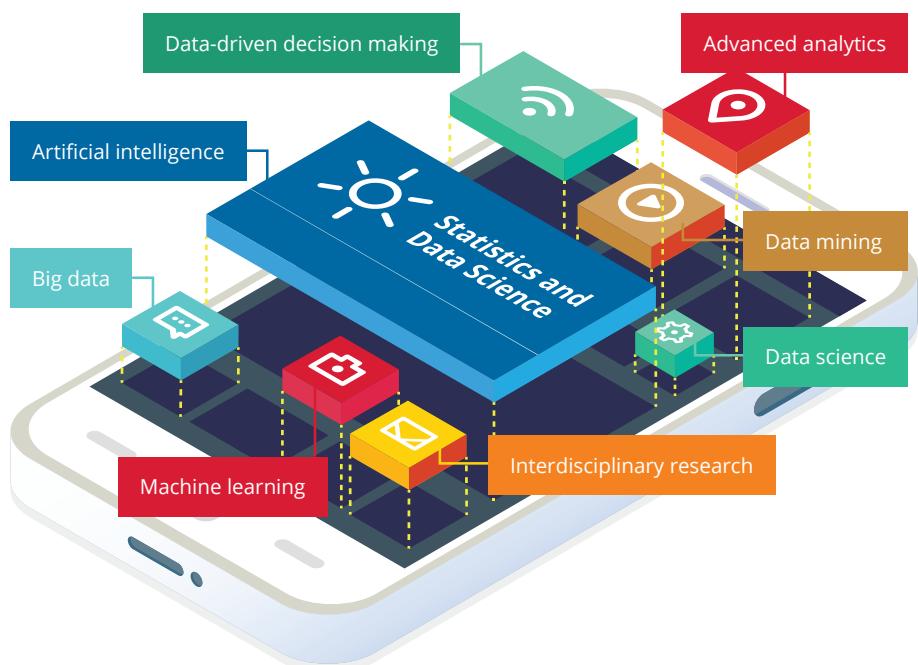
- Strong numerical skills
- Interest in computers and computer programming
- Logical reasoning ability
- Interest in planning and analysing problems
- Good language and communication skills
- Strong problem-solving skills
- Inquisitive mind
- Innovative
- Team player
- Critical thinking skills
- Agile mind
- Adaptable

Accreditations/Certifications

Undergraduate and honours students in Statistics and Mathematical Statistics can obtain Statistical Analysis Software (SAS) certification. SAS is an international statistical software developer (www.sas.com).

SAS offers four certificates to students:

- Introduction to statistical learning
- Statistical learning
- Introduction to big data analytics
- Big data analytics



Careers for individuals with statistical training

Banking and finance

- Fraud detection
- Analyse and forecast trends
- Pricing strategies

Insurance

- Determining the risk an insured person poses to the insurance company and determining a fair premium based on predicted claims
- Analysing client profiles in order to identify the need for new products

Consumer science

- Understanding the behaviour of consumers and their preferences
- Predicting demand for a product
- Identifying profitable locations for new outlets

Spatial statistics

- Advising the mining industry on sampling strategies to provide information about the characteristics of natural deposits and monetary gains to be made
- Analysing patterns where crimes are committed

Government

Advising decision makers in matters concerning the environment, economic and social development, health, education and infrastructure

Education

Statistics is a compulsory subject at school, but few teachers have statistical training.

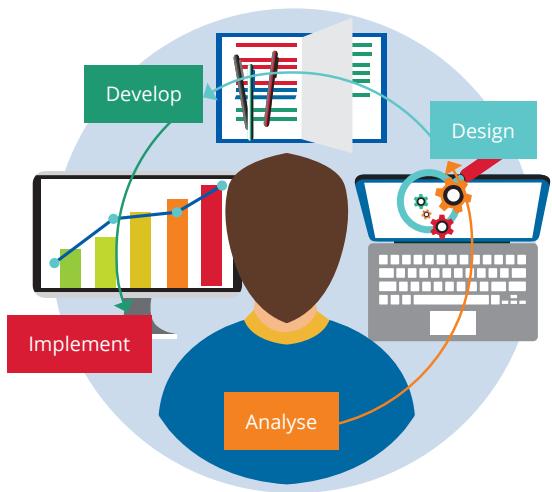
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Statistics and Data Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32

Careers: Data scientists, statistical analysts in several industries, researchers, consultants and lecturers

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

For more information visit www.up.ac.za/statistics

Infographics



BCom (Informatics) Focus area: Information Systems

The BCom (Informatics) Focus area: Information Systems degree is an internationally accredited programme that combines the world of **information technology** (IT) with the **business world**. As IT develops, it enhances the business environment to do more in less time and provide management information faster and more accurately.

IT is the **gateway** to the international business world, concluding business transactions within seconds.



What are my career opportunities?

- Database administrator
- Multimedia developer
- Business analyst
- Business architect
- Project manager
- System analyst
- Consultant
- Test analyst
- UX expert
- BI analyst
- IT auditor
- Software architect
- Network security
- Web developer
- System developer
- Network analyst
- Data scientist
- Programmer



Where can I work?

All commercial sectors, such as:

- Finance
- Insurance
- Telecommunication
- Mining
- Software development
- Consulting organisations
- Education
- Retail



What are my subject choices?

- Informatics
- Business management
- Computer auditing
- Statistics and Data Science
- e-Taxation
- Marketing management
- Financial accounting
- Business law



What type of person can be an Informatician?

- Problem solver
- Analytical
- Creative
- Good communicator
- Good at working in a team
- Good at working with people
- Able to deal with ambiguity

What will you study in the first three years?

Year one:

- Introduction to programming
- Introduction to information systems development
- How to solve problems and think critically
- How IT is used in organisations
- Commerce domain knowledge

Year two:

- Programming
- Information systems development
- Database development
- Networks
- Commerce domain knowledge

Year three:

- Advanced programming
- Project management
- Trends in IT
- Develop a system for a real client
- Commerce domain knowledge

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Informatics) Focus area: Information Systems [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	30

Careers: Managers in the information technology environment, computer software or hardware support services, computer systems analysts, financial information systems analysts, business analysts, information facilitators, IT training officers, systems developers, business systems analysts

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

For more information visit www.up.ac.za/informatics



Computing
Accreditation
Commission

Infographics



BCom (Agribusiness Management)

The BCom (Agribusiness Management) degree programme is the ideal choice for a student who has diverse interests and proficiencies, ranging from business to science.

The programme will give you an overview of the global agricultural and food sector, as well as how business and science issues affect how this sector functions. This programme cultivates problem solvers who each do their part to help feed the world.

Choose BCom (Agribusiness Management) for diversity in career choices. With this degree you can pursue a career in:



Banking, finance and investment

You will visit farms and agribusinesses as a representative of the bank, insurance company or investors to evaluate financing, insurance and investment opportunities in the agricultural sector and food ecosystem.



Farming enterprises and input companies

You will develop marketing and sales strategies for things like seeds and fertiliser, or agricultural products such as fruits or meats.



Producer and commodity organisations

You will work with producer and commodity organisations to promote the interests of these groups and their economic sustainability through service to members.



Business management of food processors and manufacturers

You will develop marketing strategies and do business analysis for large food manufacturers.



Logistics and marketing

You will trade and ship commodities such as maize.



The public sector

You will develop and help to implement government policies and legislation for the agricultural and food sector.

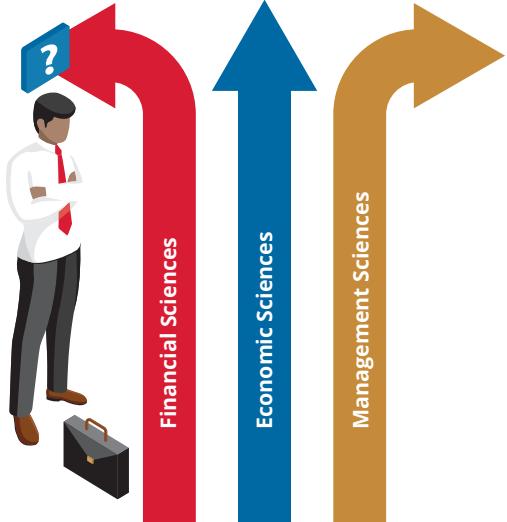
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Agribusiness Management) [3 years]	5	5	30

Careers: The degree offers diverse career choices. Opportunities exist in banking, finance and insurance; policy design and implementation; research and consultation; food processing and manufacturing; commodity trading on global and local stock markets; logistics and supply chain operations; and business management in agricultural companies, to name but a few.

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

For more information visit www.up.ac.za/agricultural-economics-extension-and-rural-development or call +27 (0)12 420 3251

Infographics



Apply for BCom if you:

- have competence and an interest in diverse study areas;
- want flexibility in selecting your modules; and
- do not want to specialise too early in your studies.

Once you have explored various elective modules in depth during your undergraduate studies, you can choose to specialise in a specific field by pursuing postgraduate studies.

BCom

Are you interested in studying toward a BCom degree, but are undecided about which major to select? If the fixed curricula offered by specialist degrees do not meet your broad academic interests, then the general BCom degree could be the perfect qualification for you.

The degree does not lead to a specific vocational outcome, but offers opportunities to determine your own career outcome, within limits. Students are able to compile their own curricula with a view to work opportunities in all sectors.

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: The degree does not lead to a specific vocational outcome but, to some extent, offers opportunities to determine your own career outcome. Students can compile their own curricula with a view to future work opportunities in all sectors.	5	4	30

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Danielle Tolken, BCom and BCom (Hons) in Internal Auditing graduate



'I chose the BCom programme because when I matriculated, I was still unsure about exactly what I wanted to study. All I knew was that I wanted to study something related to business and finance. Enrolling for a more flexible programme to start with gave me time to decide what really interested me.'

The benefit of a more flexible programme is that you study a wider variety of subjects than are generally offered by more fixed programmes. You also interact with students who are studying fixed programmes, which can help you gain more insight.

There were many highlights during my three years of undergraduate studies, but the main one was that I discovered that what I wanted was a career in internal auditing. To tell the truth, I never even knew what internal auditing entailed until my second year when I took it as a subject and discovered a whole new world.

My advice to any student considering the BCom degree course is to inform yourself about the subjects that are available to you and to keep an open mind. You may just find your passion!'

Londeka Xaba, BCom and BCom (Hons) in Business Management graduate



'The two questions that I grappled with were what interested me and what my goal was.'

Initially, I was interested mainly in business and economics, so I incorporated the two and chose a set of modules that would suit my goal and interests. I took these modules, among others, up to my third year, after which I could opt for an honours programme in either economics or business management. I chose the latter. I am grateful that I was able to select modules I enjoyed, which ensured that I would excel in them.'

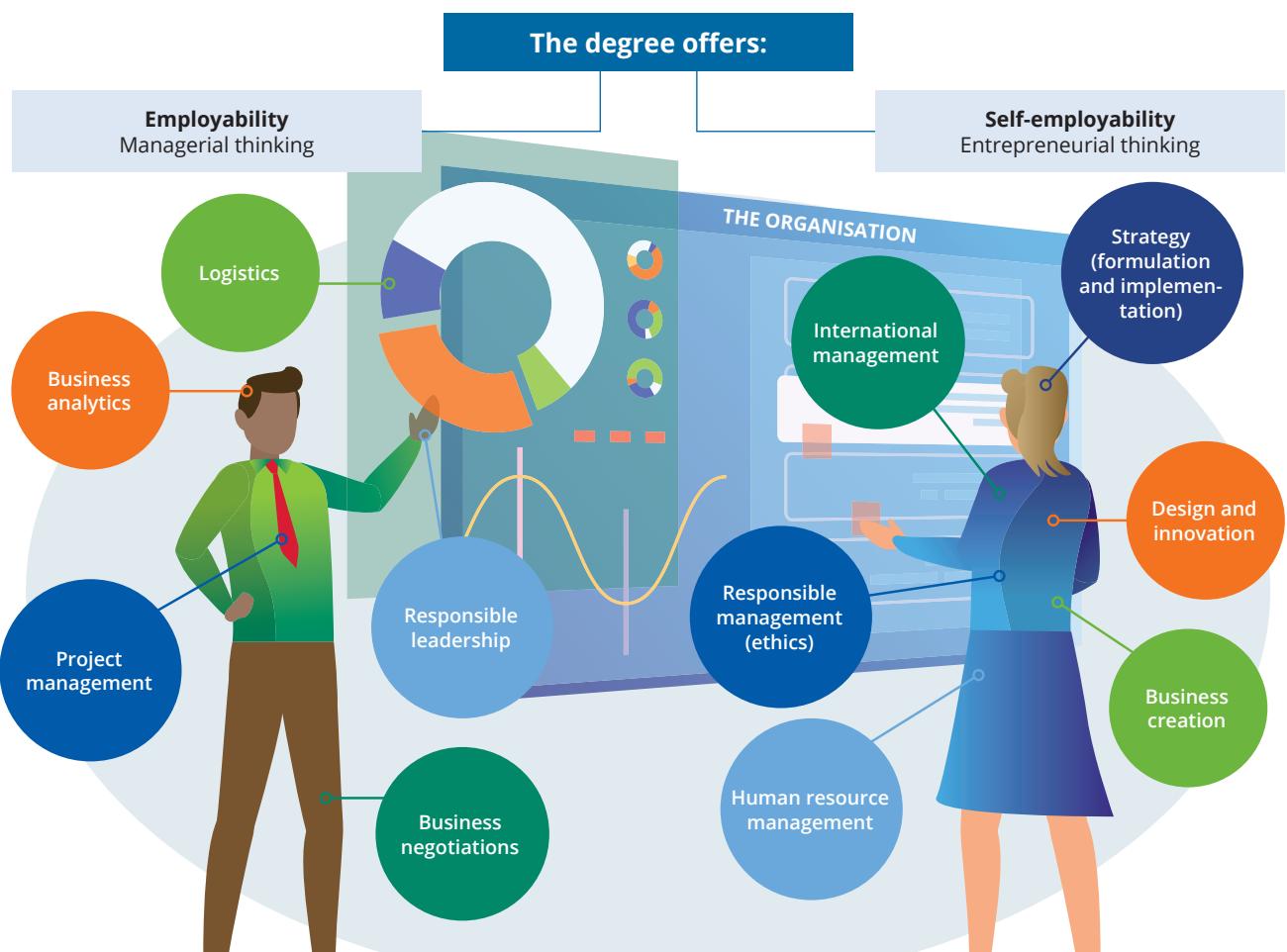
My advice to those considering this programme is to find out what your options are by discussing possible module choices with the coordinator. Study the list and select those that align with your goals and interests, keeping in mind the requirements for the degree or diploma you would like to pursue.'

Since once you enter the job market, companies will request your academic transcript to analyse the content, you should focus on creating content you will be proud to present to the company or industry where you hope to be employed.'

Infographics

BCom (Business Management)

The BCom (Business Management) degree programme is for the student who wants to become a business leader and be employed in an organisation or create his/her own employment. The degree programme will give you the big picture of the organisation as a body with separate but interdependent parts and will show you how all the parts function as a whole. You will be equipped to solve real-life business problems, use management processes to make decisions to benefit the organisation and know the importance of being innovative within a dynamic business environment. The degree programme will empower students to develop a passion for business through exposure to South African and international best practices.



The BCom (Business Management) degree programme is the first step on the academic path within the Department of Business Management that can take you on a road to different honours degrees, postgraduate diplomas, MPhil degrees and finally PhD degrees in either Business Management, Entrepreneurship or Leadership.

You have to be:	Business management graduates can further their studies in:	Business management career opportunities:
<ul style="list-style-type: none"> ▪ Able to see the big picture ▪ A creative thinker ▪ An analytical thinker ▪ A self-starter ▪ Able to integrate ideas and concepts ▪ A systematic organiser and planner 	<ul style="list-style-type: none"> ▪ Business management ▪ Entrepreneurship ▪ Responsible leadership ▪ Supply chain management ▪ Strategic management ▪ Development practice ▪ Business rescue ▪ Monitoring and evaluation ▪ Strategic management principles 	<ul style="list-style-type: none"> ▪ General/project manager ▪ Logistics manager ▪ Strategist ▪ Entrepreneur ▪ Innovation manager ▪ Business analyst ▪ Business consultant ▪ Manager Business Solutions ▪ Chief Executive Officer (CEO)

Infographics

BCom (Supply Chain Management)

The University of Pretoria's Department of Business Management is the only European Logistics Association (ELA) National Certification Centre (NCC) in Sub-Saharan Africa. The goal of ELA is to provide an international forum for networking, promotion and development of the logistics and supply chain profession through its network of NCCs.



What is Supply Chain Management (SCM)?

It is a systems approach to managing the entire flow of materials, information, services and finance from raw materials suppliers through factories and warehouses to the end user.

Career opportunities in Supply Chain Management

- Supply chain analyst
- Supply chain strategist
- Buyer/Procurement manager
- Customer service manager
- Inventory manager
- Warehousing manager
- Distribution manager
- Transport manager
- Demand planner
- Planning manager
- Logistics manager

Skills of a Supply Chain Manager

- Global orientation
- Analytical skills
- Cross-cultural literacy
- Systems thinking
- Natural leader
- Technical savvy
- Superior business skills
- Problem solver
- Innovative
- Creative thinking
- Team player
- Communication skills
- Willingness to learn

What you will learn

First year

- Business management
- Economics
- Financial accounting
- Statistics
- Marketing management
- Informatics

Second year

- Logistics management
- Purchasing and supply management
- Production and operations management
- Project management and negotiation skills
- Business law
- Financial management
- Marketing management
- Responsible management

Third year

- Warehousing management
- Transport management
- Supply chain strategy
- Strategic management
- International business
- Business analytics

Contact information

Department of Business Management

Tel +27 (0)12 420 4349

Email uscm@up.ac.za

Website www.up.ac.za/ems

UP's association with ELA translates to the following benefits to students:

- A degree accredited at Level 4: Candidate European Junior Logistician (cEJLog), based on the European Logistics Association Qualifications Framework Standards agreed by industry.
- ELA candidates stand out from the crowd with a certificate that is a global mark of competence and promotes mobility in an international market place.
- Offers graduates a smooth path to full ELA Certification once relevant experience is obtained.



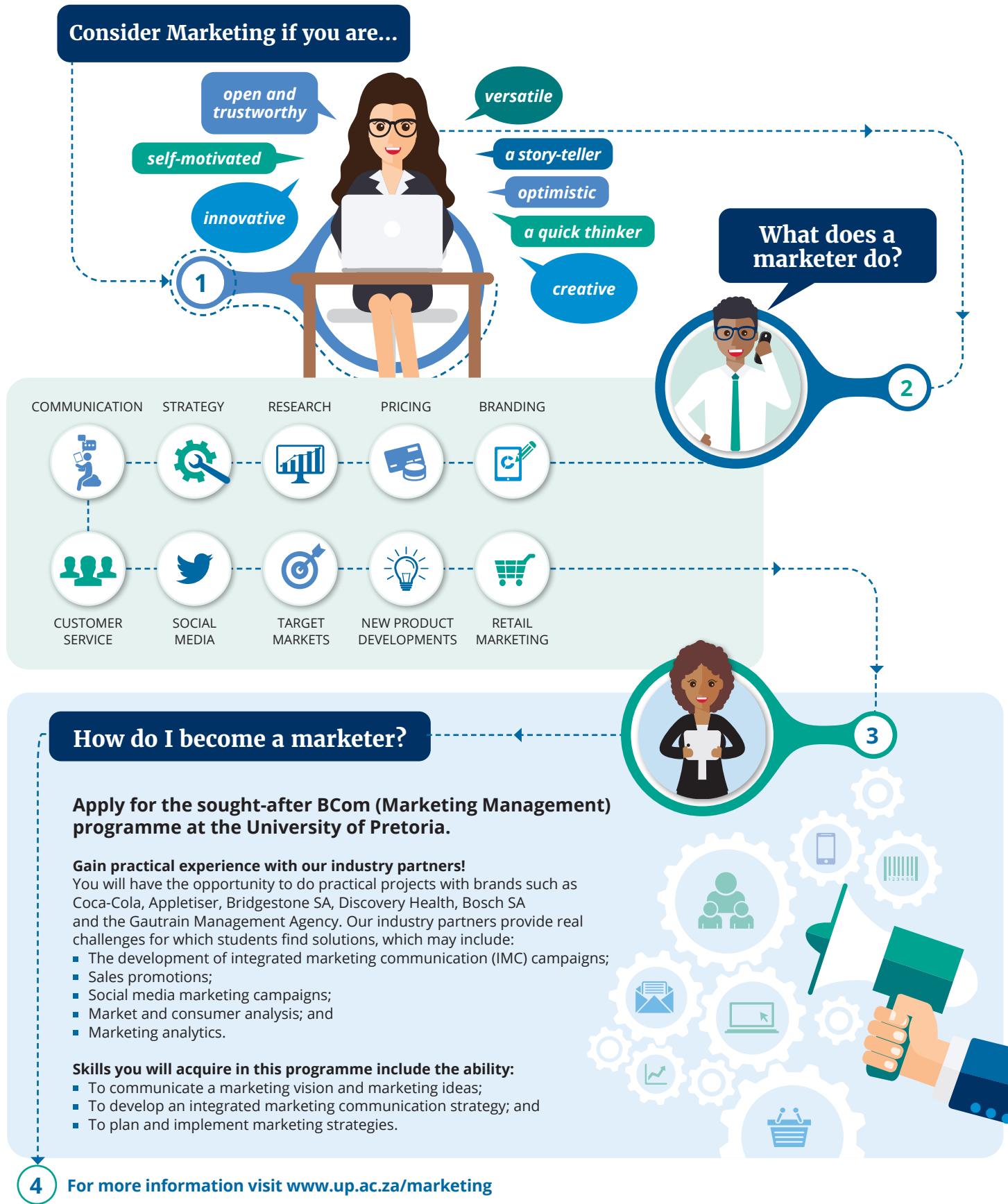
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Supply Chain Management) [3 years]	5	4	30

Careers: The purpose of this programme is to equip students with the ability to participate in functional management within an integrated supply chain. This includes supply management, production and operations management, warehousing, transport management and supply chain strategy.

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

Infographics

BCom (Marketing Management)



Infographics

Industrial Psychology, Human Resource Management and Labour Relations Management

Did you know, to become an Industrial and Organisational Psychologist (IOP), a Human Resource Practitioner or Manager (HRM), or a Labour Relations Officer (LRM), you can apply for BCom (Human Resource Management)?

Why is this a Commerce degree in the Faculty of Economic and Management Sciences?

A great benefit of our programme is that because you are earning a BCom, you will not only learn IOP, HRM and LRM, but you will also gain a wider knowledge of business, which will make you marketable for any number of business job opportunities.

What is the difference between IOP, HRM and LRM?

Industrial and Organisational Psychologist (IOP)

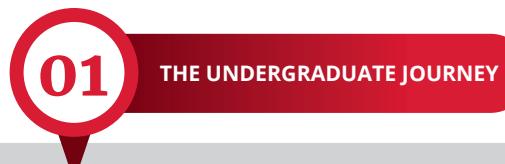
They use knowledge of the psychology of human behaviour to ensure that people work "better" in the workplace.

Human Resource Manager (HRM)

They manage people using workplace policies and procedures to ensure that they are effective and productive.

Labour Relations Management (LRM)

They implement LR programmes and act as mediators through advising and counselling in the workplace.



Register and complete the BCom (Human Resource Management)

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom (Human Resource Management) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	30

Careers: Human resources practitioners, human resources consultants, mediators, labour relations specialists, human resources managers, personnel managers, training officers, liaison officers, psychometrists and industrial psychologists. In their capacity as human resources practitioners, graduates will be responsible for matters such as developing human resource strategies and policies, human resource planning, recruitment and selection of employees, training and development of staff, labour relations and personnel administration.

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

What will you study in the first three years?

Year one

- Introduction to industrial and organisational psychology
- How learning takes place at work
- Personality and how it develops
- How humans interact with their environment and the different roles we occupy in society

Year two

- The role of work teams in an organisation and group's behaviour
- The effect of power and leadership in organisations
- How organisations are structured and designed
- The best ways to bring about change in the workplace

- How to keep employees safe and healthy in the workplace
- How to manage the diversity of people in the workplace
- How to conduct psychometric tests (eg aptitude, interest, intelligence and personality)

Year three

- How to define what a specific job entails and to determine appropriate salary structures thereof
- How to plan for workforce recruitment, selection and orientation for newly appointed employees
- How to measure the performance of employees and motivate them toward organisational goals
- How to train and develop employees to enhance their performance and career potential



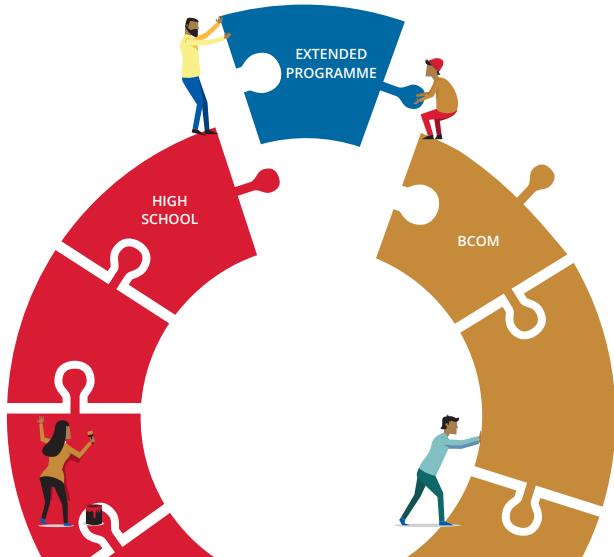
Congratulations!
Now you have
your degree in
HRM!

Infographics

BCom – Extended Programme

The BCom – Extended Programmes has lower entrance requirements than other three-year BCom programmes and is designed to accommodate students who are academically less prepared, but who are willing to work hard to correct chinks in their academic armour, thus earning success and eventually a degree.

The programme includes an additional year of study, during which students' basic knowledge and skills are enhanced before progressing to more focussed studies in the last three years of their chosen degree programmes. Students who embark on this programme theoretically have a much greater opportunity to succeed in their studies, as the teaching model utilises smaller tutorial groups and provides dedicated support to students who need assistance to bridge the gap between school and university.



Features of the programme:

Phase 1: 1st year (Mamelodi Campus)

- Content is delivered at a slower pace for students to develop thorough understanding of the study material.
- Smaller groups allow more individual attention.
- Additional modules and support are offered to help students cope with university life.
- A variety of methods are used to deliver module content to remedy possible gaps in foundational knowledge.

Phase 2: 2nd to 4th year (Hatfield Campus)

- Students must pass all their modules during Phase 1 to be transferred to Phase 2.
- Degrees in the Management Sciences are immediately accessible at the commencement of Phase 2.
- Transfer to degrees with a National Senior Certificate Mathematics requirement of 5 and above are only accessible if students meet the stringent transfer requirements set out in the Transfer Guide (see www.up.ac.za/ems) by the end of their first year on the Hatfield Campus.



Bonginkosi Tshabalala, BCom (Accounting Sciences) student

'After a four-year study break, I was convinced that the BCom – Extended programme was the perfect choice for me. I had high expectations, and they were exceeded: the lecturers, faculty student advisors and all the staff members work tirelessly to ensure that every student receives a quality education. The programme unleashed my potential and introduced me to a group of innovative, hard-working individuals who went on to be some of the most successful students at UP. Hard work and discipline was rewarded by my induction into the Golden Key International Honour Society. By the end of my first year, four companies/organisations offered to sponsor me, and this was solely because of the excellent support system in the BCom – Extended programme.'



Tsakisa Guambe, BCom (Economics) cum laude and BCom(Hons) in Statistics and Data Science graduate

'Initially, I resented the idea of studying an extra year, but when I look back now, I realise how it helped me to make smarter career choices. The structure of the programme allowed me to realise my strengths and weaknesses. We were often provided with information about possible degrees to pursue and careers to follow, which gave me the opportunity for self-discovery. Moreover, I discovered other career paths I could follow besides the one I had in mind. See the extended programme as an opportunity to shape your future and set your pace for the years ahead.'

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BCom – Extended programme [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	3	26

Note: The first year of study is presented at the Mamelodi Campus. Admission to the second year of study at the Hatfield Campus is subject to selection.
Careers: Career opportunities depend on the field of study chosen by students in their second year of study.

Infographics

BAdmin (Public Management and International Relations)

This programme undertakes a scientific study of the managerial and administrative functions performed in the public sector. It further aims to capacitate students to participate in and contribute to managerial functions through policy-making, human resource management, organisational restructuring and ensuring accountability.

Who is the ideal candidate?

People who have the desire, commitment and dedication to serve their community, their city and/or their country. People who believe in and want to be part of the moral and legal obligation that the state has towards creating a better life for all.

What makes this programme unique at UP and/or in SA?

This is the only programme in the Faculty that combines public sector management with specialisations such as politics and international relations. The composition of the programme not only exposes students to the management environment within both the public and private sectors, but enhances their understanding of what it means to be a good and responsible citizen. The quality of the teaching and research at UP is excellent.

The School of Public Management and Administration at the University of Pretoria is one of the best institutions in offering public sector education in South Africa and on the African continent.

What career opportunities exist for graduates?

- Parliamentary researcher
- Project manager
- Policy analyst
- Public human resource manager
- Public sector consultant working with public sector contracts, empowering communities to access government services
- Municipal manager or executive head of a government department or agency
- Diplomat or part of the permanently employed diplomatic corps deployed nationally or internationally
- State protocol officer
- Official working in Embassies, Consulates and High Commissions
- Official working in industrial relations or employee relations divisions in government departments
- Official heading up the corporate divisions of government departments and agencies



Which organisations employ BAdmin graduates?

Government departments, Embassies, Consulates, High Commissions, Parastatals, non-governmental organisations, private sector companies that work extensively with government contracts.



Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BAdmin (Public Management and International Relations) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. Careers: Diplomats, political analysts, managers in the public sector, local government and the private sector, non-governmental organisations, international organisations and embassies. Graduates are often employed in human resources sections and planning and general administrative divisions.	5	Mathematics 3 or Mathematical Literacy 4	28

Note: Accounting at school is not a subject requirement for any of the BCom and BAdmin programmes.

For more information visit www.up.ac.za/BAdmin

Infographics

Study options on offer at the Faculty of Economic and Management Sciences

Take a step UP

A degree from the University of Pretoria's (UP) Faculty of Economic and Management Sciences (EMS) could be the key to turning your passions into an exciting career. The wide variety of study options on offer are presented by highly qualified lecturers from across the globe who are leading experts in their fields.

Financial Sciences

The variety of roles fulfilled by professionals in financial sciences range from solving complex financial problems to managing investments. They are also expected to offer recommendations to help clients make wise financial decisions.

Are you...

- Passionate about numbers
- An innovative problem solver
- A critical thinker and creative leader

What you can study

- BCom (Accounting Sciences)
- BCom (Financial Sciences)
- BCom (Investment Management)

Possible careers

- Chartered accountant
- Accountant
- Financial manager
- Forensic specialist
- External/Internal auditor
- Tax professional
- Investment professional
- Business analyst

Economic Sciences

A career in economics entails uncovering and forecasting economic trends as well as the effects of policy changes on our society and the global economy. This is supported by econometrics, which is the collection, measurement and analysis of economic and social phenomena.

Are you...

- Analytical
- Curious
- Mathematically inclined

What you can study

- BCom (Econometrics)
- BCom (Economics)

Possible careers

- Analyst
- Broker
- Consultant
- Econometrician
- Economist
- Lecturer
- Researcher
- Trader

Management Sciences

There are various management and support services functions that keep an organisation running smoothly on a daily basis. These essential tasks are performed by employees with specialised knowledge that ranges from hiring suitable staff to marketing the company's goods and services.

Do you...

- Work well with people
- Enjoy thinking outside the box
- Adapt well to change

What you can study

- BCom (Business Management)
- BCom (Human Resource Management)
- BCom (Marketing Management)
- BCom (Supply Chain Management)

Possible careers

- Corporate entrepreneur
- Human resource consultant
- Industrial psychologist
- Labour relations consultant
- Logistics manager
- Management consultant
- Marketing manager
- Public relations manager
- Researcher

Public Management and Administration

Public servants who apply public administration and management principles make a significant contribution to the quest for excellence in service delivery. They also promote diplomacy by representing and protecting the interests of their country.

Are you...

- Enthusiastic about policy issues and current affairs
- A leader who values ethics
- Good at problem-solving

What you can study

- BAdmin (Public Management and International Relations)

Possible careers

- Diplomat
- Manager in a nongovernmental organisation
- Policy analyst
- Public manager
- Researcher
- Municipal manager

Additional programme and degrees offered in cooperation with other faculties:

- BCom (Own choice): The degree does not lead to a specific vocational outcome but offers opportunities to compile your own curricula and determine your own career outcome.
- BCom (Agribusiness Management), BCom (Informatics) Focus area: Information Systems; BCom (Law) and BCom (Statistics and Data Science).

Please note: Mathematics is compulsory for all BCom degrees. Students with either Mathematics or Mathematical literacy can be admitted into BAdmin degrees.

Your passions + a world class degree from UP = a bright future

For detailed admission requirements, please visit www.up.ac.za/bcom

Like the EMS page on Facebook: @upems



University of Pretoria

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Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomotho

www.up.ac.za/faculty-of-humanities



Note: The minimum admission requirements reflected in this brochure are subject to changes in regulations relating to COVID-19. Amendments will reflect in the digital version of this brochure, which can be downloaded from www.up.ac.za/programmes > Undergraduate > Faculty brochures.

2023

UNDERGRADUATE
FACULTY BROCHURE

Make today matter

Message from the Dean

I would like to invite you to start your career in the Faculty of Humanities at the University of Pretoria. Our Faculty is more than 100 years old and our programmes are ranked in the top 400 in the world!

Professor Vasu Reddy
Dean: Humanities



Our programmes blend academic and real-world experiences and will enable you to thrive in our interconnected world. We offer 18 different undergraduate degree programmes and, in most cases, you can plan your coursework by selecting from 400 different course options.

You can choose to enrol for a professional degree in any of a variety of fields, such as psychology, social work, communication and audiology—our Department of Speech-Language Pathology and Audiology is equipped with Africa's only Specialist Neuro-Otologic Test Centre! These programmes will train you in skills that are scarce and essential, especially now.

Another option is to study music, drama or visual arts at our School of the Arts, which offers Africa's only arts therapy programme. The Javett-UP Arts Centre is keen to expose new creative talent to internationally renowned artists and scholars.

If you wish to become multilingual—another key skill—there are a range of language courses to choose from, and our programmes in the social and applied social sciences will introduce you to the complexities of a broader world. We are proud to say that several of our UP-trained social scientists are internationally recognised and celebrated with appointments to UN and other key international bodies.

What will you choose?

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Undergraduate programmes

Important information for all prospective students for 2023

- The admission requirements and general information in this brochure 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 2023: Qualifications other than the NSC and IEB*, available at www.up.ac.za/programmes > Undergraduate > Admission information.
 - **Brochure:** *Newcomers Guide 2022*, available at www.up.ac.za/programmes > Undergraduate > Admission information.
 - **Website:** www.up.ac.za/international-cooperation-division.
- **School of Tomorrow (SOT) and Accelerated Christian Education (ACE):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **General Education Development (GED):** South African GED graduates who graduated up to 2019 may be considered for admission provided they qualify for an exemption certificate issued by USAf and comply with university admission requirements, as well as faculty subject requirements. South African GED graduates who graduated after 2019 cannot be considered for admission to UP as the diploma is not accredited by USAf and will not be considered for exemption. Applicants from the USA who completed the GED may apply for a Foreign Conditional Exemption Certificate issued by USAf accompanied by their SAT/TOEFL/IELTS results.
- **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.

Important faculty-specific information on undergraduate programmes for 2023

Applications will open on 1 April 2022.

The closing date for all selection programmes is **30 June 2022**. The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

- Life Orientation is excluded when calculating the APS.
- Faculty Yearbooks: www.up.ac.za/yearbooks/home.
- All modules (excluding foreign language modules) will only be presented in English, as English is the language of tuition, communication and correspondence at the University of Pretoria.

1. You will be considered for conditional admission if space allows, and if you:

- are a Grade 11 applicant and meet all the specific programme and APS requirements, submit your final Grade 11 examination results, and have a National Senior Certificate (NSC) with university endorsement or an equivalent qualification; OR
- are transferring from other recognised institutions to the University of Pretoria; OR
- are a graduate or have graduate status from another recognised tertiary institution; OR
- are a graduate of another Faculty at the University of Pretoria.

If you are an applicant from a country other than South Africa*, please apply for conditional admission based on your final results equivalent to Grade 11. Final admission is based on the qualification equivalent to the NSC.

2. You will be considered for final admission to degree studies if space allows, and if you:

- have a National Senior Certificate (NSC) or equivalent qualification with admission to bachelor's degree studies, and comply with the minimum subject requirements as well as the APS requirements of your chosen programme; OR
- are a student transferring from another recognised tertiary institution and comply with the programme requirements; OR
- have graduate status from another recognised tertiary institution or are a graduate of another Faculty at the University of Pretoria.

If you are a citizen from a country other than South Africa* or are a student with other qualifications equivalent to the NSC (including school qualifications from other countries, eg Spain, New Zealand, etc), you must obtain a Complete Exemption Certificate or a Foreign Conditional Exemption Certificate based on your international ('foreign') qualifications. Certificates can only be obtained from Universities South Africa (USAf) at www.mb.usaf.ac.za. In addition, these candidates must meet the relevant programme admission requirements.

Notes on National Benchmark Test (NBT): The NBT will not be considered for selection and admission in 2023. Students in the Faculty of Humanities will be considered based on their NSC results and subject to available space.

Admission Point Score (APS) Conversion

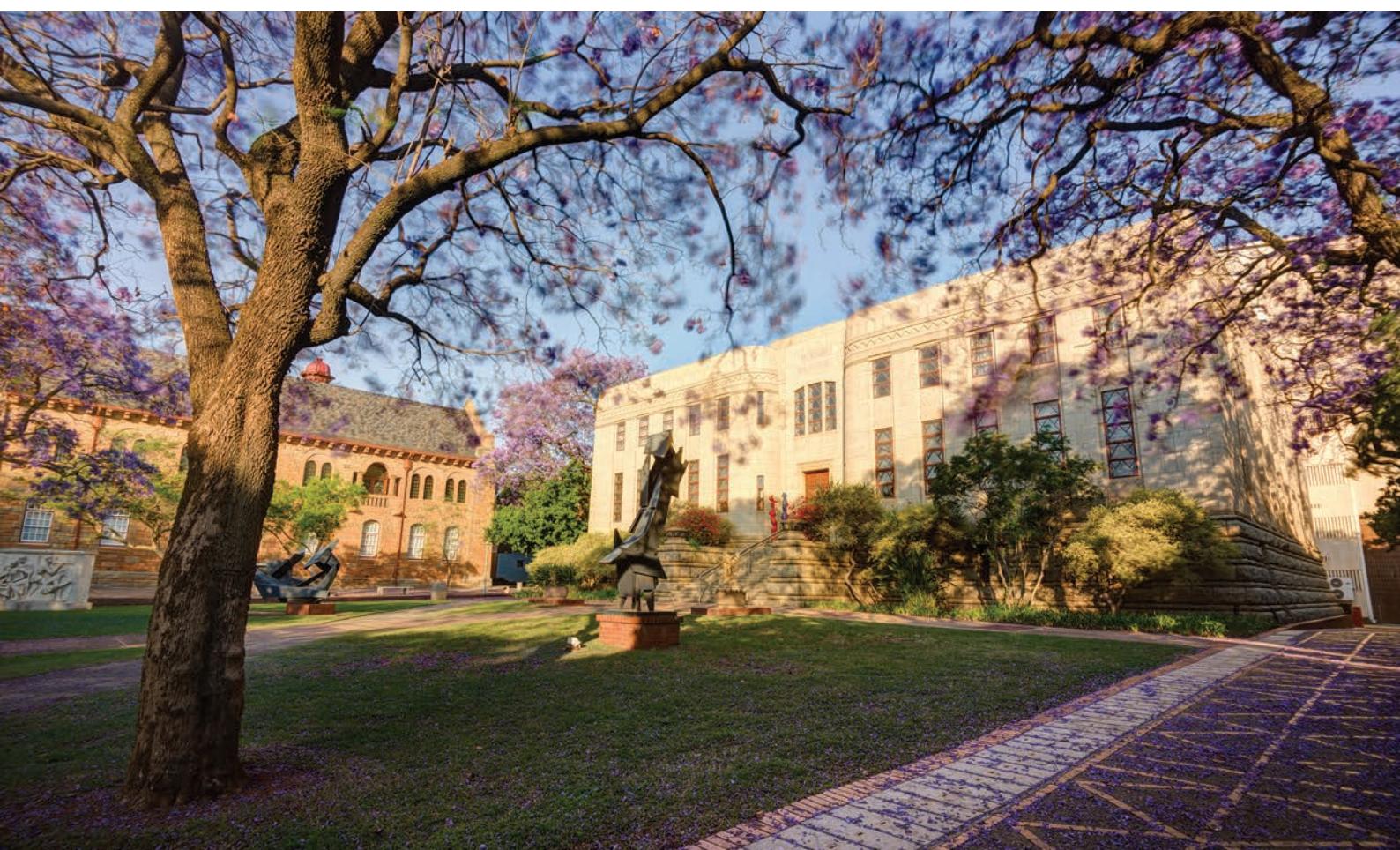
The following subject rating scores are used for calculating the APS for NSC/IEB:

Rating code	Rating	Marks %
7	Outstanding achievement	80–100%
6	Meritorious achievement	70–79%
5	Substantial achievement	60–69%
4	Adequate achievement	50–59%
3	Moderate achievement	40–49%
2	Elementary achievement	30–39%
1	Not achieved	0–29%

Undergraduate programmes

University of Pretoria website www.up.ac.za/faculty-of-humanities

SELECTION PROGRAMMES			
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level	English Home Language or English First Additional Language	APS
SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY	Mathematics	English Home Language or English First Additional Language	
BA (Speech-Language Pathology) [4 years] Closing date: 30 June	4	5	32
Selection is based on academic achievement, and only 50 students are admitted. The conditional selection process starts in August each year. For more information, please contact the programme coordinator (see page 6). The first year of study is the same for both the Audiology and Speech-Language Pathology programmes. Note: We will consider both first- and second-choice applications for BA (Speech-Language Pathology). Careers: Work in education and special education, hospitals, clinics or rural communities, or private practices, government, military and academic institutions (teaching and research)			
BA (Audiology) [4 years] Closing date: 30 June	4	5	32
Selection is based on academic achievement, and only 50 students are admitted. The conditional selection process starts in August each year. For more information, please contact the programme coordinator (see page 6). For Audiology and Speech-Language Pathology programmes, the first study year is the same. Note: We will consider both first- and second-choice applications for BA (Audiology). Careers: Diagnostic and rehabilitative audiology, audiometry and hearing therapy, work in education, special education, hospitals, clinics, private practice or government, military and academic institutions (teaching, research) and industry			
VISUAL ARTS	English Home Language or English First Additional Language	APS	
BA (Information Design) [4 years] Closing date: 30 June	5	30	
To retain admission, you must obtain an APS of at least 28 in the NSC. In addition to the UP application, it is compulsory for applicants to submit an online portfolio to the Information Design division by 30 June. Those who fail to do this will end up with an incomplete application and will therefore not be considered for the selection process. Careers: Animators, graphic designers, illustrators, interaction designers, communication designers, art directors, media production managers, design managers, designers of animation and motion graphics, design educators, media designers or freelance designers; typographers for advertising and branding agencies, publishing industries, web design companies, broadcasting and animation studios; in-house design for large companies, state and parastatal organisations, research and educational institutions, public relations and marketing companies, design consultants, printers and production houses or owners of private studios			



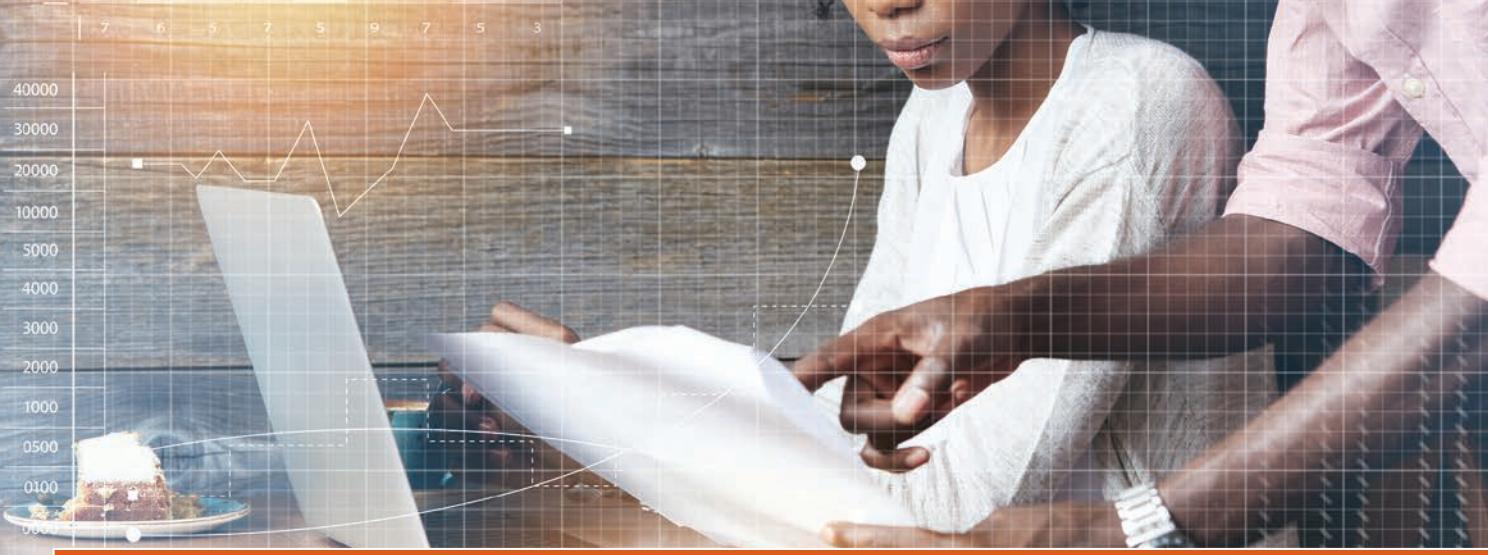
Undergraduate programmes

NON-SELECTION PROGRAMMES

Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
BA [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, candidates must obtain an APS of at least 28 in the NSC. Careers: There is a range of career options for students who complete the BA programme. Since the BA programme is relatively flexible, students can choose the same majors and elective modules as students studying in more structured programmes. Note: Students who wish to become psychologists must complete a BA majoring in Psychology, the BSocSciHons (Psychology), and the MA (Clinical, Counselling or Research Psychology). Careers: Clinical, counselling (sports and community) and research psychologist, registered counsellor or registered psychometrist. (Contact the Health Professions Council of South Africa [HPCSA—www.hpcsa.co.za] for information on the requirements.)		
SOCIAL WORK Bachelor of Social Work (BSW) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Departmental selection takes place at the end of the first year and is based on academic merit, an aptitude test and an interview. A police clearance certificate (PCC) is required to study social work. In terms of the Children's Act (2005), all registered student social workers have to complete Form 30 in Part B of the National Child Protection Register (NCPR). Career: Social worker		
LAW BA (Law) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Career: Lawyer (A BA (Law) degree and an LLB degree are required.)		
LANGUAGES BA (Languages) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Advertising, media and communication, copywriting, creative writing, text and document design, editing, language planning, language teaching and training, lexicography (compilation of dictionaries), technical writing, public relations, translation, publishing, diplomatic sector or tourism. If you would like to become a language practitioner, we recommend you continue with a BAHons (Applied Language Studies) once you have completed a BA (Languages) degree. Once you have completed a Postgraduate Certificate in Education, you will be able to enter the teaching profession.		



Undergraduate programmes



NON-SELECTION PROGRAMMES

Programmes	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
INDUSTRIAL SOCIOLOGY AND LABOUR STUDIES, HERITAGE AND CULTURAL TOURISM	English Home Language or English First Additional Language	
BSocSci (Industrial Sociology and Labour Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Labour relations practice, arbitration, conflict management and resolution, labour administration and research, gender issues and dismissals, work for government institutions, parastatals, private sector and trade union organisations		
BSocSci (Heritage and Cultural Tourism) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Travel, tourism, tourist guides, management, hospitality, marketing, journalism, government, education and/or work in the broader museum and heritage fields on a local, national and international level		
PHILOSOPHY, POLITICS AND ECONOMICS	Mathematics	English Home Language or English First Additional Language
BSocSci (Philosophy, Politics and Economics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5
To retain admission, you must obtain an APS of at least 32 in the NSC. Students interested in the BSocSci(PPE) programme not complying with the 5 in Mathematics for the programme, but with an APS of 32, a 4 in Mathematics and a 5 in English, may be admitted into another degree for their first year. If they register for STK 113 and STK 123 in their first year of study, and they pass each of these with 60%, they will however then have the option to apply for an internal transfer to the BSocSci(PPE) in their second year of study. Careers: You will be eligible for a career in economic or political policy-making, journalism or the diplomatic service.		32
POLITICAL SCIENCES	English Home Language or English First Additional Language	APS
BPolSci (International Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: International relations, diplomatic service, political consultation, conflict resolution, policy analysis, strategic intelligence, governance, international political economics and risk analysis		
BPolSci (Political Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Policy analysis and consultation, political analysis and communication, governance, conflict resolution, strategic intelligence, political development and mobilisation and risk analysis		

Undergraduate programmes

NON-SELECTION PROGRAMMES			
Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level	APS	
VISUAL ARTS	English Home Language or English First Additional Language		
BA (Fine Arts) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30	
To retain admission, you must obtain an APS of at least 28 in the NSC. An A4 portfolio must be submitted. This will be evaluated along with a UP competency test with practical and theoretical components. Successful applicants must pass with 60% in each of the following components: <ul style="list-style-type: none"> ▪ Conceptualisation test ▪ Drawing ▪ Interview ▪ A4 Portfolio Careers: Gallery managers, art facilitators, art consultants/advisors, art educators, artists in the fine arts, artists in new media, artists in applied arts			
BA (Fine Arts)—Extended programme [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	26	
To retain admission, you must obtain an APS of at least 26 in the NSC. Candidates must also complete a UP competency test that assesses practical and theoretical components. Successful applicants must achieve at least 50% in each of these components. <ul style="list-style-type: none"> ▪ Conceptualisation test ▪ Drawing ▪ Interview Careers: Gallery managers, art facilitators, art consultants/advisors, art educators, artists in the fine arts, artists in new media, artists in applied arts			
BA (Visual Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30	
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Art and film critics, visual culture specialists, art and culture educators, academics, art historians, curators, visual analysts, visual consultants, media and communication analysts, social media coordinators, gallery managers			
MUSIC AND DRAMA		Music	English Home Language or English First Additional Language
Bachelor of Music (BMus) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4 (50-59%) or Grade VII Practical and Grade V Theory (Unisa/Royal Schools/Trinity) or a comparable standard and Practical audition and theoretical test passed with 60%	5	30
The School of the Arts: Music selects candidates based on a practical singing or instrument performance of 15 minutes, as well as a theoretical test. Audition required <ul style="list-style-type: none"> ▪ Video of a practical performance (60%): A performance on the candidate's principal instrument. The performance should last about 15 minutes, and the programme must contain three works from different style periods (standard: at least Grade VII, Unisa/Royal Schools/Trinity practical music examinations); ▪ Online theoretical test (60%): A written test that will assess the candidate's knowledge of elementary harmony (standard: at least Grade V, Unisa/ Royal Schools/Trinity theory examinations). To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Music teachers, music technicians, solo and/or chamber music performers, orchestral musicians and composers			
Bachelor of Music (BMus)—Extended programme [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4 (50-59%) or Grade V Practical and Grade III Theory (Unisa/Royal Schools/Trinity) or a comparable standard and Practical audition and theoretical test passed with 50%	4	26

Programme coordinators and student administration

MUSIC AND DRAMA	Music	English Home Language or English First Additional Language	APS
Prospective students will be required to write an assessment.			
The School of the Arts: Music selects candidates based on a practical singing or instrument performance of 10 minutes, as well as a theoretical test.			
Audition required			
<ul style="list-style-type: none"> ▪ Video of a practical performance (50%): A performance on the candidate's principal instrument. The performance should last about 10 minutes, and the programme must contain three works from different style periods (standard: at least Grade V, Unisa/Royal Schools/Trinity practical music examinations); ▪ Online theory test (50%): A written test that will assess the candidate's knowledge of elementary theoretical principles (standard: at least Grade III, Unisa/ Royal Schools/Trinity theory examinations). 			
To retain admission, you must obtain an APS of at least 26 in the NSC. If you are admitted to this programme, you may not be considered for any other degree programme within the Faculty, except for the BMus degree.			
Careers: Music teachers, music technicians, solo and/or chamber music performers, orchestral musicians and composers			
Bachelor of Drama (BDram) [3 years]		5	30
Close on availability of space:			
As soon as the number of places available for this programme are filled, it will be closed for further applications.			
Applicants must complete and pass an audition process. To retain admission, you must obtain an APS of at least 28 in the NSC.			
Careers: Actors (theatre, film, television and radio), physical theatre artists, theatre critics, radio and television presenters, directors, educational theatre practitioners and educators, community theatre artists and educators, light and sound operators, voice artists, stage and production managers, programme facilitators and managers, performing arts administrators, camera operators, documentary film-makers, digital and new media editors, playwrights, scriptwriters, play devisors, film and theatre researchers			
Bachelor of Drama (BDram)—Extended programme [4 years]		4	26
Close on availability of space:			
As soon as the number of places available for this programme are filled, it will be closed for further applications.			
Applicants must complete and pass an audition process. To retain admission, you must obtain an APS of at least 26 in the NSC.			
Careers: Actors (theatre, film, television and radio), physical theatre artists, theatre critics, radio and television presenters, directors, educational theatre practitioners and educators, community theatre artists and educators, light and sound operators, voice artists, stage and production managers, programme facilitators and managers, performing arts administrators, camera operators, documentary film-makers, digital and new media editors, playwrights, scriptwriters, play devisors, film and theatre researchers			

Contact details			
Programme	Programme coordinator	Student administration	
BA	Dr Charles Puttergill	+27 (0)12 420 2715 charles.puttergill@up.ac.za	+27 (0)12 420 3703 daniel.letsalo@up.ac.za
BA (Speech-Language Pathology)	Dr Esedra Krüger	Tel +27 (0)12 420 4910 esedra.kruger@up.ac.za	+27 (0)12 420 2959 naniki.rakolle@up.ac.za
BA (Audiology)	Prof Leigh Biagio-de Jager	+27 (0)12 420 6774 leigh.biagio@up.ac.za	+27 (0)12 420 2959 naniki.rakolle@up.ac.za
Bachelor of Social Work (BSW)	Dr Corlie Giliomee	+27 (0)12 420 6437 corlie.giliomee@up.ac.za	+27 (0)12 420 2959 naniki.rakolle@up.ac.za
BA (Law)	Ms Lizelle le Roux	+27 (0)12 420 5404 lizelle.leroux@up.ac.za	+27 (0)12 420 3616 palesa.tshetlhane@up.ac.za
BA (Languages)	Ms Suléne Pilon	+27 (0)12 420 3111 sulene.pilon@up.ac.za	+27 (0)12 420 2959 naniki.rakolle@up.ac.za
BSocSci (Industrial Sociology and Labour Studies)	Prof Debby Bonnin	+27 (0)12 420 4366 debby.bonnin@up.ac.za	+27 (0)12 420 3061 baleseng.ragophala@up.ac.za
BSocSci (Heritage and Cultural Tourism)	Mr CR Botha Ms C Herselman	+27 (0)12 420 2323 christoffel.botha@up.ac.za +27 (0)12 420 2323 charlene.herselman@up.ac.za	+27 (0)12 420 3061 baleseng.ragophala@up.ac.za
BSocSci (Philosophy, Politics and Economics)	Prof Emma Ruttkamp-Bloem	+27 (0)12 420 5779 emma.ruttkamp-bloem@up.ac.za	+27 (0)12 420 3061 baleseng.ragophala@up.ac.za
BPolSci (International Studies)	Mr Roland Henwood	+27 (0)12 420 2687 roland.henwood@up.ac.za	+27 (0)12 420 3061 baleseng.ragophala@up.ac.za
BPolSci (Political Studies)	Dr Gerhard Wolmarans	+27 (0)12 420 2689 gerhard.wolmarans@up.ac.za	+27 (0)12 420 3061 baleseng.ragophala@up.ac.za
BA (Fine Arts) BA (Fine Arts)—Extended programme	Dr Johan Thom	+27 (0)12 420 3686 johan.thom@up.ac.za	+27 (0)12 420 2206 janine.white@up.ac.za
BA (Information Design)	Prof Duncan Reyburn	+27 (0)12 420 5189 duncan.reyburn@up.ac.za	+27 (0)12 420 2206 janine.white@up.ac.za
BA (Visual Studies)	Dr Rory du Plessis	+27 (0)12 420 2353 rory.duplessis@up.ac.za	+27 (0)12 420 2206 janine.white@up.ac.za
Bachelor of Music (BMus) Bachelor of Music (BMus)—Extended programme	Prof Alexander Johnson	+27 (0)12 420 3747 alexander.johnson@up.ac.za	+27 (0)12 420 2206 janine.white@up.ac.za
Bachelor of Drama (BDram) Bachelor of Drama (BDram)—Extended programme	Dr Chris Broodryk	+27 (0)12 420 2558 chris.broodryk@up.ac.za	+27 (0)12 420 2206 janine.white@up.ac.za

Alternatively visit the Faculty website www.up.ac.za/faculty-of-humanities

Subjects in the Faculty/Electives from other faculties

List of electives for the BA and other programmes	Department
Academic Literacy	Unit for Academic Literacy
African languages Ndebele: <ul style="list-style-type: none">▪ Mother-tongue speakers (speakers of Ndebele as home language)	African Languages
Sepedi (Northern Sotho): <ul style="list-style-type: none">▪ Beginners (no prior knowledge or experience of Sepedi is required)▪ Non-mother-tongue speakers (speakers of Sepedi as first or second additional language)▪ Mother-tongue speakers (speakers of Sepedi as home language)	
Tswana: <ul style="list-style-type: none">▪ Beginners (no prior knowledge or experience of Tswana is required)▪ Non-mother-tongue speakers (speakers of Tswana as first or second additional language)▪ Mother-tongue speakers (speakers of Tswana as home language)	
Zulu: <ul style="list-style-type: none">▪ Beginners (no prior knowledge or experience of Zulu is required)▪ Non-mother-tongue speakers (speakers of Zulu as first or second additional language)▪ Mother-tongue speakers (speakers of Zulu as home language)	
Afrikaans	Afrikaans
Ancient Culture Studies	Ancient and Modern Languages and Cultures
Anthropology	Anthropology and Archaeology
Archaeology	Anthropology and Archaeology
Criminology	Social Work and Criminology
Drama and Film Studies	Drama
Dutch	Afrikaans
English	English
French	Ancient and Modern Languages and Cultures
German	Ancient and Modern Languages and Cultures
Greek	Ancient and Modern Languages and Cultures
Hebrew	Ancient and Modern Languages and Cultures
Heritage and Cultural Tourism	Historical and Heritage Studies
History	Historical and Heritage Studies
History of Music (requires knowledge of music notation)	Music
International Relations (from second-year level only)	Political Sciences
Language, Culture and Communication (from second-year level only, no prerequisites)	Afrikaans
Latin	Ancient and Modern Languages and Cultures
Philosophy	Philosophy
Political Science (from second-year level only)	Political Sciences
Politics (Introduction to International Relations and Political Science)	Political Sciences
Portuguese	Ancient and Modern Languages and Cultures
Psychology	Psychology
Social Work Theory (at first-year level only)	Social Work and Criminology
Sociology	Sociology
Spanish	Ancient and Modern Languages and Cultures
Visual culture studies	Visual Arts

List of electives from other faculties

Subjects	Faculty
Economics	Economic and Management Sciences
Education	Education
Geography	Natural and Agricultural Sciences
Information Science	Engineering, Built Environment and Information Technology
Mathematics	Natural and Agricultural Sciences
Public Administration	Economic and Management Sciences
Religion Studies	Theology and Religion
Statistics	Natural and Agricultural Sciences

Why a programme in the Humanities?

A variety of disciplines and programmes equip students for a wide range of professions. Specialised and more general training programmes develop high-level critical thinking skills and the capacity to communicate effectively in the world of work. The lecturers who teach in the Faculty are all specialists in their respective fields. From time to time the Faculty modifies its undergraduate and postgraduate offerings to remain competitive on both the national and international tertiary education fronts.

Students who register for programmes offered in this Faculty will be able to:

- equip themselves with discipline-specific knowledge, insight and skills;
- develop analytical skills that are in demand in both the South African and the international labour market;
- acquire critical thinking and problem-solving skills;
- conduct research; and
- talk and write authoritatively about their chosen field of study.

Selection programmes

BA (Speech-Language Pathology)

The BA (Speech-Language Pathology) programme will help students acquire in-depth knowledge of normal speech and language processes within the framework of human communication (infants, children, and adults).

The possible causes and symptomatology of speech, voice, language, listening and literacy disorders, as well as the scientific basis of assessment and intervention of individuals with communication-related disorders or those at risk of developing such pathologies are included. Students are, additionally, equipped theoretically and practically to assess and manage swallowing and feeding disorders (dysphagia) in clients across their lifespan.

Therapy (intervention) can occur in a one-on-one situation, by means of group therapy, as part of a multidisciplinary/interdisciplinary team approach, or using community-based intervention programmes. Practical skills in therapeutic techniques for improving speech, voice, and language as well as the management of dysphagia, are acquired. The qualification complies with international requirements.



Who is the ideal candidate?

If you are interested in the social humanities and keen to improve the well-being of people and help them excel in their interactions, then this is the programme for you!

The ideal candidate should have an aptitude for languages and problem solving and be passionate about human interactive communication. Candidates should be dedicated students and devoted to the ethics of their future profession. Improving the quality of life of their clients should be their main objective, assisting their clients to connect with people throughout daily interactions.

Shadowing a speech-language therapist at work is encouraged.

Career opportunities

Work in education and special education, medico-legal practices, hospitals, clinics or rural communities, or private practices, government, military, and academic institutions (teaching and research)

Structure of programme

Core modules

- An African language (either isiZulu, Sepedi or Setswana)
- Anatomy
- Audiology
- Communication pathology
- Integrated health leadership
- Medical terminology
- Neuro-anatomy
- Neurophysiology
- Physiology
- Psychology
- Research
- Speech-language pathology
- Speech sciences

What makes this programme unique?

Dual high quality theoretical and practical training by registered healthcare professionals. Candidates will be registered as student clinicians with the Health Professions Council of South Africa (HPCSA) during their studies, as students already deliver speech-language therapy services at an undergraduate level.

The option, depending on progress marks, exists to pursue a full-time master's degree following the completion of the four-year professional degree.

At the completion of the four-year professional degree, students must complete one year of compulsory community service at a public healthcare facility in the employment of the South African Department of Health. This allows for excellent clinical exposure and provides graduates with an immediate appointment and income opportunity following their studies.

Watch the BA (Speech-Language Pathology) YouTube video here:
youtu.be/XDsXES3c0_o



Selection programmes

BA (Speech-Language Pathology) *(continued)*

Which companies employ our graduates?



'I began studying speech-language pathology with the simple desire to help people, specifically children with special needs. I did not know much about the programme at the time or what the career itself would entail, but I decided to take a leap of faith.

I found that speech-language pathologists (SLPs) are involved in intervention for children with special needs and serve individuals of all ages. On top of that, their expertise is not limited to speech and language but extend to social communication, feeding and swallowing, voice disorders, literacy, and so much more!

Speech-language pathology is a profession that is much broader and more dynamic than I initially imagined, but at its core, I have learnt that it is simply about empowering people and improving their quality of life. SLPs have the privilege of working closely with families, parents and caregivers, and other professionals to cultivate positive outcomes for some of the most vulnerable populations. They are needed in schools, healthcare settings, low-income communities, nursing homes—the list can go on.

I am now in my final year of study, and it has been an incredibly fulfilling journey thus far. Through the practical exposure that this degree offers, I gained experience working in various settings and have had the opportunity to form invaluable connections with many different people—young and old. Nothing compares to the joy of making a meaningful impact in other people's lives, all the while having those people impact your life too—I cannot recommend this career path enough!'

Pearl Donzwa – BA (Speech-Language Pathology)

Minimum admission requirements

Programme	SELECTION PROGRAMME		
	Minimum requirements for NSC and IEB for 2023		APS
	Achievement level	Mathematics	
BA (Speech-Language Pathology) [4 years] Closing date: 30 June	4	5	32

Selection is based on academic achievement, and only 50 students are admitted. The conditional selection process starts in August each year. For more information, please contact the programme coordinator (see page 6). The first year of study is the same for both the Audiology and Speech-Language Pathology programmes.

Note: We will consider both first- and second-choice applications for BA (Speech-Language Pathology).

Careers: Work in education and special education, hospitals, clinics or rural communities, or private practices, government, military and academic institutions (teaching and research)

Contact information

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Selection programmes

BA (Audiology)

Audiologists provide patient-centered care in the prevention, diagnosis and (re)habilitation of hearing, balance and other auditory disorders.

The BA (Audiology) programme is aimed at acquiring in-depth knowledge of the normal and pathological hearing and balance process within the framework of human communication. From the second year, in addition to theoretical modules, students do hands-on clinical training with patients

(from infants to adults) in clinics, hospitals, schools, and at outreach centres.

The BA (Audiology) programme entails training in audiology and hearing/balance therapy for persons of all ages experiencing hearing loss or imbalance. It includes the possible causes of hearing loss and imbalance, and the scientific basis of intervention for a person with hearing loss and imbalance or people at risk thereof.

Assessment includes both screening and diagnostic tests. Intervention (habilitation) may occur in a one-on-one situation, through group intervention, as part of a multidisciplinary team approach, or using community-based intervention programmes. Practical skills in assessment, hearing/balance therapy and techniques for improving hearing, balance, and general communication skills and health-related quality of life are acquired.

Who is the ideal candidate?

The big five skills of a successful Audiology graduate:



Communication skills

Audiologists need to communicate test results, diagnoses, and proposed treatments, so patients clearly understand the situation and options. They also may need to work with other healthcare providers and education specialists regarding patient care.



Compassion and empathy

Audiologists work with people who are having problems with hearing or balance. They need to have insight into the impact of these disorders on them and their families.



Critical-thinking skills

Audiologists must critically analyse not only a patient's hearing/balance, but their unique circumstances to offer tailor made counselling and treatment plans. They must also be able to provide alternative solutions, when patients do not respond to initial treatment.



Patience

Audiologists must work with patients who may need a lot of time and special attention to understand why they experience certain difficulties, and how to move forward with (re)habilitation.



Problem-solving skills

Audiologists must use a combination of science and context relevant knowledge to figure out the causes of hearing and balance disorders, and the appropriate treatment to address them.



Watch the BA (Audiology) YouTube video here: youtu.be/b_ndLYjkPcs

What makes this programme unique?

The Department is the first and only centre in Africa to become a World Health Organization Collaborating Centre for the Prevention of Deafness and Hearing Loss.

The qualification complies with international requirements. Graduates are sought after by local and international employers.

Career opportunities

Diagnostic audiology and rehabilitative audiology, work in education, special education, hospitals, clinics, private practice or government, military and academic institutions (teaching, research) and industry.

Structure of programme

Core modules

Anatomy, physiology, medical terminology, psychology, communication pathology, neuro-anatomy, an African language, neurophysiology, integrated health leadership, research, audiology and speech science



Selection programmes

BA (Audiology) *(continued)*



'After matric, I enrolled for a different course at the university, but I quickly noticed that I was not happy with it and couldn't imagine myself working in that profession for the rest of my life. Therefore, I quickly changed to audiology, hoping that I will love it, and to my surprise, that's exactly what happened. I fell in love with the course, and even when academics were tough, I never thought of quitting it.'

The Department is quite small, which is beneficial for students because we can easily build relationships. It also allows for students to get special attention should need be. I remember I was surprised at how nice and welcoming the staff were to us as first years, and even now, as a master's student, I still feel the same way. I feel we are blessed to have such supportive staff; they go out of their way to make sure we understand the work, and they make themselves available for us should we need any help.

In high school, most of us were told that we should expect to have lecturers that do not care about our academics and wellbeing, but our lecturers have been nothing but loving and supportive. Transitioning from high school to university is difficult, but the course structure, the lecturers and the rest of the staff make it easier for us. Consequently, that was one of the reasons why I decided to further my studies and do a postgraduate degree; I felt comfortable and part of the Department.

We are fortunate to have access to the best professionals and equipment that further enrich our learning. If you aspire to be in this course, then I strongly advise that you choose UP.'

Cathrine Mothlamare – BA (Audiology)



Minimum admission requirements

Programme	SELECTION PROGRAMME		
	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	Mathematics	English Home Language or English First Additional Language	
BA (Audiology) [4 years] Closing date: 30 June	4	5	32

Selection is based on academic achievement, and only 50 students are admitted. The conditional selection process starts in August each year. For more information, please contact the programme coordinator (see page 6). For Audiology and Speech-Language Pathology programmes, the first study year is the same.
Note: We will consider both first- and second-choice applications for BA (Audiology).
Careers: Diagnostic and rehabilitative audiology, audiometry and hearing therapy, work in education, special education, hospitals, clinics, private practice or government, military and academic institutions (teaching, research) and industry

Contact information

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Selection programmes

BA (Information Design)

Design is a dynamic discipline that impacts people and the world they live in. The successful information designer is a highly qualified person who plays a vital role in creating the contemporary visual, spatial and digital environment.

A skilled designer conveys meaningful and powerful messages in a variety of media to diverse people. The BA (Information Design) programme incorporates design strategies and design applications in a range of media. Our students learn to design with their heads, hearts, and hands to equip them for local and global communication design careers.

Information design as a discipline:

- establishes visual identities for people, organisations or products;
- visually informs, directs, explains and describes a product and/or organisation;
- persuades people to change their behaviours;
- creates an entertaining, aesthetic or intriguing experience; and
- creates meaningful and socially responsible design systems.

Graduates will leave the programme with confidence and versatility that will enable them to establish themselves in any of the above areas of professional practice. They can expect to be knowledgeable about current professional practice developments and be sensitive to how design can impact society and bring about social change.



Who is the ideal candidate?

Students who excel at this programme have an aptitude for both strategic and creative thought. They are very open and conscientious and have a keen interest in communicating with and serving people with integrity.



What makes this programme unique?

This is the only broad-based professional (NQF level 8) design degree of its kind in Africa. It is unique in terms of both its scope and depth and is recognised as such by both the creative industry and design educators.



Structure of programme

The core modules consist of two studio practice subjects:

- information design and imaging and visualisation
- a theory subject, Visual culture studies



Career opportunities

Animators, graphic designers, illustrators, interaction designers, communication designers, art directors, media production managers, design managers, designers of animation and motion graphics, design educators, media designers or freelance designers; typographers for advertising and branding agencies, publishing industries, web design companies, broadcasting and animation studios; in-house design for large companies, state and parastatal organisations, research and educational institutions, public relations and marketing companies, design consultants, printers and production houses or owners of private studios

Selection programmes

BA (Information Design) *(continued)*



Which companies employ our graduates?

Many companies employ our graduates, including companies and institutions that focus on animation, graphic design, illustration, interaction design, art direction, media production, motion graphics design, and design education, to name just a few.

Many of our graduates become freelancers and entrepreneurs, founding their own companies that specialise in one or more of the skills learned through the degree.

Visit our YouTube channel
[@information Design](#)

Support our students
[www.patreon.com/informationdesign](#)

Visit our Instagram page
[@upinfodesign](#)

Examples of student work



100% OF OUR GRADUATING STUDENTS HAVE BEEN EMPLOYED IN THE LAST THREE YEARS

Minimum admission requirements

Programme	SELECTION PROGRAMME	
	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
BA (Information Design) [4 years] Closing date: 30 June	English Home Language or English First Additional Language	5 30

To retain admission, you must obtain an APS of at least 28 in the NSC. In addition to the UP application, it is compulsory for applicants to submit an online portfolio to the Information Design division by 30 June. Those who fail to do this will end up with an incomplete application and will therefore not be considered for the selection process.

Careers: Animators, graphic designers, illustrators, interaction designers, communication designers, art directors, media production managers, design managers, designers of animation and motion graphics, design educators, media designers or freelance designers; typographers for advertising and branding agencies, publishing industries, web design companies, broadcasting and animation studios; in-house design for large companies, state and parastatal organisations, research and educational institutions, public relations and marketing companies, design consultants, printers and production houses or owners of private studios

Contact information

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Non-selection programmes

BA

What does the programme entail?

More students choose a BA degree than any other programme. Its adaptability enables students to explore disciplines and proceed with those best suited to their interests and abilities. At the first-year level, Academic information management (AIM) and Academic literacy (ALL) are fundamental (compulsory) modules. In compiling their programmes, students have an extraordinarily wide choice. See page 7 of this brochure or the alphabetical list of modules in the Faculty's Yearbook at www.up.ac.za/yearbooks/home. Students determine the focus of their studies (usually the two majors are taken up to the third-year level) as well as the supporting subjects they decide to include in the programme.

- **First year:** Select four disciplines and take them for the full year (both semesters), plus one module of at least twelve credits.
- **Second year:** At the beginning of the second year of study, decide which three of the four disciplines completed at a first-year level will be continued with for the full year.
- **Third year:** Select any two of the three disciplines completed at the second-year level and continue with them for the full year. Note that students need not decide on these two core disciplines at the beginning of their first year of study, but have the opportunity to familiarise themselves with them before deciding on the focus for their final year (and possibly for postgraduate studies). Students should comply with this degree structure and must have at least 360 credits to graduate.

Should students wish to continue with postgraduate studies in psychology, a research module such as RES 320 or an equivalent module must be included during their undergraduate studies to enable them to apply for selection into the BSocSci Honours Psychology.

Modules from other faculties may be included in the BA programme on the following conditions: Only two at first-year level and one of these at second- and third-year level. Refer to the list on page 7 of this brochure. The admission requirements for these disciplines are discussed in the yearbooks of the faculties concerned.

Postgraduate studies

Since the programme allows for two core disciplines, students have more than one option for postgraduate study. Therefore, students have an alternative, should they not comply with the selection requirements for postgraduate study in a specific discipline. With good planning, students who complete the BA programme have the same chance of being selected for postgraduate studies in a particular discipline as those who enrol for the more specialised programmes.

Bachelor of Social Work (BSW)

What does the programme entail?

The programme entails theoretical and professional training that leads to a professional career in social work. The discipline of social work studies social systems and people's wellbeing in relation to the environment.

The learning outcomes of the programme include knowledge, skills and values that:

- uphold social justice and human rights;
- enhance the social functioning of individuals, families, groups and communities;
- promote sustainable communities;
- advocate for the removal of structural causes of poverty, inequality, oppression, discrimination and social exclusion;
- guide developmental social work services to individuals, families, groups, organisations and communities;
- inform social work services to protect those who are vulnerable, part of high-risk groups and unable to protect themselves;
- address social needs and issues in the South African social welfare policy and legislation context; and
- influence and develop social policy.

Core modules

Core modules include social work, sociology, business management and welfare law.

Elective modules

Elective modules are selected from anthropology, criminology, psychology and sociology.

Postgraduate studies

The following programmes are available:

- **BAHons (Criminology);**
- **MSW specialised programmes in Social Development and Policy; Play-based Intervention, and Healthcare;**
- **Research-based master's and doctoral studies in various fields.**

BA (Law)

What does the programme entail?

This programme meets specific training needs that emerge from the demand for employees with specific legal knowledge, but who are also schooled in aspects of the social or human sciences. This multidisciplinary programme aims to train students as law practitioners with a broader academic background, to provide an alternative route to obtaining an LLB, to provide versatile training in both law and the social sciences or humanities, to improve students' insight into the extent, consequences and handling of national and global issues, and to academically equip students for a career in which research, decision-making and reporting on law-related issues are important requirements. This is a full-time programme, with specific modules offered after hours.

Core modules

Core modules are jurisprudence, Roman law, the law of persons, legal pluralism, legal interpretation, family law, public law, the law of succession, the law of contract and law of delict.

Elective modules

At first-year level, three BA subjects must be selected from the elective modules. At least one of these subjects must be a language. Two BA subjects must be selected up to second-year level, of which at least one must be a language; and one BA subject must be selected up to third-year level.

Postgraduate studies

After completing a BA (Law) degree, students can continue with an LLB or may register for an honour's degree in the core discipline they chose in the humanities.

BA (Languages)

What does the programme entail?

BA (Languages) equips students with integrated communication skills and knowledge of the grammar, literature and culture of (at least) two languages of their choice. Students can major in any of the following languages: Afrikaans, English, German, French, Portuguese, Spanish, Zulu, Ndebele, Sepedi, Greek, Hebrew or Latin. Students may add more languages and/or other modules from any other discipline in the Faculty to these language disciplines.

Postgraduate studies

The following programmes are available:

- **BAHons** in African Languages, Afrikaans, Ancient Languages and Culture Studies, Applied Language Studies, English, French, German and Spanish
- **MA (Coursework)** in African-European Cultural Relations, African Languages and Afrikaans
- **MA (Research)** in Creative Writing, Afrikaans, Literary Theory, African Languages, Ancient Languages and Culture Studies, German, English, French, Linguistics, Applied Language Studies and Spanish

All master's degrees (coursework and research) may lead to further study at doctoral level in the discipline concerned. For more information, please consult the yearbooks via the UP website: www.up.ac.za/yearbooks/home

Non-selection programmes

BSocSci (Industrial Sociology and Labour Studies)

The programme aims to provide students with in-depth knowledge of the world of work's broader socio-political and socio-economic context. Students will be taught substantive knowledge of industrial sociology around matters of management, organisation and labour. They will also acquire the skills needed to critically evaluate the

many issues that characterise the world of work in transforming South African society. Topics such as the organisation of work, the changing South African workplace, gender, race, employment equity, productivity, dismissals and the globalised economy are dealt with in the broader social context of the world milieu.

Who is the ideal candidate?



You should be interested in the broader society, economics and politics, as well as workplace issues. You should enjoy reading and be an independent learner.

What makes this programme unique?



This programme is unique as it brings together knowledge and analysis about the workplace from both the humanities (industrial sociology) and economics and management (business studies, labour law and economics) spheres. This gives graduates a unique strength in both analytical and thinking skills as well as business knowledge.

Which companies employ our graduates?



Private sector companies in manufacturing, consulting and hospitality, government departments and NGO's

Career opportunities



- labour relations practice
- arbitration, conflict management and resolution
- labour administration and research
- gender issues and dismissals
- work for government institutions, parastatals, private sector and trade union organisations



Structure of programme



Core modules

The core subject is sociology, which includes modules in industrial sociology that are taken up to the final year.

Other core modules include labour law, labour relations, economics and business management. A wide range of elective modules is available to support learning and promote an understanding of the programme.

Minimum admission requirements

NON-SELECTION PROGRAMME		
Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
	English Home Language or English First Additional Language	
BSocSci (Industrial Sociology and Labour Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Labour relations practice, arbitration, conflict management and resolution, labour administration and research, gender issues and dismissals, work for government institutions, parastatals, private sector and trade union organisations		

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Non-selection programmes

BSocSci (Heritage and Cultural Tourism)

This programme focuses on tourism as the world's number one industry and the fastest-developing enterprise in Africa. The emphasis is on heritage and cultural tourism, with strong theoretical conceptualisations and practical contextualisations that are vital for understanding tourism as a human activity. Attention is given to aspects such as tourism as a phenomenon, heritage tourism management, tourism and representation, community-based tourism, the South African tourism product and current discourses in tourism, for example, tourism entrepreneurship.

Who is the ideal candidate?

The ideal candidate for this programme displays an outgoing nature, broad interests, creativity, enthusiasm, the willingness to take initiative and be innovative and the candidate must be prepared to work hard.

What makes this programme unique?

- The programme offers a multidisciplinary perspective on tourism and heritage management that includes a variety of aspects like entrepreneurship, conservation, business, travel and tour planning, event planning, destination marketing, amongst others.
- Included in the third year of the degree is accreditation to register as a provincial culture tourist guide in Gauteng.
- In the honours year of this programme, students are given the opportunity to participate in running UP Campus Tours (a unique simulated tourism business).

Structure of programme

Core Modules

All modules of the discipline heritage and cultural tourism are compulsory.

Elective Modules

In addition to heritage and cultural tourism, students have to select one of the following disciplines as their second major: archaeology, anthropology, history, geography, visual culture studies, or a language. Specific modules of some of these disciplines are also compulsory.

Which companies employ our graduates?

Alumni are employed throughout the tourism and heritage sectors and have or currently hold positions in local and international companies.



Government Departments or Agencies:

- South African Heritage Resources Agency (SAHRA)
- The South African National Department of Tourism
- The KwaZulu Natal Provincial Tourism Department
- The North West Provincial Tourism Department



Tour Operators, Tour Guides and Travel Agencies:

- Drifters (a division of Tourvest)
- Travelstart South Africa
- Bookings.com
- Mongena Private Game Lodge



Public sector educators:

- University of Botswana
- University of Lesotho
- Sol Plaatje University



Entrepreneurs:

- Turnscape Travel and Tours
- Greyspot Consult and Tour Operators
- Sana-Sisaphoko Travel and Tours



Museums and Heritage Sites:

- Mapungubwe World Heritage Site and National Park
- University of Pretoria Museums
- Pioneer Museum



Private sector educators:

- The Academic Institute of Excellence
- Oakfields College
- A'takamul International School

Non-selection programmes

BSocSci (Heritage and Cultural Tourism) *(continued)*

Career opportunities

Travel, tourism, tourist guiding, management, hospitality, marketing, journalism, government, education and/or work in the broader museum and heritage fields on a local, national and international level.



“Our rich and varied cultural heritage has a profound power to help build our nation” (Nelson Mandela)

‘My name is Matsobane Steven Motena, and I chose the University of Pretoria because of the quality education this institution offers. As I am passionate about history, heritage and culture, the Faculty of Humanities and the Department of Historical and Heritage Studies gave me this fulfilment.

The Faculty of Humanities is the best faculty and taught me a lot about humankind. It shaped me into a person who values history, heritage and culture. Enrolling with the Faculty of Humanities, specifically in the BSocSci (Heritage and Cultural Tourism) programme, has been the best decision I ever made. I am now a qualified tourist guide in the cultural category in Gauteng province. It made me realise that South Africa is rich in heritage and culture.

Furthermore, I obtained skills to speak in public confidently and share my knowledge as a tourist guide. And that didn’t only limit me to South African culture but inspired me to learn about other cultures such as those in South America. I took Spanish as an elective to further learn the language and culture.

I am currently pursuing a career to become a researcher. At first, I sometimes doubted myself and my abilities until a lecturer said to me during my final year in 2018, “Steven, you are doing well; keep it up”. These might be the words all lecturers say to their students, but to me, it’s constantly motivating me. Ever since that day, I have never doubted myself once, and I’ve always given my best now that I’m enrolled for a master’s degree. The Faculty and the Department really proved to me that they care about their students academically and their future. I am forever grateful for my decision to apply and study at the University of Pretoria.’

Matsobane Steven Motena – BSocSci (Heritage and Cultural Tourism)

Minimum admission requirements

Programme	NON-SELECTION PROGRAMME	
	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
BSocSci (Heritage and Cultural Tourism) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications. To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Travel, tourism, tourist guides, management, hospitality, marketing, journalism, government, education and/or work in the broader museum and heritage fields on a local, national and international level.	5	30

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Non-selection programmes

BSocSci (Philosophy, Politics and Economics)

The BSocSci (Philosophy, Politics and Economics) programme provides students with in-depth knowledge and an analytical understanding of contemporary political and economic issues. The combination of these three disciplines—philosophy, politics and economics—focus on the social world and social phenomena from different perspectives.

The BSocSci (Philosophy, Politics and Economics) programme is an example of the complementary multidisciplinary studies that are an integral part of university studies. This qualification teaches students to respond in a sensitive, rational and innovative manner to moral problems and challenges within their politico-economic context.

A BSocSci (Philosophy, Politics and Economics) qualification is an internationally recognised 'brand' that is respected for its rigorous training and immediately gives students entry into a variety of careers related to economics, policymaking, journalism and the diplomatic service.

Who is the ideal candidate?

Follow an internationally respected path to a financially competitive career with a degree in the humanities!

The BSocSci (Philosophy, Politics and Economics) programme introduces students to the rigorous, vibrant context of interdisciplinary research. Training in three majors—philosophy, politics and economics—that includes statistics up to second-year level, teaches students to master the critical skills required by 'citizens of the world'. By learning to analyse and reason, students can critically engage with the history of modern economic and political thinking, and by honing their mathematical skills students can take advantage of the current big data explosion.

The perfect candidates for this exciting programme are students who have an affinity for mathematics but are also interested in socio-economic and political issues, for example the impact on society of factors such as climate change, job migration and the Fourth Industrial Revolution.

What makes this programme unique?

The programme has three majors—philosophy, political sciences and economics—and includes statistics up to the second year level to train students in basic data manipulation skills.

Which companies employ our graduates?

Thomson Reuters, Goldman Sachs, Alexander Forbes, the Public Service, Accenture, Deloitte, Kuehne Nagel, Barclays, Dedola Global Logistics, the Migrant Resource Centre, the UN Refugee Agency and many others

Minimum admission requirements

NON-SELECTION PROGRAMME

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	Mathematics	English Home Language or English First Additional Language	
BSocSci (Philosophy, Politics and Economics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	32

To retain admission, you must obtain an APS of at least 32 in the NSC. Students interested in the BSocSci(PPE) programme not complying with the 5 in Mathematics for the programme, but with an APS of 32, a 4 in Mathematics and a 5 in English, may be admitted into another degree for their first year. If they register for STK 113 and STK 123 in their first year of study, and they pass each of these with 60%, they will however then have the option to apply for an internal transfer to the BSocSci(PPE) in their second year of study.

Careers: You will be eligible for a career in economic or political policy-making, journalism or the diplomatic service.

Structure of programme

First year

Core modules: Economics, Philosophy, Political Sciences and Statistics

Elective modules:

Year-level 1: Select any two-semester modules (one per semester) from the same discipline on Year-level 1 to the value of at least 20 credits (if selected from the Faculty of Economic and Management Sciences), or 24 credits (if selected from the Faculty of Humanities).

Students who consider completing an honours degree in economics should consult the student administration staff of the Faculty of Economic and Management Sciences to determine which additional modules they should include in their programme to meet the entry requirements for a BCom Hons degree in economics.

Second year

Core modules: Economics, Political Science or International Relations, Philosophy and Statistics

Third year

Core modules: Economics, Political Science or International Relations and Philosophy

Postgraduate studies: With this qualification, students may apply for admission to the BSocSci (Hons) (Philosophy, Politics and Economics) degree programme. Subsequently, they will be able to continue with MSocSci(PPE) and ultimately doctoral degrees.

Non-selection programmes

BSocSci (Philosophy, Politics and Economics) *(continued)*

What career opportunities exist for graduates?



'My name is Thato Maja. I am an honours BSocSci (Politics, Philosophy and Economics) student. Opting for a triple major degree has been one of the most challenging, but also the most fulfilling experiences of my life. PPE stretches your brain and forces you to consider things from multiple angles. We are taught to see the bigger picture and to consider aspects that may otherwise be overlooked. The workload is heavy, but we enjoy the support of devoted lecturers who help, guide and encourage us. Another amazing aspect of this degree is that it gives you clarity and freedom. We are taught a variety of skills, which we can use in any work environment.'

I would like to pursue a career in policy analysis at an international level. Using the critical thinking skills acquired through the study of philosophy, the analytical skills used in economics and the theoretical knowledge of international state behaviour as seen in politics, I hope to be able to judge whether and why policies are likely to be effective in particular instances. What I particularly enjoy about studying PPE at UP is that it prepares students for a variety of occupations. With the help of working professionals in different fields, you get a practical sense of how the taught knowledge can be used to effect change in the world.'

Thato Maja – BSocSci (Philosophy, Politics and Economics)



'I am a final-year BSocSci student with a triple major in philosophy, politics and economics. It allows me to hone in on all my interests and strengths, but it also challenges me academically. I am driven by social change and want to better the lives of those who are marginalised or disadvantaged. This degree will equip me to tackle various social, political and economic issues.'

My studies have taught me to be a critical thinker and analyser. Our course coordinator is extremely helpful and we have brilliant lecturers and teaching staff. This is a very well-designed programme and I am enjoying the experience. My undergraduate journey has surpassed the expectations I had before commencing my studies.'

Sinazo Sijovu – BSocSci (Philosophy, Politics and Economics)

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Non-selection programmes

BPolSci (International Studies)

This programme focuses on international events, how international relations develops, and events in international politics. It also contributes to students' education as citizens of the country and the world.

In a globalising world, international political relations include interstate or government interactions, international organisations and non-state actors.

They include political and military matters and non-political affairs with international implications. International studies include peace, security, development and justice. This programme establishes an understanding of international relations and develops the skills you will need to analyse and explain world politics at a national, regional and global level.

It is based on the political sciences and related disciplines. International relations is the major subject and has to be taken up to the final year.

People differ in their understanding of international relations, and the discipline of international studies acknowledges this diversity.

Who is the ideal candidate?

If you are interested in world affairs and relations between and among states and different actors, then you are an ideal candidate.

To excel in this programme you should be a:

- committed global citizen;
- interested in the world around you; and
- want to improve relations between states.

Successful students refine their research, communication and data analysis skills and are widely sought after in the private and public sectors.

What makes this programme unique?

The combination of thought provoking, relevant content, expert lecturers and analytical skills gained by the student. Our degree programmes are accepted at other, also non-South African, universities. Many of our students are accepted into universities directly and continue studies 'abroad'.

Structure of programme

Core Modules

International Relations is the major subject with other core modules from political science.

Career opportunities



Elective Modules

Elective module will supplement your understanding of international politics and hone your own political values and attitudes. You can choose from a range of modules including: philosophy, geography, history, religious studies, sociology, economics and an international language.

Your coursework will incorporate text analysis, simulations, individual and group assignments and case study analysis to help you build your knowledge and expertise.

Non-selection programmes

BPolSci (International Studies) *(continued)*

Which companies employ our graduates?



'I have an interest in international relations and since enrolling in 2018, I have not only enjoyed my studies, I have furthered my language skills – I can now speak English, German, French and Spanish, which will be very useful in my international career.'

I value leadership and as a UP student I have practised my leadership skills by serving as Social and Networking Officer for the House Humanities Executive Committee in 2018/19, and as Chairperson in 2019/20, as well as Ex-Officio Academics Officer on the Student Representative Council in 2020. I have learned valuable skills that I am positive will take me far in the workplace. UP has an amazing Work Readiness Programme for students. I cherish the exposure I have had to the broader UP community. I believe that the teaching and learning methods applied at UP are of a very high calibre.

The content of the BPolSci (International Studies) degree has developed my insight into key political problems and has broadened my vision. I can apply the knowledge obtained from lectures, reading and tutorials in my everyday life. Thanks to the University of Pretoria, I can make worthwhile contributions to my community and to society in general.'

Lorrainga Mothokwa – BPolSci (International Studies)

Minimum admission requirements

NON-SELECTION PROGRAMME		
Programme	Minimum requirements for NSC and IEB for 2023	
POLITICAL SCIENCES	Achievement level	APS
BPolSci (International Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	English Home Language or English First Additional Language	5 30

To retain admission, you must obtain an APS of at least 28 in the NSC.

Careers: International relations, diplomatic service, political consultation, conflict resolution, policy analysis, strategic intelligence, governance, international political economics and risk analysis

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Non-selection programmes

BPolSci (Political Studies)

Politics is a part of human existence, and social interactions invariably involve political relationships. Politics is essential for a just and humane way of life. The study of politics helps us understand the dynamics of power and how this directly and indirectly effects the state. This programme will help you understand politics within state borders. It will develop key analytical skills that will help you explain

political events and how politics affects society. Political studies take into account a variety of non-political or related influences that affect politics. This programme provides a description of political facts, an explanation of how and why politics occurs, and a prescription of what should happen in the political world.

Who is the ideal candidate?

If you are interested in improving the human condition, then you are an ideal candidate for this programme.

Students who excel in this programme are:

- committed active citizens; and
- want to improve their community and society in general.

Successful students refine their research, communication and data analysis skills and are widely sought after in the private and public sectors.

What makes this programme unique?

The combination of thought provoking, relevant content, expert lecturers and analytical skills gained by the student. Our degree programmes are accepted at other, also non-South African, universities. Many of our students are accepted into universities directly and continue studies 'abroad'.

Structure of programme

Core Modules

Political science is the major subject and has to be taken up to the final year. Other core modules are drawn from international relations.

Elective Modules

The elective modules supplement the understanding of politics.

Options include philosophy, history, religious studies, psychology, sociology, and European and African languages, providing a measure of flexibility that allows students to concentrate on a specific area, such as African studies, security studies, political communication, studies of political policy and political philosophy.

What career opportunities exist for graduates?

Policy analysis and consultation

Political analysis and communication

Governance

Conflict resolution

Strategic intelligence

Political development and mobilisation

Risk analysis

Which companies employ our graduates?

National, Provincial and Local Government

Media offices

Academic and research organisations

International organisations

Multinational corporations

Political parties

Range of private businesses

Non-selection programmes

BPolSci (Political Studies) *(continued)*



'My name is Yanga Malotana and I am enrolled for a BPolSci (Political Studies) degree. I am also currently completing my 'Year Explore' as a Candidate Fellow for the Allan Gray Orbis Foundation (AGOF).

When I started my studies, all I knew was that I wanted to study at the University of Pretoria. I initially enrolled for a humanities degree, which has no limit on the interdependence of the disciplines. My introduction to political science has unlocked a passion I never knew I had. Being able to better understand the world around me and learn how to navigate through the complexities of society are skills I will always treasure. The BPolSci degree programme has exposed me to many of these complexities and I have thoroughly enjoyed the time spent learning about them!

The Faculty of Humanities has played a guiding role for me, especially during my first year of study, when I doubted my ability to complete this degree. The Faculty Advisor at the time helped me to better understand the scope of the degree and also gave me the validation I needed by convincing me that I could achieve whatever goal I set for myself – if I applied myself and was committed to working hard!

Studying in the field of the humanities allows you to view the world from various perspectives and to better understand social structures and how human conduct has brought us to where we are today. Once you understand this you find yourself in a challenging (but exciting) position to suggest solutions that may perhaps influence the way people think about themselves and how they interact with one another. A degree in the humanities can equip you to act as a catalyst for change, and if that does not excite you, I cannot imagine what will!'

Yanga Malotana – BPolSci (Political Studies)



Minimum admission requirements

NON-SELECTION PROGRAMME		
Programme	Minimum requirements for NSC and IEB for 2023	
POLITICAL SCIENCES	Achievement level	APS
BPolSci (Political Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	English Home Language or English First Additional Language	30

To retain admission, you must obtain an APS of at least 28 in the NSC.

Careers: Policy analysis and consultation, political analysis and communication, governance, conflict resolution, strategic intelligence, political development and mobilisation and risk analysis

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Non-selection programmes

BA (Fine Arts)

BA (Fine Arts) covers a broad spectrum of professional art practices. The two majors of the degree are the studio-based component of art practice, Fine arts (BKK) and Professional art practice (VIT), and a theoretical subject, Visual culture studies (VKK).

BA (Fine Arts) is a four-year programme that incorporates training in art practice, such as painting, sculpture, printmaking, drawing, new media, photography and art theory.

Who is the ideal candidate?

The ideal candidate is highly self-motivated, creative individuals who wish to play an active part in shaping and re-making the world in which we live.



Structure of programme



Core modules

Two studio practice subjects: Fine arts and Professional art practice, as well as a theory subject, Visual culture studies

Elective modules

A language, psychology, anthropology, philosophy or religion studies

Once fundamental aspects of these disciplines have been mastered, increasingly challenging goals are set that require inter- and multidisciplinary skills and artistic research.

The role of multimedia through projections and video and digital art is also firmly established in the Fine Arts programme.

What makes this programme unique?

Fine Arts at UP offers a highly focused education in contemporary art catering to our future graduates' diverse, real world needs.

Artists are treated as creative voices who require blended skillsets ranging from research skills to technical expertise in artistic mediums and methods, project management and community engagement.



Which companies employ our graduates?

Graduates typically work for themselves in a variety of entrepreneurial, creative capacities. Dynamic companies specialising in cultural ventures, multimedia content creation and communication typically also employ Fine Arts graduates.



BA (Fine Arts) have had a 100% throughput rate for the past three years, with approximately 70 students successfully graduating.



Non-selection programmes

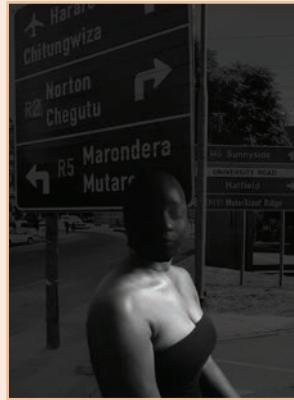
BA (Fine Arts) *(continued)*

What career opportunities exist for graduates?



'My name is Natasha Kudita, and I am in my final year of studying BA (Fine Arts) at the University of Pretoria (UP). UP was the best choice for me as an international student because it has become like a second home for me while learning in South Africa.

I believe the School of the Arts: Fine Arts programme provides a memorable learning experience that facilitates growth on a professional level in this field of study. I am grateful to leave university as a well-rounded individual equipped with the relevant skills needed to pursue my artistic career.'



Natasha Kudita – BA (Fine Arts)

Minimum admission requirements

NON-SELECTION PROGRAMMES		
Programmes	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
VISUAL ARTS	English Home Language or English First Additional Language	APS
BA (Fine Arts) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Candidates must also complete a UP competency test that assesses practical and theoretical components, and interview for admission to the programme. Successful applicants must achieve at least 60% in each of these components. An A4 portfolio must be submitted. This will be evaluated along with a UP competency test with practical and theoretical components. Successful applicants must pass with 60% in each of the following components: <ul style="list-style-type: none"> ▪ Conceptualisation test ▪ Drawing ▪ Interview ▪ A4 Portfolio Careers: Gallery managers, art facilitators, art consultants/advisors, art educators, artists in the fine arts, artists in new media, artists in applied arts		
BA (Fine Arts)—Extended programme [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4	26
To retain admission, you must obtain an APS of at least 26 in the NSC. Candidates must also complete a UP competency test that assesses practical and theoretical components. Successful applicants must achieve at least 50% in each of these components. <ul style="list-style-type: none"> ▪ Conceptualisation test ▪ Drawing ▪ Interview Careers: Gallery managers, art facilitators, art consultants/advisors, art educators, artists in the fine arts, artists in new media, artists in applied arts		

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Non-selection programmes

BA (Visual Studies)

We are confronted with the visual everywhere: on billboards, TV screens and the internet, and in cinemas, magazines, newspapers, fashion, architecture and malls. We do not necessarily see more than previous generations (although there is probably more to see), but our questions about what we see and experience have changed.

Visual Studies as a programme and Visual culture studies as the main subject enable students to explore the various exciting forms

Who is the ideal candidate?



The ideal candidate is a problem-solver, interested in persuasive communication, and inspired by the visual world that surrounds them.

Students who excel in the programme are self-motivated and passionate about interpreting and understanding digital and social media and art, film and advertising.

Structure of programme



Core module

The core module component of this programme is Visual culture studies.

Elective modules

The elective modules offer a choice between subjects such as anthropology, history, religious studies, drama and film studies, language, heritage and cultural tourism, philosophy, marketing and information science.

of visual images that surround them every day. The aim is to promote critical skills by offering direction in the analysis, interpretation and evaluation of various aspects of visual culture in both a historical and a contemporary context.

The programme deals with theoretical issues, and candidates for this programme do not need artistic talent.

What makes this programme unique?



The programme is lectured by academics who are nationally and internationally recognised for their contributions to the debates and developments of visual culture, art history, cultural history and digital humanities. Several of the staff are NRF rated professors and have been awarded numerous research grants.

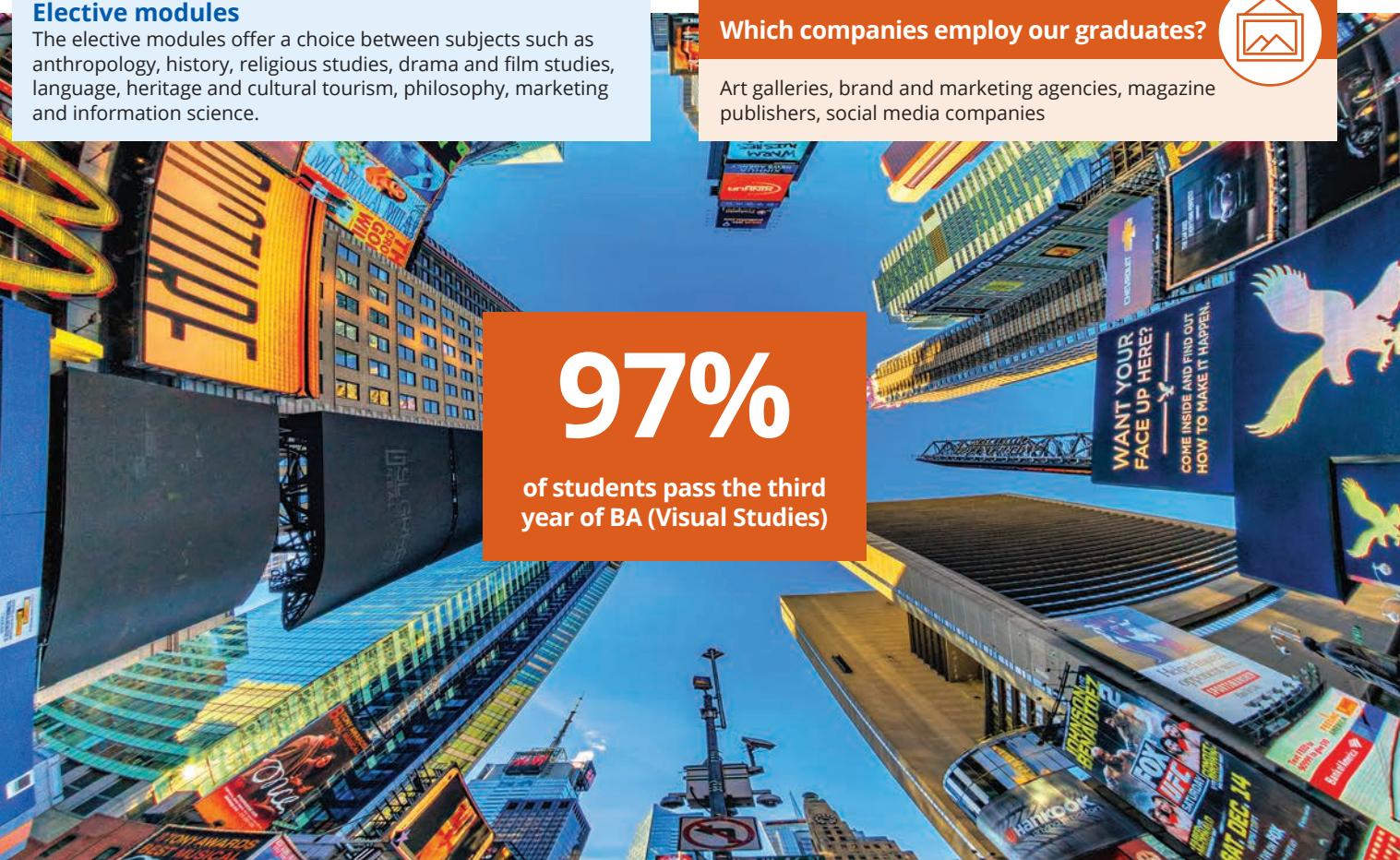
The BA (Visual Studies) programme is internationally recognised, and our graduates have been admitted to postgraduate degrees at Columbia University (USA), New York University (USA), Groningen (the Netherlands), University of Toronto (Canada), London School of Economics (UK), and the University of Potsdam (Germany).

Image & Text is an online and open-access journal that is edited and published by the visual studies staff. The journal is accredited by the South African Department of Higher Education and Training.

Which companies employ our graduates?



Art galleries, brand and marketing agencies, magazine publishers, social media companies



97%

of students pass the third year of BA (Visual Studies)

Non-selection programmes

BA (Visual Studies) *(continued)*



Minimum admission requirements

NON-SELECTION PROGRAMME		
Programme	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
	English Home Language or English First Additional Language	
BA (Visual Studies) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	30
To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Art and film critics, visual culture specialists, art and culture educators, academics, art historians, curators, visual analysts, visual consultants, media and communication analysts, social media coordinators, gallery managers		

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Non-selection programmes

Bachelor of Drama (BDram)

This programme facilitates and fosters students' knowledge of, and interest and skills in the performing arts. It provides them with opportunities to explore academic, artistic, creative and practical aspects of the discipline.

Students are provided with opportunities to practise their craft by conceiving, directing and participating in a range of media, including theatre performances and performances for TV, film and radio.

The programme focuses on the main disciplines of performance studies, including physical theatre, directing, performance, digital

and new media studies and performing arts management, and developmental and educational theatre and drama.

Besides offering skills training and fostering an entrepreneurial mindset, drama develops the capacity to think strategically, systemically, analytically, critically and creatively; communicate effectively; work as part of a collective; make appropriate decisions; plan, organise and prioritise work; solve problems creatively; obtain and process information; influence others; work effectively with a variety of people; be adaptable; lead projects; develop a strong work ethic; and manage time.

Who is the ideal candidate?

The ideal candidates are students who are self-driven, hard-working, enthusiastic and aware, and seek concrete ways to use the performing arts to challenge and even change themselves and society.

What makes this programme unique?

The BDram programme focuses on embodied teaching and learning and a range of performance and creative activities which transfer skills across these domains.

Career opportunities

Actors (theatre, film, television and radio), physical theatre artists, theatre critics, radio and television presenters, directors, educational theatre practitioners and educators, community theatre artists and educators, light and sound operators, voice artists, stage and production managers, programme facilitators and managers, performing arts administrators, documentary film-makers, digital and new media practitioners, playwrights, scriptwriters, play devisors, film and theatre researchers

Graduates create their own work and often practice their skills across several employment possibilities, including acting, writing, teaching, presenting (television and radio) and social justice imperatives.



Non-selection programmes

Bachelor of Drama (BDram) *(continued)*



'I was a drama student at school, and drama has always been my passion. I enjoy learning about it immensely, and having the opportunity to perform and be on stage only enhances the experience. When I looked into studying for the BDram qualification, I realised that there are many more avenues of drama that I had not yet encountered. It greatly excited me to learn about all the aspects relating to drama, and the stipulated structure of the programme assured me that this would be possible. During the application process, I attended the BDram audition on the university campus, and the extraordinary experience gave me a taste of what could be. It was then that I knew that BDram was the right choice for me.'

The degree is a fantastic exploration that assists students in harnessing both their physical and mental capabilities. This is due to the precise balance of practical and theory modules. The theoretical modules provide the foundation for the practical work and are instrumental in supporting it for the programme duration. In the final year of undergraduate studies, there is an opportunity to select modules that align with your future career and potential study trajectory. The content covered in class spans a diverse range of topics and challenges students to broaden their worldview. Students are presented with an array of avenues and careers that they may not have previously considered throughout the programme. The programme is geared towards training industry professionals while supporting student success.

The positive energy, atmosphere and excitement that I feel when I arrive combined with the learning environment creates a space for self-expression and allows me to exercise my creativity both on stage and in classes. The facilities, particularly the three theatres that we have access to and learn in, are a privilege in the programme experience. There are exciting opportunities to work on productions and collaborate with other creatives, giving me hands-on practical experience. The structures in place at the department provide me with a sense of security in my studies because of the support and encouragement that I have received from my lecturers. Due to their dedication to individual attention, I have been able to grow in a personal capacity.'

Teana Chiba – Bachelor of Drama (BDram)

Structure of programme

The programme has the following major focal points:

- Live and Digital Performance Studies (SBT) includes text analysis and performance, how elements of scenography engage with the body in theatrical performance, foundational principles of various voice and body movement pedagogies, digital media studies (including radio techniques and TV presentation) and writing for stage and film.
- Theatre Studies (TNT and TNP) provides students with the opportunity to integrate their creative, conceptual and performance skills by conceiving, staging and performing theatre, film and TV work. TNP introduces students to, for example, the basic techniques of acting, improvisation, various approaches to acting, movement and singing, and praxis components in digital media, music theatre, physical theatre and dance, writing for stage and film, TV and radio presenting, stage and camera acting, directing and theatre-making.
- Drama and Film Studies (DFK) introduces the languages of drama and film analysis to read, interpret and give meaning to various discourses in film and drama narratives.

Minimum admission requirements

Programmes	NON-SELECTION PROGRAMME	
	Minimum requirements for NSC and IEB for 2023	
	Achievement level	APS
Bachelor of Drama (BDram) [3 years]	English Home Language or English First Additional Language	5
Careers: As soon as the number of places available for this programme are filled, it will be closed for further applications.		30
Applicants must complete and pass an audition process. To retain admission, you must obtain an APS of at least 28 in the NSC. Careers: Actors (theatre, film, television and radio), physical theatre artists, theatre critics, radio and television presenters, directors, educational theatre practitioners and educators, community theatre artists and educators, light and sound operators, voice artists, stage and production managers, programme facilitators and managers, performing arts administrators, camera operators, documentary film-makers, digital and new media editors, playwrights, scriptwriters, play devisors, film and theatre researchers		
Bachelor of Drama (BDram)—Extended programme [4 years]	4	26
Careers: As soon as the number of places available for this programme are filled, it will be closed for further applications.		
Applicants must complete and pass an audition process. To retain admission, you must obtain an APS of at least 26 in the NSC. Careers: Actors (theatre, film, television and radio), physical theatre artists, theatre critics, radio and television presenters, directors, educational theatre practitioners and educators, community theatre artists and educators, light and sound operators, voice artists, stage and production managers, programme facilitators and managers, performing arts administrators, camera operators, documentary film-makers, digital and new media editors, playwrights, scriptwriters, play devisors, film and theatre researchers		

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Non-selection programmes

Bachelor of Music (BMus)

Students receive tuition in instrumental or vocal music (classical or jazz). Students choose additional elective modules to enhance their music expertise.

In the third year of study, students are required to select modules to specialise in during the final year of study. These fields include composition, music education, music entrepreneurship, music

Who is the ideal candidate?



This programme is designed for students who have already attained an advanced level of music skills and is aimed at developing specialist music skills and knowledge.

Structure of programme



Core modules

Musicology, first instrument, music theory, aural training, methodology, music education, ethnomusicology and research methodology (final year)

Elective modules

Composition, music therapy, music technology, second instrument, orchestral and choral conducting, chamber music, music entrepreneurship and music psychology

psychology, music philosophy, pedagogy, ethnomusicology, chamber music, music technology, music therapy and performance art.

Both musicology and music theory cover Western classical, jazz and popular music styles. Any orchestral instrument, voice, piano, organ, harpsichord, recorder, saxophone or guitar may be chosen as a practical instrument.

What makes this programme unique?



The School of the Arts: Music offers a broad range of undergraduate and postgraduate degree programmes, covering classical, jazz and African music. We are the only university on the African continent that offers training in music therapy.

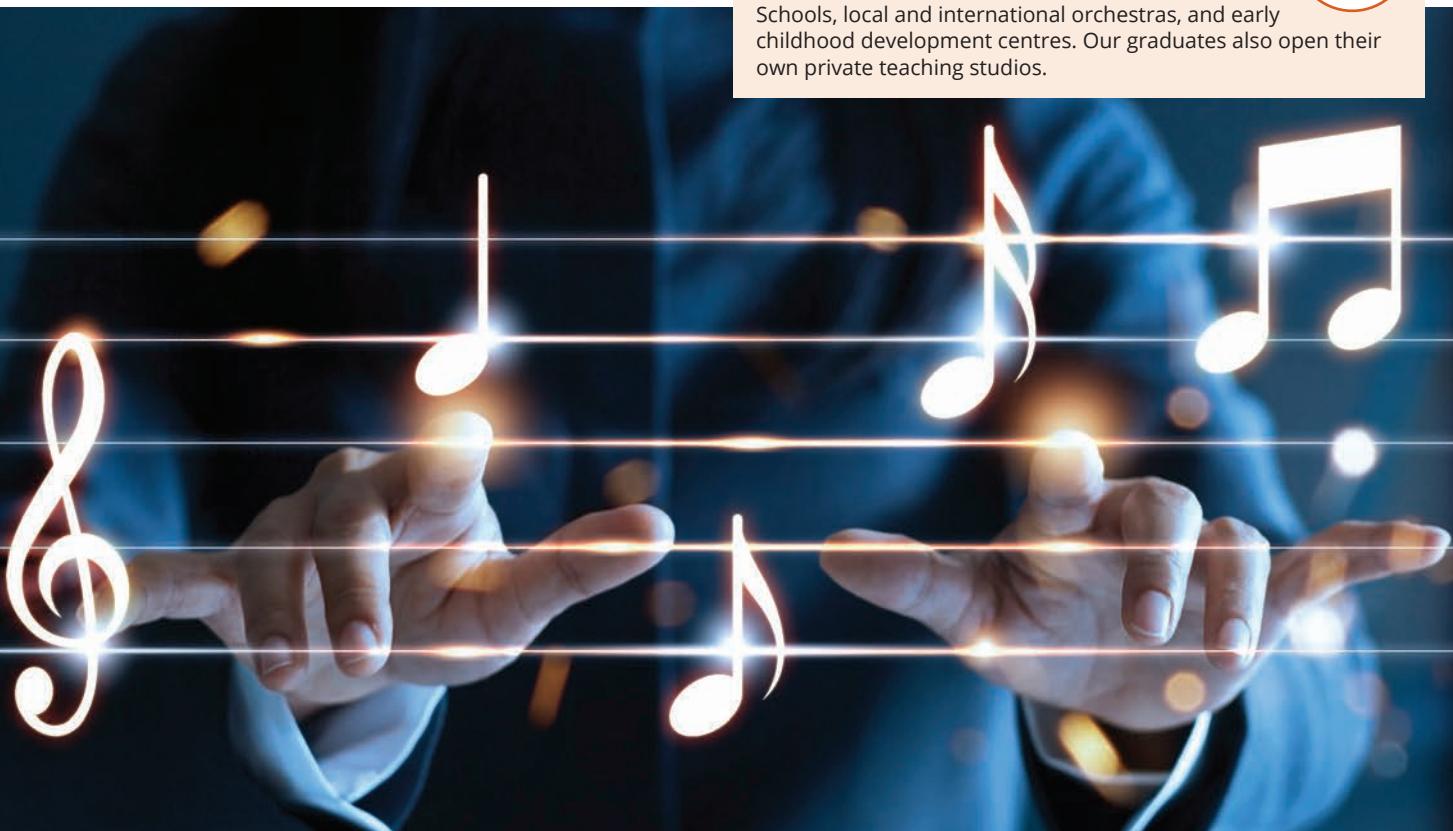
Our students are involved in numerous outreach projects and in-service training courses, all designed to bring music, music education, music technology and music therapy to the wider South African population.

Our facilities include two auditoria with exceptional acoustics, three Steinway concert grand pianos, lecture halls spread in three buildings over two campuses, a recording studio, individual practice rooms, and dedicated staff with expertise in classical, jazz, instrumental, vocal, choral, African and world music.

Which companies employ our graduates?



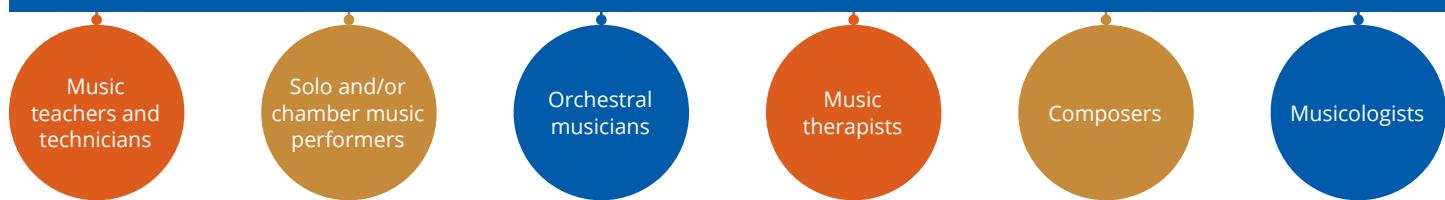
Schools, local and international orchestras, and early childhood development centres. Our graduates also open their own private teaching studios.



Non-selection programmes

Bachelor of Music (BMus) *(continued)*

What career opportunities exist for graduates?



'My name is James Paradza and I completed my Bachelor of Music degree (with distinction) in 2019. I am extremely grateful to the Hillensberg Trust, whose bursary award financed my studies. Having been a member of the University of Pretoria Youth Choir for three years, UP was my only choice for tertiary studies. While studying for my degree, I was a member of the University of Pretoria's Symphonic Winds and Tuks Camerata, for which I served as chairperson in 2018. I was also fortunate to have been chosen as a soloist to sing with the University orchestra in various concerts, such as the annual EBIT concert and the School of the Arts: Music Concerto Festival, which is part of the annual UP Music Festival.

I thoroughly enjoyed the BMus degree offered at UP! The degree programme, with its diverse curriculum covers all major genres of music, from classical to popular music, and allowed me to develop my critical thinking skills. I also had the privilege of giving a public recital as a part of my final-year assessment. This allowed me to share with friends and family some of what I had learnt during my four years of study. I was fortunate to receive complimentary tickets to the Global Citizen: Mandela 100 Festival headlined by, among others, Beyoncé—it was a truly unique out-of-the-classroom and life-changing experience and one I will always cherish! I am currently completing my Master's degree in Music in Performing Art, specialising in classical voice and opera performance. The UP community is made up of wonderful staff members and students who allowed me to "FLY@UP"!'

James Paradza – Bachelor of Music (BMus)

Minimum admission requirements

Programme	NON-SELECTION PROGRAMME		
	Minimum requirements for NSC and IEB for 2023		APS
	Achievement level	Music English Home Language or English First Additional Language	
Bachelor of Music (BMus) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4 (50-59%) or Grade VII Practical and Grade V Theory (Unisa/Royal Schools/Trinity) or a comparable standard and Practical audition and theoretical test passed with 60%	5	30

The School of the Arts: Music selects candidates based on a practical singing or instrument performance of 15 minutes, as well as a theoretical test.

Audition required

- Video of a practical performance (60%): A performance on the candidate's principal instrument. The performance should last about 15 minutes, and the programme must contain three works from different style periods (standard: at least Grade VII, Unisa/Royal Schools/Trinity practical music examinations);
- Online theoretical test (60%): A written test that will assess the candidate's knowledge of elementary harmony (standard: at least Grade V, Unisa/Royal Schools/Trinity theory examinations).

To retain admission, you must obtain an APS of at least 28 in the NSC.

Careers: Music teachers, music technicians, solo and/or chamber music performers, orchestral musicians and composers

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Non-selection programmes

Bachelor of Music (BMus)—Extended programme

The Bachelor of Music (BMus)—Extended programme is a five-year degree programme. The first year of the programme offers foundational support for the following critical skills required for music studies: practical musicianship, music theory, musicology, aural

training, academic literary and academic information management. In the second year of study, students are incorporated into the regular four-year BMus programme.

Who is the ideal candidate?

This programme is designed for students who do not meet the practical and theoretical requirements to study a four-year music degree directly after high school.



Structure of programme



Core modules

Musicology, first instrument, music theory, aural training, methodology, music education, ethnomusicology and research methodology (final year)

Elective modules

Composition, music therapy, music technology, second instrument, orchestral and choral conducting, chamber music, music entrepreneurship, music philosophy and music psychology

What makes this programme unique?

The first year of study acts as a bridging year aimed to equip students with the necessary skills required to study music at a tertiary level.



Career opportunities

Music teachers and technicians, solo and/or chamber music performers, orchestral musicians, music therapists, composers and musicologists



Which companies employ our graduates?

Schools, local and international orchestras, and early childhood development centres. Our graduates also open their own private teaching studios.



Minimum admission requirements

NON-SELECTION PROGRAMME

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	Music	English Home Language or English First Additional Language			
Bachelor of Music (BMus)—Extended programme [5 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	4 (50-59%) or Grade VII Practical and Grade V Theory (Unisa/Royal Schools/Trinity) or a comparable standard and Practical audition and theoretical test passed with 50%	4	26		

Prospective students will be required to write an assessment.

The School of the Arts: Music selects candidates based on a practical singing or instrument performance of 10 minutes, as well as a theoretical test.

Audition required

- Video of a practical performance (50%): A performance on the candidate's principal instrument. The performance should last about 10 minutes, and the programme must contain three works from different style periods (standard: at least Grade V, Unisa/Royal Schools/Trinity practical music examinations);
- Online theory test (50%): A written test that will assess the candidate's knowledge of elementary theoretical principles (standard: at least Grade III, Unisa/ Royal Schools/Trinity theory examinations).

To retain admission, you must obtain an APS of at least 26 in the NSC. If you are admitted to this programme, you may not be considered for any other degree programme within the Faculty, except for the BMus degree.

Careers: Music teachers, music technicians, solo and/or chamber music performers, orchestral musicians and composers

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Article

The Global Classroom: Blending experience across continents

By Andrea du Toit (Department of Political Sciences)

For the past four years, the University of Pretoria's Department of Political Sciences has participated in the *Global Classroom*—a class where political science students from across the world learn from each other, in real time.

The *Global Classroom* has four participating universities from four different continents: the University of Pretoria in South Africa, Le Mans Université in France, Fundação Armando Alvares Penteado (FAAP) in Brazil, and the University of Akron in the United States of America.

Students taking the *Global Classroom* have interacted with each other and discussed various topics, including films like *The BlacKkKlansman*, issues such as solving climate change, and the news making headlines in each country. Before the pandemic, the class ran through teleconferencing facilities in the Merensky library, but during lockdown, we were able to shift the class to the Zoom platform. Our students already had the skills to interact in a virtual classroom, so they adapted very quickly!

The open nature of the class allowed professors, students, and people working to solve key problems to join the conversation. Classes, for instance, have featured speakers from US Congressman Steve Cohen to Ambassador Kingsley Makhubela from South Africa. Apart from listening to the speakers, students from all four universities also have an opportunity to ask the speakers questions or discuss the matter further amongst themselves. Four times a semester, lecturers turn the class over to the students and allow them to lead discussions and present their own findings. Group projects also give the students a chance to work together, promoting a unique cross-cultural understanding.

For the Honours class in Political Sciences, the *Global Classroom* is only part of the semester. Once their international colleagues leave to write their exams, UP students have four more weeks to apply what they have physically experienced in the *Global Classroom*. Our students get to write publishable articles that unpack the themes they discussed—these articles can be included on their CV when they apply for a job once they graduate.

The *Global Classroom* is particularly relevant for a post-COVID world where students will be able to use technology to interact with each other, their lecturers, and internationally-located presenters and classmates.



The programme is the first of its kind, and has received fantastic feedback from students, visiting guests, and members of academic institutions.

In 2018, the course's lecturers Roland Henwood and Heather Thuynsma won the Faculty of Humanities Teaching and Learning Award, and in 2019 they won the University's Group Teaching Excellence Laureate, a true testament to what is possible when lecturers commit to improving the ways their students learn.

As an alumnus of the course, I can attest to the magic that takes place in a classroom filled with diverse conversations amongst students from all over the world. While critical thinking and academic development is important for students who pursue postgraduate degrees, courses such as the *Global Classroom* also provide students with the opportunity to better understand the problems of the world and push them to develop creative solutions to these problems.

The *Global Classroom* showed others in our Faculty how technology could still be inclusive while teaching our students about the world they live in and the problems they must manage. The *Global Classroom* was pioneered at Honours level but UP will be offering similar courses for undergraduate students in 2022.

As the world continues to face the challenges of the COVID-19 pandemic, new and exciting methods of learning have emerged. It is our responsibility, as students entering UP, to fully embrace these opportunities!



Global Classroom
Four Universities, Four Continents,
One Meeting in Real Time

Article

What is in the Box?

An innovative way of teaching history at the honours level

By Jane Mampane (Dean's Office in the Faculty of Humanities)

Have you heard people say, 'the past is the past, why should we study events that happened a long time ago?' Or, 'History is a boring subject. We have learned everything about it in high school, there is nothing more!'

The importance of studying history has been dismissed because many think that what happened yesterday is not relevant today. The truth is, history will always be relevant and its impact continues to ripple, one way or another. Therefore, we need to understand what happened yesterday so that we can prepare for what will happen tomorrow.

An honours degree in History at the University of Pretoria (UP) is certainly not boring or repetitive. Here you can learn about **Visual History** (learning about past events through photography, drawings, and film) and **Gendered Histories** (looking at the past from the perspective of gender roles and behaviours, and changes over time).

Not only are there a range of topics and historical figures for you to discover, but UP's **Department of Historical and Heritage Studies** (DHHS) has also changed the way you investigate them. DHHS, in collaboration with the University of Pretoria Archives (UPA), has introduced a new component to their methodology course that challenges students to interrogate history by working physically (despite the lockdown!) with primary materials.



↑ Archived documents are full of exciting facts.

According to Prof Karen Harris (Head of DHHS) and Dr Ria van der Merwe (Assistant Archivist of UPA), the course starts with a theory component that is designed to introduce students to the archival process.

Students learn to:

- define an archive and how it differs from a library;
- discuss how an archive is developed and how records are collected;
- identify the different types of materials stored in an archive and how to store them properly; and
- how to use an archive and what legislation governs the archival process.

Dr Van der Merwe then takes the students through the actual archival process and the different phases of evaluating, arranging and storing primary materials.

The next step is the practical component where students complete a group project. Each group is given documents that have not been inventoried, that is unordered documents that are still in their original form. These primary documents originated from the Museum of the former Transvaal Education Department and were delivered to UP in 2013. They reflect the history of the South African education system in the Transvaal province and they date back to the late 19th century.

The documents trace the founding of schools, curriculums, policies, lesson plans, newspaper articles, and correspondences between the national and regional departments of education and individual schools. Prof Harris and Dr Van der Merwe confirm that this collection is not part of the national historical inventory and is therefore valuable and rare.

Each student is assigned a random box from this collection and asked to complete the following tasks:

- They have to answer 10 short questions about what their boxes contain.
- They have to apply all the archival concepts and processes they learnt during the theory sessions to their boxes.

- They have to present their findings at a colloquium called '**What's in the Box?**' and their presentation has to highlight the following:
 - the historical context
 - provide a content overview
 - outline the box's research potential
 - select one 'gem' document for discussion
 - provide specific access conditions

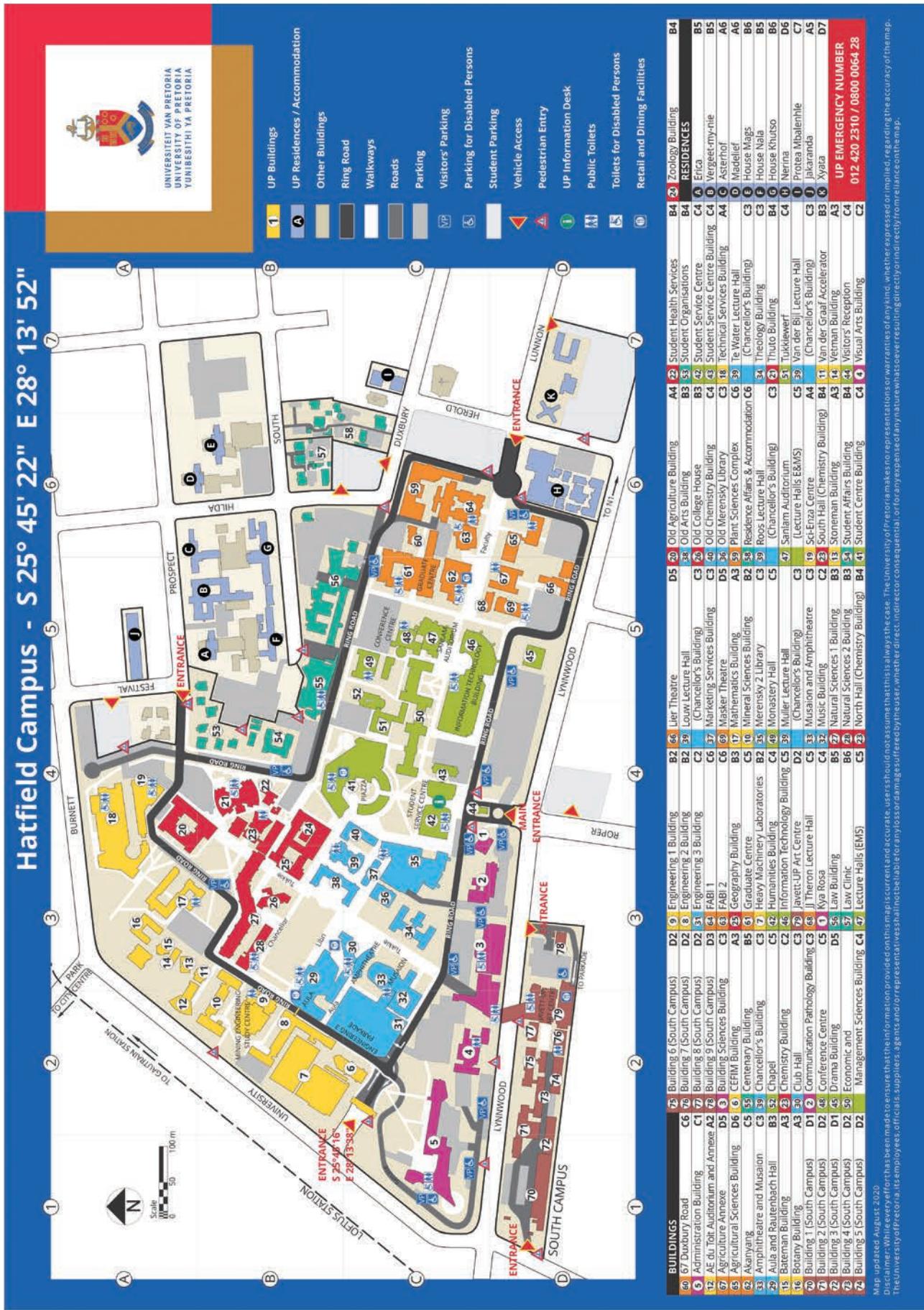
This year's presentations were held online on 1 July 2021. According to Prof Harris, the highlight of the presentations was when each student had to select and describe their 'gem' explaining its content and significance, when it was created, and its historical relevance. This year's 'gems' included the treatment of left-handed learners; an inquiry about Dimitri Tsafendas; feeding poor white children; handwriting lessons; and a 'cigarette box' history.

Prof Harris and Dr Van der Merwe believe that, allowing history students to learn about the archival process in a real archive, has taken the Department to a new level. It has opened up an avenue of interaction with an institution that is not generally accessible. Honours students will no longer only study archives in the classroom, but they will also get the experience of working with the archives.

'In a nutshell, the **What's in the Box?** experience was one of moving from a sense of KNOWING WHAT to one of KNOWING HOW,' said Prof Harris. She further said that it is important for students to be 'exposed to as many facets of the historian's craft as possible' during their honours year because it equips and inspires them to want to pursue their studies at master's and, possibly, doctoral level.

The Dean of the Faculty of Humanities, Prof Vasu Reddy, congratulated the Department on this innovative teaching method, which is unique to the Faculty and a first in South Africa.

Hatfield Campus map





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Faculty of Natural and Agricultural Sciences

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

www.up.ac.za/nas



Note: The minimum admission requirements reflected in this brochure are subject to changes in regulations relating to COVID-19. Amendments will reflect in the digital version of this brochure, which can be downloaded from www.up.ac.za/programmes > Undergraduate > Faculty brochures.

2023

UNDERGRADUATE
FACULTY BROCHURE

Make today matter

Message from the Dean

I'm writing this message at the end of 2021 in preparation for the 2022 recruitment and enrolment campaign for the 2023 academic year. I don't know what the pandemic's trajectory will look like in 2023, but I am sure that the widespread roll-out of vaccines will dramatically improve our chances of a more stable academic year in 2023, with safe options for more on-campus activities.

Prof Barend Erasmus
Dean: Faculty of Natural and Agricultural Sciences



The pandemic has allowed us to re-imagine what a university should look like and how it should conduct its core business of research, teaching and learning, and community engagement. We have moved away from emergency online teaching, and we are transitioning towards a hybrid learning model, where high quality, purposefully-designed on-campus activities will complement a sophisticated online learning environment for a better education. It will provide you with more flexibility to complete your education without sacrificing the quality that UP, and the Faculty of Natural and Agricultural Sciences (NAS), is well-known for.

Hybrid learning is just one of the many ways in which NAS leads education on the continent. The pandemic has taught us the value of science for society. The diversity of our programmes, our industry connections, the quality of our research and our deep and meaningful community engagement projects all contribute to your education to launch you on a pathway to a fulfilling career that will have an impact on the world.

NAS is a faculty known for its diversity in respect of people and disciplines and how we view the world. This diversity, which helps us look at old problems from new perspectives, plays a crucial role in ensuring our excellence in teaching and research. It also provides an ideal template for cross-cutting research, where diverse disciplines combine forces to solve the societal problems of the day.

Our excellence in teaching and research is also recognised by our large number of partners outside of academia. We work together with several companies, non-profit organisations, industry bodies and government departments, which means that the qualification you receive from NAS gives you a unique edge for employment. The excellent research and teaching you are exposed to during your training, combined with valuable real-world experience, will make you a sought-after candidate for employment.

As a student in NAS, you will be mentored by leading scientists and trained in the use of state-of-the-art equipment. Here you will be at the forefront of scientific research, and you will be inspired to think innovatively. In NAS, we have a deep appreciation of humanity's connection to the living world, and we explore new opportunities for investigating how it shapes our livelihoods.

We are known for our expertise in forestry and agriculture, the life sciences and mathematical and statistical sciences—all supported by genuine scholarship and excellence in the basic sciences. We offer some unique degrees (in Meteorology and Nutrition, for example), and even though there may be similar offerings elsewhere, we have attractive double major options (and even a unique triple major in Human Physiology, Genetics and Psychology). Food- and water security in Africa, which are two of our many focus areas, can be approached from many angles: climate change, biotechnology, crop development, breeding, data science, agricultural economics, insurance risk, consumer behaviour, indigenous crops, pests and diseases, carbon cycling and environmental change, to name but a few.

I want to welcome you to NAS and look forward to joining you on an exciting journey.

Email nas@up.ac.za



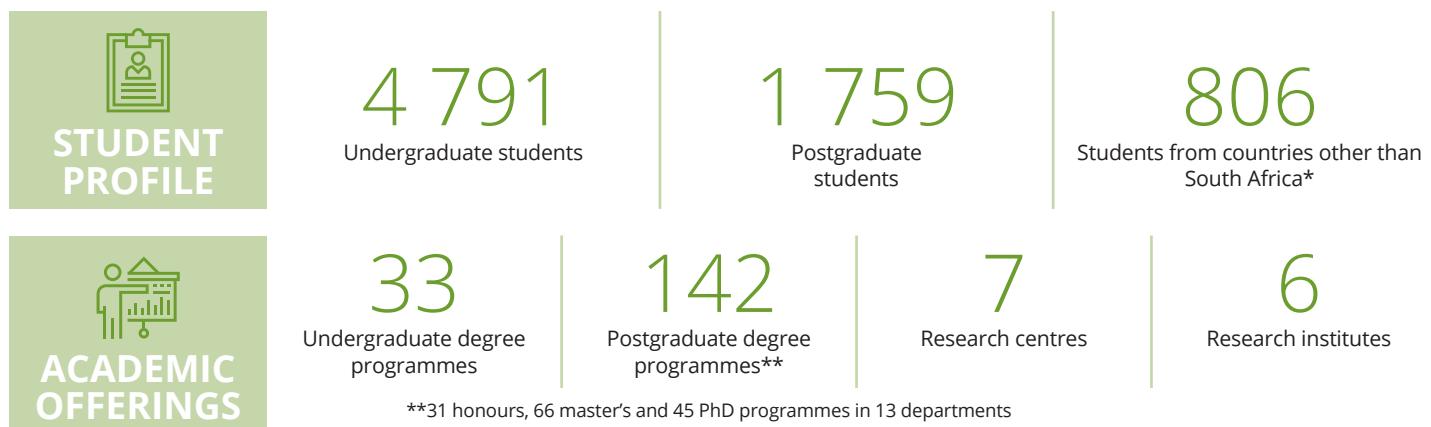
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NAS at a glance

The Faculty of Natural and Agricultural Sciences is the most diverse faculty of its kind in Africa.

All degree programmes are designed to develop problem-solving individuals who can easily adapt to changing circumstances and take the lead in their chosen fields of specialisation. Our world-class qualifications provide access to numerous career opportunities for dynamic and creative people. Some of the Faculty's degree programmes are unique to the University of Pretoria, while others are also offered at other institutions.



UNIQUE DEGREES



BSc (Meteorology) is the only degree of its kind offered in sub-Saharan Africa.



On the Mamelodi Campus, BSc – Extended Programmes are offered to applicants who do not comply with the minimum admission requirements.



BSc (Culinary Science) – the only degree of its kind in Africa



The Faculty presents undergraduate degrees in the following fields:

Biological Sciences	Agricultural and Food Sciences
BSc in:	BSc in:
<ul style="list-style-type: none"> ▪ Biochemistry ▪ Biotechnology ▪ Ecology ▪ Entomology ▪ Genetics ▪ Human genetics ▪ Human physiology ▪ Human physiology, genetics and psychology ▪ Medical sciences ▪ Microbiology ▪ Plant science ▪ Zoology 	<ul style="list-style-type: none"> ▪ Culinary science ▪ Food science ▪ Nutrition
BSc (Biological Sciences) is a generic first-year programme in Biological Sciences	BScAgric in:
	<ul style="list-style-type: none"> ▪ Agricultural economics and agribusiness management ▪ Animal science ▪ Applied plant and soil sciences ▪ Plant pathology
	Consumer Science (BConSci) in:
	<ul style="list-style-type: none"> ▪ Clothing retail management ▪ Food retail management ▪ Hospitality management
Physical Sciences	Mathematical Sciences
BSc in:	BSc in:
<ul style="list-style-type: none"> ▪ Chemistry ▪ Engineering and environmental geology ▪ Geography and environmental sciences *** ▪ Geoinformatics ▪ Geology ▪ Meteorology ▪ Physics 	<ul style="list-style-type: none"> ▪ Actuarial and financial mathematics ▪ Applied mathematics ▪ Mathematical statistics ▪ Mathematics
*** This programme replaced the BSc (Geography) and the BSc (Environmental Sciences) programmes from 2021	
BSc – Extended programmes (18 months)	

Subject fields in the BSc – Extended programmes

- Biological and agricultural sciences
- Physical sciences
- Mathematical sciences

Undergraduate programmes



Important information for all prospective students for 2023

- The admission requirements and general information in this brochure 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 2023: Qualifications other than the NSC and IEB*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Brochure:** *Newcomers Guide 2022*, available at [> Undergraduate > Admission information](http://www.up.ac.za/programmes).
 - **Website:** www.up.ac.za/international-cooperation-division.
- **School of Tomorrow (SOT) and Accelerated Christian Education (ACE):** The University of Pretoria no longer accepts qualifications awarded by these institutions.
- **General Education Development (GED):** South African GED graduates who graduated up to 2019 may be considered for admission provided they qualify for an exemption certificate issued by USAf and comply with university admission requirements, as well as faculty subject requirements. South African GED graduates who graduated after 2019 cannot be considered for admission to UP as the diploma is not accredited by USAf and will not be considered for exemption. Applicants from the USA who completed the GED may apply for a Foreign Conditional Exemption Certificate issued by USAf accompanied by their SAT/TOEFL/IELTS results.
- **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.

Important faculty-specific information on undergraduate programmes for 2023

The closing date for all selection programmes is **30 June 2022**. The University of Pretoria has decided not to set a specific closing date for applications to non-selection programmes for 2023. Applications will close when the available study spaces are filled (**close on availability of space**). Once the available number of study places for a specific programme are filled, no further applications for that particular programme will be considered. All applicants are therefore strongly advised and encouraged to submit their applications as soon as possible after 1 April 2022 and to check the application site (UP Student Portal) regularly.

- 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 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 from the calculation of 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.
- **BSc (Biological Sciences) programme:** This is a generic first-year programme in biological sciences. Only first-time university entry students who are uncertain about which specialisation degree programme to choose, may apply for this programme.
- **MBChB or BChD selection:** Students who intend to apply for admission to MBChB or BChD in the second semester, when places become available in these programmes, may register for any BSc biological sciences modules in the first semester, replacing Mathematics (WTW 134) with Science and World Views (FIL 155), People and their Environment (MGW 112) and Medical Terminology (MTL 180), with the proviso that should they not be selected and should they wish to continue with one of the biological sciences programmes, they must complete Mathematics (WTW 165) in the second semester of their first year. Students who wish to add these three modules (FIL 155, MGW 112 and MTL 180) are required to have an APS of at least 35 and a minimum of 70% for Mathematics in the final NSC or equivalent qualification. Students should contact the Faculty of Health Sciences for their added criteria.
- **BVSc and BVetNurs selection:** Students who intend to apply for admission to BVSc may register for BSc (Biological Sciences) modules including Medical Terminology (MTL 180). Applicants enrolled in the extended BSc programmes must complete the first 3 semesters of the BSc – Extended programme with the correct (equivalent) modules to be eligible for selection into the BVSc or BVetNurs programme. Students should contact the Faculty of Veterinary Science for their selection criteria.
- **BSc Extended programmes:**
 - Candidates who do not comply with the minimum admission requirements for a BSc and BScAgric mainstream programme, may be considered for admission to the corresponding BSc Extended programme, which requires an additional year of study.
 - The BSc Extended programmes are not available for students who meet all the requirements for the corresponding mainstream programme.
 - Only students who apply in their final NSC or equivalent qualification year will be considered for admission into any of the BSc Extended programmes. This, however, excludes students who are upgrading or taking a gap year.

Undergraduate programmes

University of Pretoria website

www.up.ac.za/nas

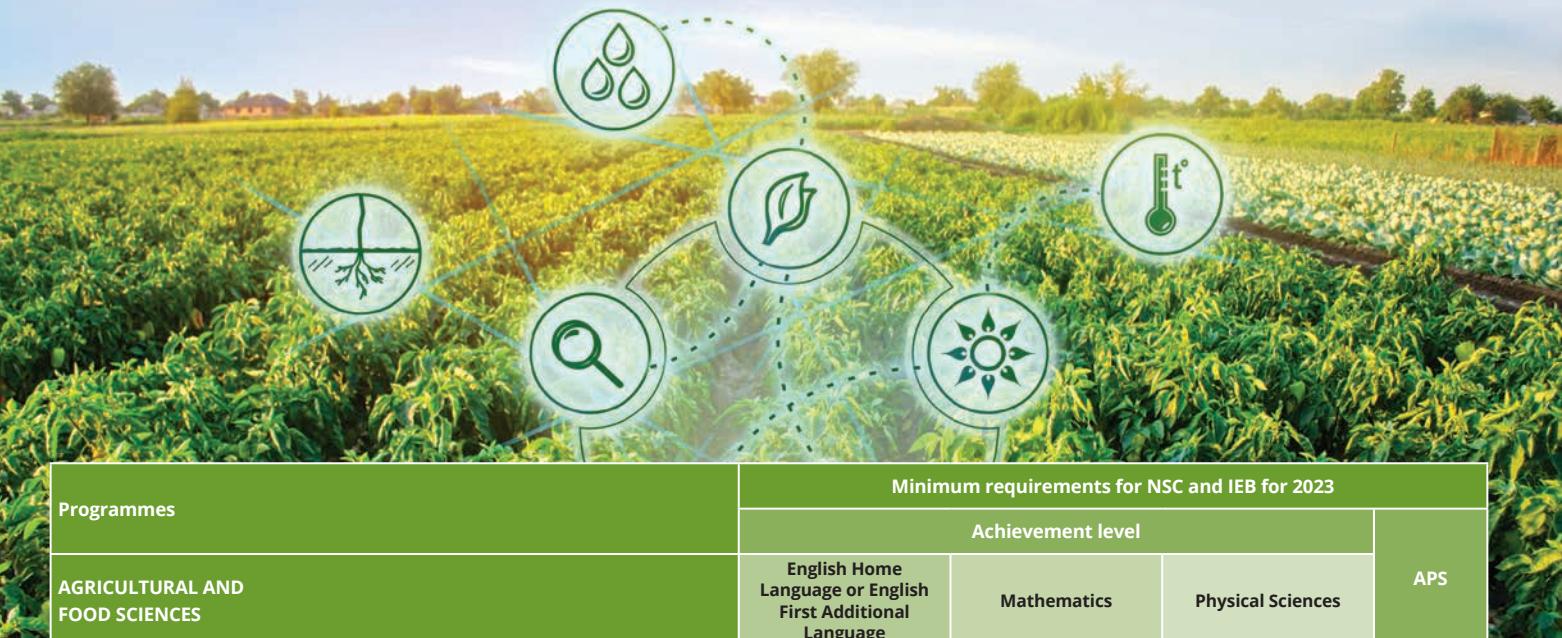
Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
BIOLOGICAL SCIENCES	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Biological Sciences) Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
This is a generic first-year programme in Biological Sciences. Only first time university entry students who are uncertain about which specialisation degree programme to choose may apply for this programme.				
BSc (Biochemistry) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Biochemistry offers many opportunities for exciting and challenging careers in the food and pharmaceutical, fine chemicals and waste-processing industries. Careers at research councils, such as the Medical Research Council (MRC), the Agricultural Research Council (ARC), the Cancer Association of South Africa (CANSA) and the Water Research Commission (WRC) are possibilities, as are academic institutions, the Council for Scientific and Industrial Research (CSIR) and forensic as well as pathology laboratories. Possible careers include that of researcher, teacher, lecturer and medical representative. Graduates are comfortable in work environments such as universities, research institutes, pharmaceutical companies, biotechnology companies and related industries.				
BSc (Biotechnology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates mostly find work as laboratory-based researchers or bio-entrepreneurs using medical, animal, plant or microbe-based technologies to develop products and services. If students combine biotechnology with additional qualifications such as law, they will be equipped for success in careers such as patent law, pharmaceutical sales and marketing, project management, computer programming (natural computation) and science journalism. Please note that the level of training and qualification plays a vital role in determining the type of work a qualified biotechnologist can pursue.				
BSc (Ecology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates will be at the forefront of conserving natural ecosystems in a changing world. They find work in environmentally based government and private conservation organisations, companies involved in the direct or indirect use of natural resources, environmental consultancies, environmental education initiatives, and academic and training institutions.				
BSc (Zoology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates can look forward to working on game and other wildlife in a range of exciting career prospects. They could be employed by public and private nature conservancies, environmental consultancies and conservation planning agencies, medical and veterinary research institutions, in biochemical and biotechnology industries, at educational institutions, in IT-related fields, and the corporate sector. These jobs usually involve a stimulating combination of problem-solving, analytical work, and fieldwork.				



Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
BIOLOGICAL SCIENCES	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Entomology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates with expertise in entomology are highly sought after in the agricultural sector as insect management specialists or researchers. They are also employed at nature reserves, environmental consultancies, conservation planning agencies, medical and veterinary research institutions, educational institutions and museums, organisations involved in the management of invasive species and pests, quarantine and inspection services, in the biochemical and biotechnology industries, in IT-related fields, and in the corporate sector.				
BSc (Genetics) BSc (Human Genetics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates generally choose to work as molecular biologists, medical or clinical geneticists, cytogeneticists, biotechnologists, agricultural scientists, molecular ecologists, forensic scientists, genetic counsellors, bioinformaticists and computational analysts, veterinary scientists, teachers or lecturers at various institutions, and in bioscience-related industries. If students combine genetics with additional qualifications such as law, they will be equipped for successful careers in, for example, patent law, pharmaceutical sales and marketing, project management, computer programming (natural computation) and science journalism. Note that the level of training and qualification plays an important role in determining the type of work in which a qualified geneticist can become involved.				
BSc (Human Physiology) BSc (Human Physiology, Genetics and Psychology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Research is performed in cooperation with medical teams in private and government research laboratories (such as the CSIR and the MRC), the South African Bureau of Standards (SABS), pharmaceutical firms, universities, veterinary and industrial institutions and state departments (eg the Department of Health). Physiologists are also found in various other fields, including education (teachers, lecturers and instructors), sports physiology, biostatistics, bioengineering, industrial hygiene, journalism and medical technology, and in the industry as representatives of pharmaceutical firms. Graduates with Genetics and Psychology as subjects also have access to postgraduate programmes offered by the Department of Biochemistry, Genetics and Microbiology (Faculty of Natural and Agricultural Sciences) and the Department of Psychology (Faculty of Humanities).				
BSc (Medical Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Postgraduate studies are highly recommended. Honours, master's and doctoral degrees can be obtained in any of the subdisciplines of anatomy: neuro-anatomy, clinical anatomy, cell biology, physical and forensic anthropology, histology and embryology. Students who obtain this degree can also continue with their studies to obtain postgraduate degrees in physiology, genetics and pharmacology. Career opportunities include research in any of the subdisciplines of anatomy, in academia, in forensic science and in the health science industry. Other careers that can be considered are in the sports sciences, virology, chemical pathology, immunology, health administration or ergonomics. Technical careers are also possible, for example, in the Anatomy or Physiology departments at universities.				
Limited places are available in the first year of BSc (Medical Sciences). Students who apply for BSc (Medical Sciences) as their first choice, and who meet the minimum admission requirements, will be admitted until the places have been filled. Transfers from the extended programme are allowed after three semesters in the extended programme only if students comply with all of the prerequisites for ANA 121, ANA 122 and ANA 126 (CMY 117 and MLB 111, or their equivalent, passed).				
BSc (Microbiology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Microbiologists can pursue a variety of careers involving activities ranging from practical application to basic research. Career opportunities are available in the food, dairy, beer, wine, baker's yeast and fermentation industries, and at mines where they will be involved in corrosion control. Graduates can also follow careers in medical or veterinary microbiology, microbial genomics and, ecology or as researchers at organisations such as the CSIR, MRC or ARC, or lecturers and researchers at academic institutions.				
BSc (Plant Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Careers range from working in a laboratory to studying plants in their natural environments. Graduates could be employed at biotechnology and pharmaceutical firms, South African National Parks (SANParks), private ecological companies and research institutions such as the CSIR, ARC and the South African National Biodiversity Institute (SANBI).				
BSc – Extended programme – Biological and Agricultural Sciences Refer to the faculty-specific information on page 2.	4	4	4	26
Students enrolled for the BSc – Extended programme – Biological and Agricultural Sciences, do not qualify to apply for the mid-year intake in the Faculty of Health Sciences.				

Undergraduate programmes



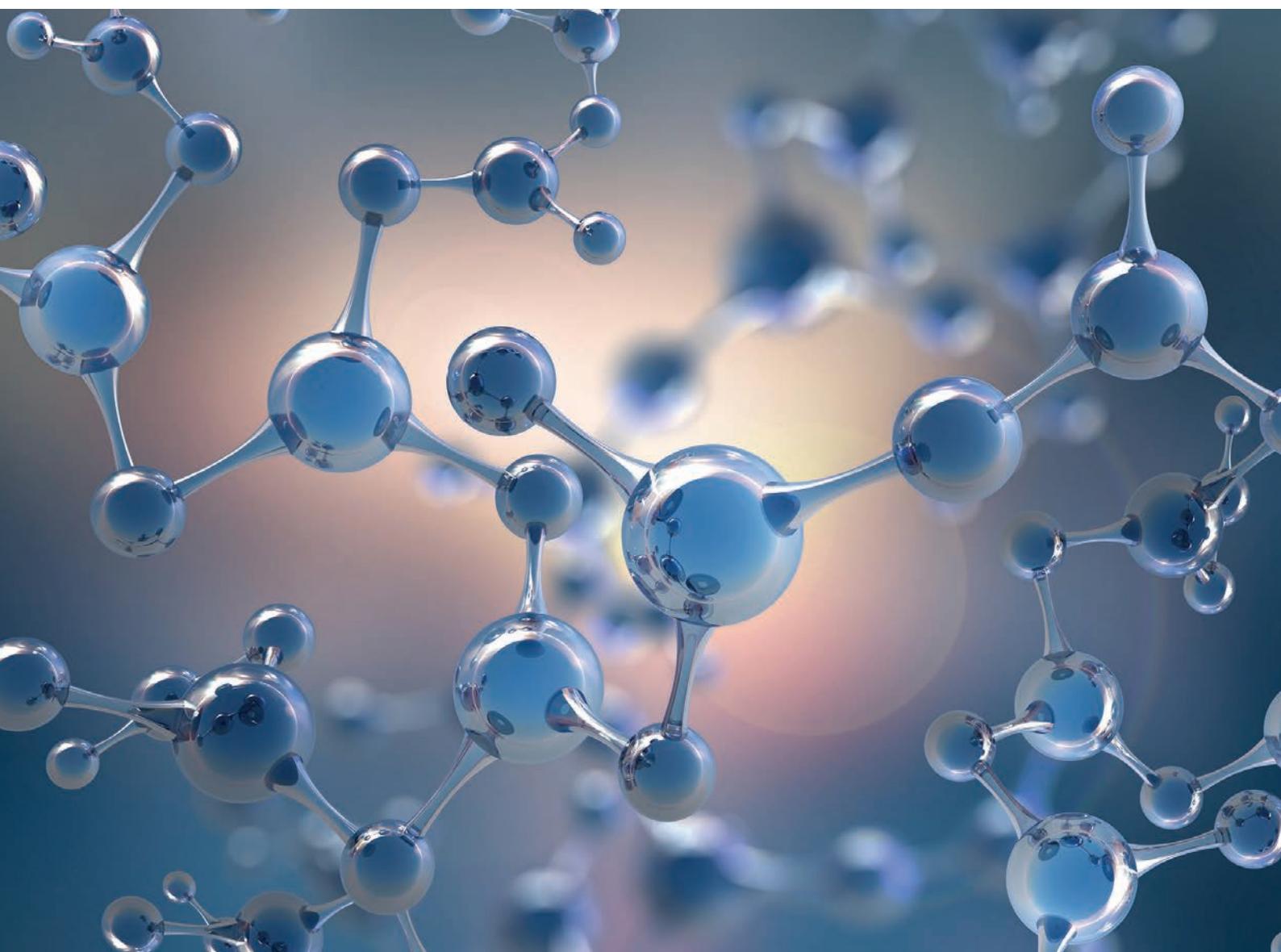
Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
English Home Language or English First Additional Language	Mathematics	Physical Sciences		
AGRICULTURAL AND FOOD SCIENCES				
BSc (Culinary Science) [4 years]	5	5	5	32
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.				
Careers: Graduates can be employed as culinary scientists, culinologists, sensory analysts, food researchers, food product developers, food safety and quality assurance managers, and food service managers.				
BSc (Food Science) [3 years]	5	5	5	32
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.				
Careers: Food scientists with highly marketable training and professional skills work as food risk investigators, quality and safety assurance managers, food chemists, food microbiologists and biotechnologists, packaging and shelf-life specialists, safety auditors, product and process development managers, technical sales and marketing advisors, sensory scientists or food bio-scientists (for example brewers or flavourists) in the food, agro-processing and related industries. The work environments of food scientists include laboratories, food production sites, business premises (retail and wholesale), training areas, government institutions and research organisations. Food scientists also work in industries and companies that manufacture and supply materials (for example packaging and food additives, such as colourants and flavourants) to the food industry, or have secondary involvement in food production and sales.				
BSc (Nutrition) [4 years]	5	5	5	32
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.				
BSc (Nutrition) is an interfaculty degree programme, presented jointly by Consumer and Food Sciences (Faculty of Natural and Agricultural Sciences) and Human Nutrition (Faculty of Health Sciences).				
Careers: The need for graduates with training in nutrition is driven by the worldwide recognition of the fact that food does not only meet basic nutritional needs but also plays a key role in the promotion and maintenance of long-term good health. Career opportunities exist in food or related industries (such as pharmaceutical and food manufacturing companies), government departments, international organisations (such as the United Nations Food and Agricultural Organisation (FAO) and the World Health Organisation (WHO)), NGOs, research organisations and as project managers and advisors in the food, health and consumer sectors.				
BScAgric (Agricultural Economics and Agribusiness Management) [4 years]	5	5	5	32
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.				
Careers: The BScAgric (Agricultural Economics and Agribusiness Management) degree is ideal for students who are passionate about and have competencies in both science and business subjects. The degree programme cultivates problem solvers with unique skill sets to help feed and clothe the world. Agricultural economists are involved in many different areas of the economy. Their roles in the economy include: analysing and understanding consumer behaviour in terms of people's wants, needs and willingness to pay for food and clothing; conducting research in environmental economics to assist governments and businesses in ensuring the sustainable use of scarce resources such as water; training of smallholder farmers by providing extension services; trading of financial instruments and agricultural commodities on global and local stock markets; advising clients in the agricultural sector on how to manage their finances and risks; advising government on how to ensure that there will be enough food for all South Africans; and conducting research to ensure the sustainable and profitable supply of food and clothing across the various supply chains. Employment opportunities for agricultural economists include employment in the government, commercial banks, multinational agribusiness companies, former cooperatives, commodity trading houses, food processors and manufacturers, and research councils.				
BScAgric (Animal Science) [4 years]	5	5	5	32
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.				
Careers: Animal science is focused on the application of the scientific aspects of animal production and the quality control of products to ensure consumer satisfaction. Careers in this field make an essential contribution to food (protein) production in South Africa. Based on the most recent research and the needs of both animals and humans, animal science focuses on the entire livestock production value chain, from conception to consumption.				
There are numerous career opportunities for animal scientists in research, commercial farming and the public sector, and for in the livestock and feed industry. Animal scientists can work on different levels in these sectors, eg as researchers or consultants on animal nutrition or breeding, technical representatives, managers of intensive and extensive animal production systems and policymakers.				
The BScAgric (Animal Science) degree is acknowledged as a professional qualification by SACNNSP in terms of Act 106 of 1993. It is internationally recognised, which means that graduates can register as professional animal scientists.				

Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
English Home Language or English First Additional Language	Mathematics	Physical Sciences		
AGRICULTURAL AND FOOD SCIENCES				
BScAgric (Plant Pathology) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates could be employed in: <ul style="list-style-type: none"> ▪ Education and training: Graduates can work at universities, colleges and schools. ▪ Plant pathologists: Graduates are in demand in various industries. Careers range from researchers to practitioners who work in laboratories, on commercial farms (which includes fieldwork) or in the food trade industry. ▪ Research and management: Graduates are also hired at research institutes, government departments, seed, fertiliser and agrochemical companies, municipalities and in the mining industry. ▪ Extension services for technology transfer: Employers of graduates include grower associations, national and provincial Departments of Agriculture, Land Reform and Rural Development (DALRRD), Environment, Forestry and Fisheries (DEFF), Tourism (DT), Mineral Resources and Energy (DMRE) and Water and Sanitation (DWS). ▪ Entrepreneurial: Graduates can work as consultants or in production. 				
BScAgric (Applied Plant and Soil Sciences) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32
Careers: Graduates could be employed as teachers and lecturers at schools and academic institutions, as well as researchers and managers at various public and private institutions: <ul style="list-style-type: none"> ▪ Public sector: The ARC, DWS, DEFF, DT, DALRRD, DMRE, the CSIR, provincial agriculture and nature conservation departments, SANBI, municipalities, SANParks, national farming and food production agencies ▪ Private sector: Companies involved in seed, fertiliser and plant protection research and development, environmental planning and management, nurseries, vegetable, fruit and ornamental cut-flower production and irrigation ▪ Extension services involving knowledge transfer: Nature conservation, national and provincial departments of agriculture and the environment, environmental management and rehabilitation, nurseries, crop, turfgrass and weed management, private companies servicing field crops, vegetables, medicinal and aromatic plants, fruit, ornamental and cut-flower production ▪ Entrepreneurial: Consultants in crop, pasture, vegetable, medicinal and aromatic plants, ornamental and cut-flower production systems and landscaping enterprises, managing own farms and nurseries for extensive (field) or intensive (tunnel/greenhouse) production systems involving various crops, and managing companies specialising in irrigation, reclamation and soil conservation 				
BSc – Extended programme – Biological and Agricultural Sciences Refer to the faculty-specific information on page 2.	4	4	4	26
Students who are placed on this BSc – Extended programme will take a minimum of five years to complete any BScAgric, BSc (Culinary Science) or BSc (Nutrition) programmes.				
Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
English Home Language or English First Additional Language	Mathematics			
CONSUMER SCIENCE				
BConSci (Clothing: Retail Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4		28
Careers: Graduates can be employed in retail management as brand managers, clothing buyers and planners, fashion designers, fashion marketers, fashion product developers, quality controllers and assurance managers, store managers, image consultants, textile technologists, visual merchandisers and pattern technologists, or can become entrepreneurs.				
BConSci (Food: Retail Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4		28
Careers: Graduates can be employed as brand managers, sales managers or store managers, food and beverage buyers and planners, food stylists, food journalists, food product marketers, visual merchandisers and consumer consultants, or can become entrepreneurs.				
BConSci (Hospitality Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4		28
Careers: Graduates can be employed as food and beverage managers, food service managers, culinary specialists, events coordinators, entrepreneurs, food product and menu developers, food journalists, food safety and quality assurance managers, and food stylists.				

Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
PHYSICAL SCIENCES	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Chemistry) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Graduates are employed in most technology-based institutions and work in laboratory environments that form part of industrial, research or academic institutions. A chemist must be able to participate in teamwork in a multidisciplinary environment and a wide variety of enterprises in both the private and public sectors. It is important to note that the type of work available to a graduate in chemistry depends on the level of the qualification obtained. Advanced qualifications will eventually lead to positions in research and/or production management and require management and financial planning skills. Many career opportunities exist in the fields of education, research, journalism, environmental protection, food and beverages, energy, water, health, sports, pharmaceuticals and cosmetics, geology, mining and law enforcement. These include the well-known professions of synthetic chemist, materials scientist, chemical pathologist, forensic chemist, analytical chemist, drug analyst, patent lawyer, environmental chemist, geochemist, food chemist, polymer chemist and soil chemist.	5	5	5	34
BSc (Physics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Graduates could be employed as university academics, whose duties include lecturing, research and the supervision of postgraduate students, researchers in national laboratories such as the Nuclear Energy Corporation of South Africa (NECSA), the South African Astronomical Observatory or iThemba LABS (Laboratory for Accelerator-based Sciences), researchers in industry, for example at the CSIR or Element Six, science advisors for non-governmental organisations, industry or government, radiation scientists, medical scientists and biophysicists, atmospheric scientists and climatologists, developers of renewable energy sources, geophysicists, innovators and entrepreneurs, and computational scientists. International collaboration also takes place with experts from abroad.				



Undergraduate programmes

Programmes	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
PHYSICAL SCIENCES	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Geography and Environmental Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Geography and environmental sciences offer a range of career paths, including teaching, research (for a variety of bodies) and the application of geographical knowledge and skills in practice. Graduates can focus on environmental management; urban issues such as informal settlements; regional and rural development; and environmental health or environmental issues, including pollution, climate change and the understanding and addressing of negative impacts on biodiversity/ecosystem services through activities such as mining, agriculture and tourism.				
Environmental specialists act as consultants in the fields of environmental analysis and management, environmental law, environmental standards, environmental management systems and environmental auditing. They are needed by, among others, professionals in private sector institutions involved with environmental issues, for example, transport and civil engineers, town and regional planners and landscape architects.				
In the private sector, graduates are generally employed by real estate, planning, architectural and engineering firms, and by banks, tourism organisations, environmental conservation bodies and industry. Government departments such as the Departments of Environment, Forestry and Fisheries (DEFF), Agriculture, Land Reform and Rural Development (DALRRD), Water and Sanitation (DWS), Tourism (DT), Basic Education (DBE) and Higher Education and Training (DHET), and Statistics South Africa (Stats SA) also employ these graduates, as do parastatal organisations such as the South African Bureau of Standards (SABS), the South African Biodiversity Institute (SANBI) and the Council for Scientific and Industrial Research (CSIR). Many graduates are also self-employed, working mainly in areas such as marketing, planning, development, tourism, cartography, remote sensing, environmental analysis, social impact assessments and environmental auditing.				
BSc (Geoinformatics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Graduates with a BSc (Geoinformatics) readily find work at organisations such as Geographic Information System (GIS) vendors (ESRI or Intergraph), the CSIR, GIS consultants (AfriGIS, GeoTerralImage, GISCOE), civil engineering consultants (Aurecon, SSI), the South African National Space Agency (SANSA), National Geospatial Information (NGI), or any municipality in the country. Many government departments (eg DEFF, DSI, Stats SA, DALRRD and DWS) also employ GISC professionals. The South African Geomatics Council has accredited the BSc Geoinformatics and BScHons Geoinformatics programmes. BSc Geoinformatics graduates can register as GISC Candidate Technologists, and BScHons Geoinformatics graduates can register as GISC Candidate Professionals.				
BSc (Geology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Large international mining companies are significant employers of geologists and other geoscientists in research, exploration and mining projects. However, employment is increasingly to be found in smaller, entrepreneurial firms ('juniors'). The Council also offers exciting careers for Geosciences, the CSIR, and the Council for Mineral Technology (MINTEK), DWS, and at museums, engineering firms and consulting companies. Graduates may even operate as self-employed consultants in their own firms. Laboratory specialists, for example, mineralogists, identify and examine minerals using sophisticated instruments and analytical equipment. Environmental and engineering geologists study the interaction between human activities and the geological environment, such as the pollution of soil and groundwater. They investigate geological structures and soil, and rock properties at construction sites, for example, dams, tunnels and mines, to provide valuable information before construction. They also locate and evaluate suitable construction materials. The task of the hydrogeologist is to look for groundwater and monitor the responsible exploitation of that water.				
BSc (Meteorology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Meteorologists are employed by institutions involved in the study, interpretation and prediction of weather and climate-related phenomena. The South African Weather Service (SAWS), the CSIR, some universities, agricultural institutions and general industries employ meteorologists who practise mainly as specialists in the following areas:				
<ul style="list-style-type: none"> ▪ Researchers: They research all aspects of the weather and climate to improve man's understanding of atmospheric phenomena. Atmospheric modellers use supercomputers to solve complex flow dynamic equations of the atmosphere. The monitoring of air quality and the modelling of the impact of air pollution on society are two important aspects that need to be addressed. Research on climate change is receiving increasing attention. ▪ Weather forecasters: The weather forecaster must analyse data and predict the weather by using models that are run on supercomputers. Weather forecasts are issued on different time scales, from very short-range forecasting to forecasts that are valid for months ahead, as well as seasonal forecasts. Private positions for people with this qualification include presenting the weather forecast on television. ▪ Climatologists: They manage essential data sets that contain large volumes of information gathered by the SAWS and other organisations. ▪ Consultants: Some meteorologists who work as consultants in the private sector and at universities provide specialised research services. ▪ Lecturers: A few academic positions for meteorologists and climatologists are available at South African universities. They ensure that the training of meteorologists meets international standards. 				
The BScHons Meteorology degree, which is required to become a professional meteorologist, complies fully with the Manual on the Implementation of Education and Training Standards in Meteorology and Hydrology Volume I – Meteorology.				
BSc (Engineering and Environmental Geology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34
Careers: Engineering and environmental geologists study the interaction between human activities and the geological environment, such as the pollution of soil and groundwater. They investigate geological structures and soil and rock properties at construction sites, for example, dams, tunnels and mines, to provide valuable information before construction. They also locate and evaluate suitable construction materials. The task of the hydrogeologist is to search for groundwater and monitor the responsible exploitation of that water.				
BSc – Extended programme – Physical Sciences Progression from the BSc – Extended programme to the mathematic intensive programmes will be considered only for students who obtained a GPA of 65% in all their first-year modules.	4	4	4	28

Undergraduate programmes



Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level	Mathematics	APS
English Home Language or English First Additional Language			
MATHEMATICAL SCIENCES			
BSc (Actuarial and Financial Mathematics) [3 years]			
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	7	36
Careers: Actuarial and financial mathematics is a popular field, with career opportunities in the business market and at investment institutions such as banks and insurance companies. Mathematical skills are essential in portfolio management and the modelling of financial risk. This programme prepares students for professional careers as actuaries or financial engineers. The activities of actuaries or actuarial technicians include long-term capital projects, designing the benefits of medical schemes, pension fund management, the determination of contributions and financial management on a sound long-term basis, the evaluation of investments in shares, property and other transactions, and the determination of the premiums and reserves for insurers' outstanding claims. Financial engineers can be employed by banks and financial institutions, brokerage firms and investment institutions. The mathematical skills of financial engineers are essential in portfolio and risk management. Activities include asset management (trading in bonds, futures and derivative instruments such as options), designing new financial products and devising strategies to control credit risk.			
BSc (Mathematics) BSc (Applied Mathematics) [3 years]	5	6	34
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.			
Careers: Graduates in mathematics and applied mathematics are employed by research institutions, educational bodies (universities and schools), the public sector (government and medical institutions) and the private sector (engineering companies, financial institutions and the computer industry). These graduates' training in abstract, analytical and computational thinking provides them with the background required to easily adjust to changing circumstances in the professional environment and to construct mathematical models of natural, technological and financial phenomena. Mathematicians and applied mathematicians apply, evaluate and adapt existing problem-solving techniques, or develop new techniques to solve problems.			
BSc (Mathematical Statistics) [3 years]	5	6	34
Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.			
Careers: By completing this programme you will therefore be positioned at the forefront of analytical thinking and application in the statistical, computational and interdisciplinary environments of the future. What career opportunities exist for you as a graduate? Many professions amongst others: Data scientist, data analyst, financial risk analyst, financial analyst, geospatial information analyst, biostatistician, statistical software engineer. Some examples of career opportunities are: <ul style="list-style-type: none"> ▪ Google Analytics use statistics to track internet users to generate leads for their recommended engines. ▪ Movement information captured by cell phones is used by statistical predictive models to predict traffic congestion and suggest faster routes. ▪ Statisticians make use of statistical methodologies to detect fraud, assist with credit-related portfolios and forecast financial-economic trends. ▪ Retail companies study customer satisfaction and customer experience by using statistical models. ▪ Statisticians are prominent in the modelling of climate change, crime hotspots, rhino-poaching, diseases, etc. ▪ Statisticians advise animal scientists on factors affecting animal nutrition and genetic breeding plans. ▪ Government employs statisticians to understand population demographics, health risks and other factors that influence sustainable development programmes. 			
BSc – Extended programme – Mathematical Sciences Refer to the faculty-specific information on page 2.	4	5	28
Progression from the BSc – Extended programme to the mathematics-intensive programmes will be considered only for students who obtained a GPA of 65% in all their first-year modules. Students who pass all their first-year modules will be advised on alternative academic pathways. Admission to the BSc (Actuarial and Financial Mathematics) programme will be considered only in the case of students who passed IAS 111 and achieved a minimum mark of 60% in WTW 153 and WST 153.			

Single, double and triple major degree programmes

Although programmes are more generic during the first year to provide sound foundations, students who progress to the second year are advised to carefully consider the combinations that may be possible in their second and third years, which strongly relate to each other concerning prerequisites. Explanatory infographics can be seen on the NAS Faculty web page at www.up.ac.za/faculty-of-natural-agricultural-sciences/article/2956330/infographics, and detailed information is provided in the yearbook at www.up.ac.za/yearbooks/home.

The BConSci and BScAgric degrees have relatively fixed curricula, but most of these programmes are multidisciplinary. The other NAS programmes offer a variety of combinations. There are 12 biological sciences programmes, which represent more than

50 possibilities for single or double majors, and even one triple major degree programme. Single major degrees can be obtained in most disciplines, but they all offer double major combinations to make it possible for graduates to choose either one of their majors for postgraduate study. In the physical sciences, there are six programmes, but more than 20 combinations.

There are several single major degrees (eg Engineering and Environmental Geology), but Chemistry, Geology and Physics offer double majors. The mathematical sciences offer similar possibilities, with two streams in the professional programme in Actuarial and Financial Mathematics, and double major options in the Applied Mathematics, Mathematics and Mathematical Statistics programmes.



BSc – Extended programmes

Biological and Agricultural Sciences stream:

Gateway/pipeline to all Biological and Agricultural Sciences as well as programmes in Health Sciences.

Mathematical stream:

Gateway/pipeline to Mathematical Sciences and Statistics

Physical Sciences stream:

Gateway/pipeline to Physics, Chemistry, Geology, Geography, Environmental Sciences, GeoInformatics and Meteorology as well as Engineering

The BSc – Extended programmes are designed for students who show potential to succeed, but are not academically well prepared. These programmes have lower entrance requirements and include an additional year of study to enhance the students' basic knowledge. The students who are successful are those who commit themselves to making good use of the opportunity offered to them.



What makes this programme unique?

During their first year, BSc – Extended programme students attend lectures at the Mamelodi Campus. Those who successfully complete their first year attend lectures on the Hatfield Campus from their second academic year onwards. They are credited for the modules successfully completed after 18 months (which are equivalent to the main programme's first semester modules).

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
Biological and Agricultural Sciences – BSc – Extended programme	4	4	4	26	
Candidates who do not comply with the minimum admission requirements for the Agricultural and Food Sciences programmes may be considered for admission to the BSc – Extended programme – Biological and Agricultural Sciences, which requires an additional year of study.					
Physical Sciences – BSc – Extended programme	4	4	4	28	
Candidates, who do not comply with the minimum admission requirements for the Physical Sciences programmes may be considered for admission to the BSc – Extended programme – Physical Sciences, which requires an additional year of study.					
Mathematical Sciences – BSc – Extended programme	4	5	-	28	
Candidates, who do not comply with the minimum admission requirements for the Mathematical Sciences programmes may be considered for admission to the BSc – Extended programme – Mathematical Sciences, which requires an additional year of study.					

These programmes are not available for students who meet all the requirements for the corresponding mainstream programme.

Note: Only students who apply in the final year of their NSC or equivalent qualification will be considered for admission into any of the BSc – Extended programmes. Refer to page 2 for more information.

Biological Sciences

Anatomy

BSc (Medical Sciences)

The Department of Anatomy is part of the School of Medicine in the Faculty of Health Sciences and offers a BSc degree in Medical Sciences in the Faculty of Natural and Agricultural Sciences. Students are trained in the basic medical sciences, which include clinical anatomy, physical and forensic anthropology, histology, cell biology and embryology. These subjects can be combined with elective modules from physiology, pharmacology and genetics. Ideally, students who register for this degree should have a keen interest in research related to anatomy and the basic medical sciences.

What makes this programme unique?

Students are trained in the basic medical sciences, including clinical anatomy, physical anthropology and cell biology. During the course of their studies they work with human material, including human skeletal material, and do cadaver dissection.



What career opportunities exist for graduates?

Career opportunities exist in the field of research in any of the subdisciplines of anatomy, in academia, in forensic science and in the health science industry.

Other careers that may be considered are in sports science, virology, chemical pathology, immunology, health administration or ergonomics. Technical careers, for example in the Departments of Anatomy or Physiology at universities, are another possibility.



Which companies employ our graduates?

Graduates are sought after by institutes in the academic, government and private sectors, where they are employed as lecturers, researchers, medical and forensic scientists, and sales representatives in the medical and pharmacological industries. Several of our postgraduate students are currently studying at research facilities in North America and Europe.



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Medical Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

Biological Sciences

Biochemistry, Genetics and Microbiology

BSc (Biochemistry)

Life at the cellular and molecular levels depends on the specific interaction and cooperation of many individual biomolecules. To understand life at a fundamental level, biochemists study the role of individual biomolecules and relate this function to its unique structure and its interactions with other molecules.

Challenges of global relevance, such as COVID-19, HIV/AIDS, malaria, tuberculosis, antimicrobial drug resistance and other human or animal diseases are addressed by using flow cytometry, biophysical analysis, protein crystallography, genome analysis, selective gene expression and metabolic profiles.

Biochemists can work in medicine, veterinary science, the food and pharmaceutical industries, agricultural research and many other fields.

First-year students are exposed to a range of biological, physical and mathematical science subjects to provide them with a firm scientific basis. In the second and third years, they delve deeper into biochemistry, combining theoretical lectures with appropriate practical studies to learn the principles and methodology of best biochemical practice. In the third year, the genome, transcriptome, proteome and metabolome of a living cell is studied and proteome analysis, crystallography, cell structure and function, enzymology and immunology are applied to understand the molecular basis of disease.

Ideally, biochemistry is combined with chemistry, genetics, human physiology, microbiology, plant science and zoology, which all include both theoretical and practical aspects. Students may choose elective modules related to their studies.

Who is the ideal candidate?

A candidate for the BSc (Biochemistry) programme should be motivated, innovative, persistent, meticulous and curious about life.

What makes this programme unique?

This degree falls under the Department of Biochemistry, Genetics and Microbiology and provides a firm basis for a career in the life sciences.

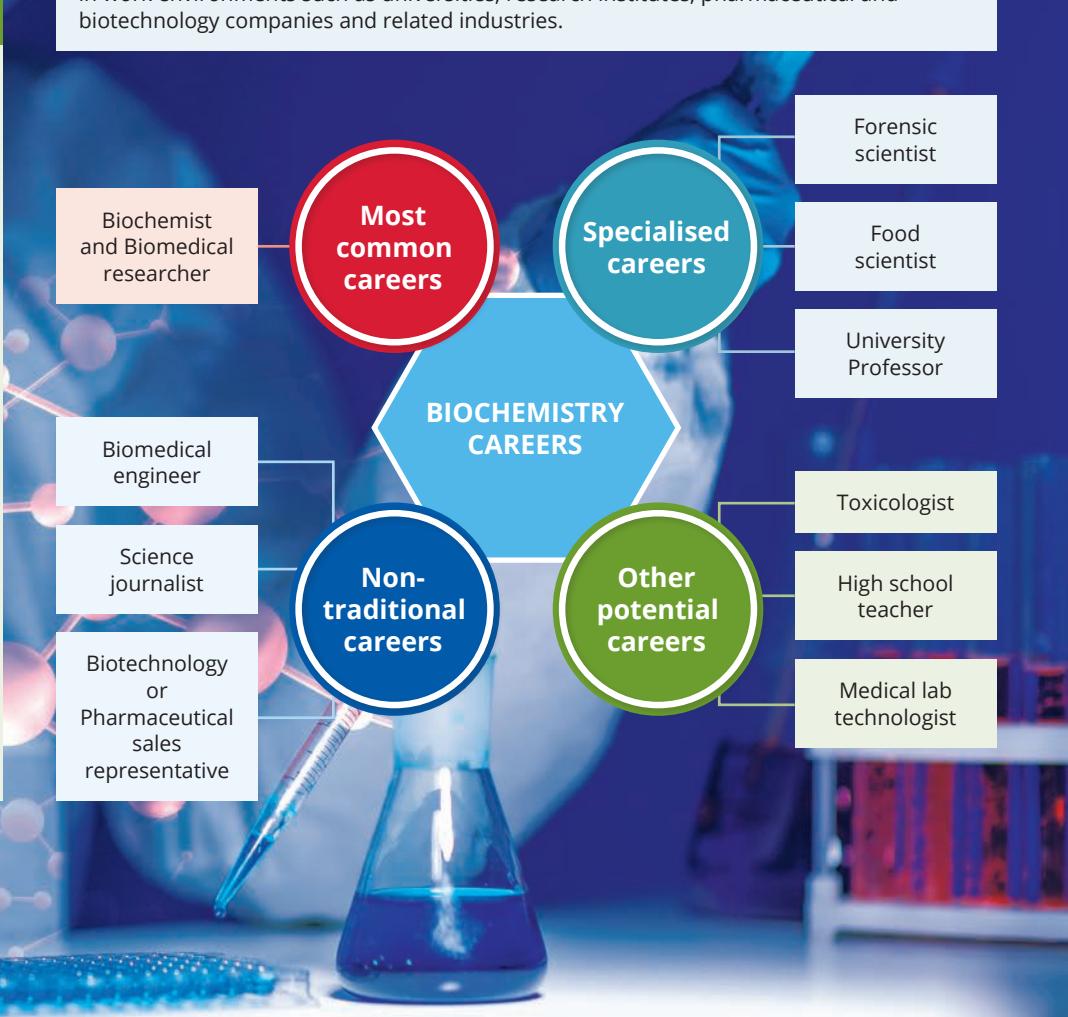
First-year students are exposed to a range of biological and physical science subjects to ensure a firm scientific basis. In the second and third years, they delve deeper into biochemistry, combining theoretical lectures with appropriate practical studies to learn the principles and methodology of research.

Ideally, biochemistry is combined with chemistry, microbiology, genetics, human physiology, plant science, zoology and/or food science.

Transferable skills gained while studying biochemistry include critical observation and analysis, project planning, report writing, time management, problem solving, logical thinking and computer literacy.

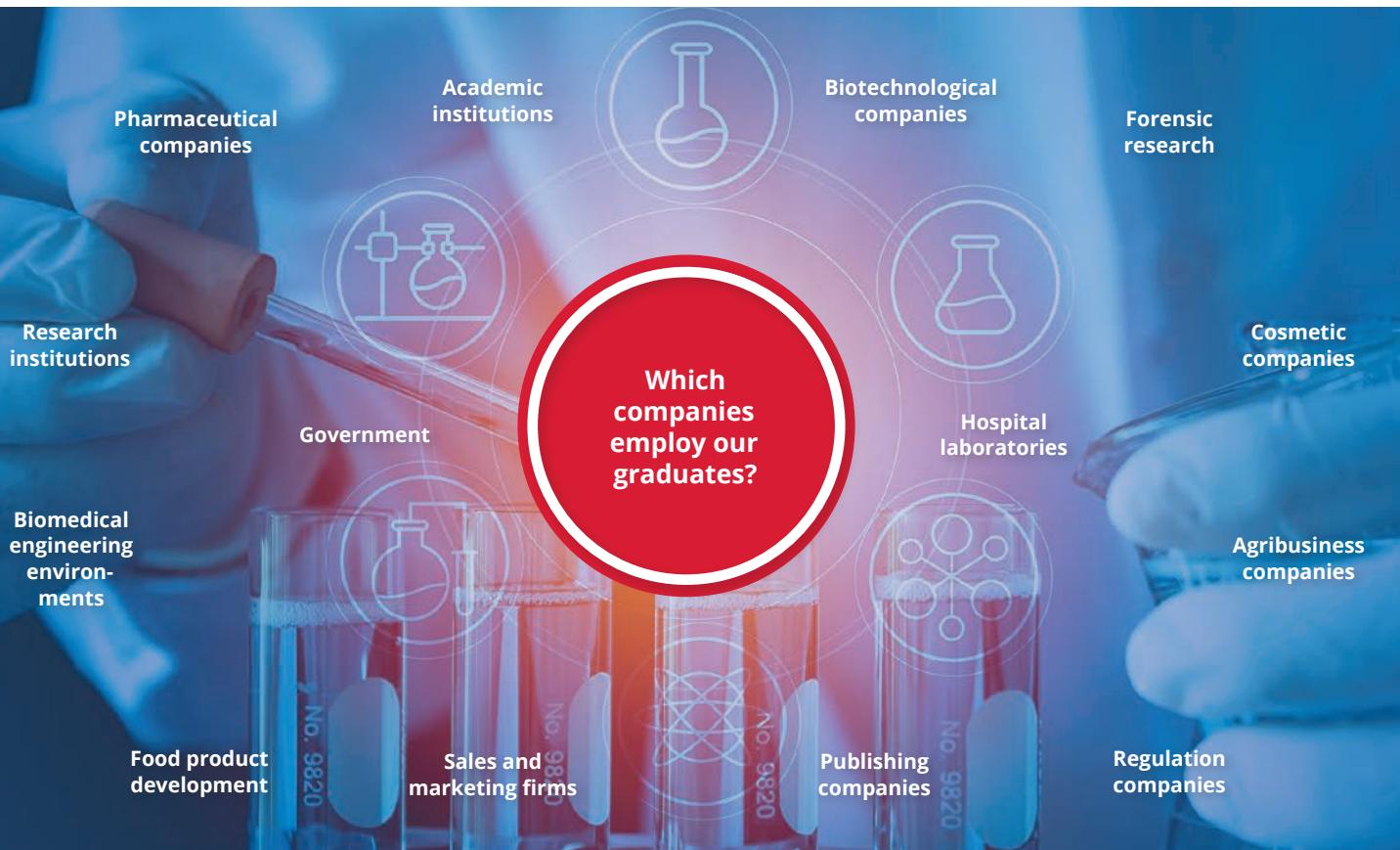
What career opportunities exist for graduates?

Biochemistry offers many opportunities for exciting and challenging careers in medical research and in the food and pharmaceutical, fine chemicals and waste processing industries. Possible employers are academic institutions, research councils such as the Medical Research Council (MRC), the Agricultural Research Council (ARC), the Cancer Association of South Africa (Cansa) and the Water Research Commission (WRC), and applied research agencies such as the Council for Scientific and Industrial Research (CSIR) and forensic and pathology laboratories. Career opportunities include those of researcher, lecturer, teacher and medical representative. Graduates are comfortable in work environments such as universities, research institutes, pharmaceutical and biotechnology companies and related industries.



Biological Sciences

Biochemistry, Genetics and Microbiology



'I am fascinated by nature and science and could not have asked for a better degree. This incredible three-year degree gave me insight into how science and nature combine to produce something amazing.'

I have also learnt how to recognise, understand and interpret key concepts, especially in the fields of biochemistry, genetics and microbiology. The skills and abilities acquired throughout the course have ensured that I will have access to career opportunities in industry and academia.

I am currently enrolled for postgraduate studies at UP and am involved in researching new ways to combat malaria.'

- Henrico Langeveld: MSc (Biochemistry)



The theoretical and practical aspects of this degree contributed to my intellectual development. What I enjoyed most about the course was the endless opportunities it offered to gain more knowledge by attending research seminars and annual symposiums. Using the knowledge of botany gained during my studies, I have started my own nursery at home. I have also been able to put my knowledge of chemistry and biochemistry to good use and have started a chemicals company where household chemicals are produced. We are currently in the process of obtaining SABS approval for our products.

My future plans include collaborating with other graduates to open our own pharmacy. The broad scope of this degree provides the basis for a wide range of entrepreneurial ventures, but also qualifies graduates for good employment opportunities in companies that require the scarce skills developed by the programme.'

- Meshack Kekana: MSc (Biochemistry)

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Biochemistry) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

Biological Sciences

Biochemistry, Genetics and Microbiology

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

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 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.

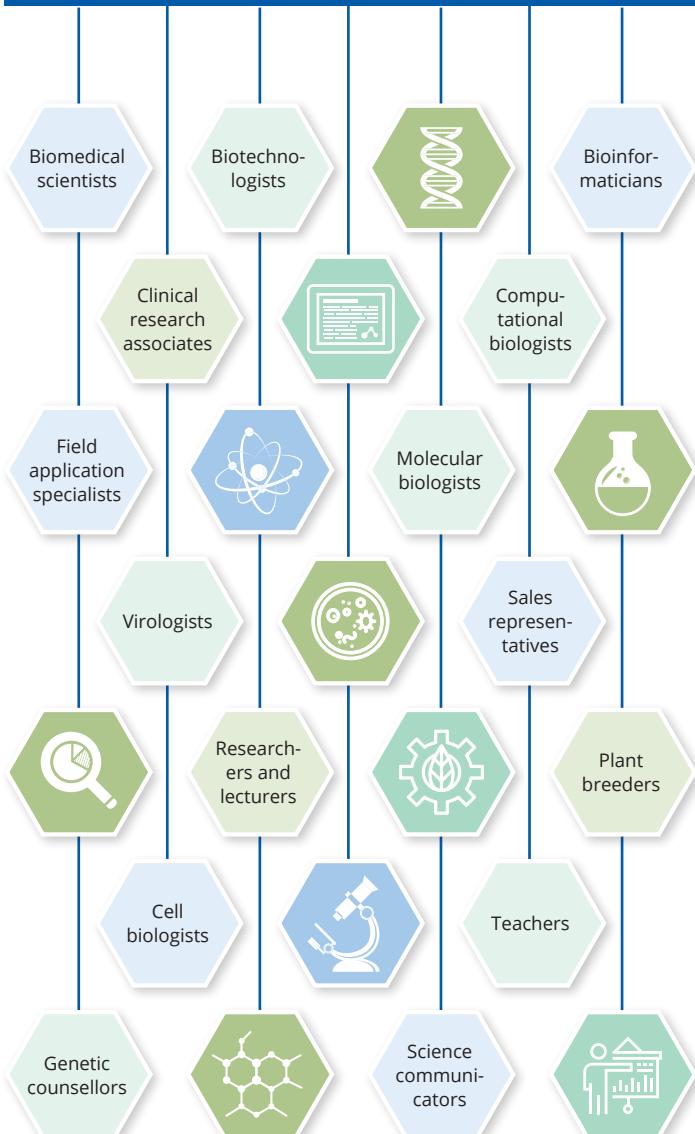
Who is the ideal candidate?

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 career opportunities exist for graduates?

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



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; and
- human and medical genetics.

Biological Sciences

Biochemistry, Genetics and Microbiology

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023				APS	
	Achievement level			Mathematics		
	English Home Language or English First Additional Language					
BSc (Genetics) BSc (Human Genetics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	5	32	
BSc (Biotechnology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	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

Double 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

Double 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)

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

BSc (Human Physiology, Genetics and Psychology)

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.

Biological Sciences

Biochemistry, Genetics and Microbiology

BSc (Microbiology)

Microbiology is the study of organisms that cannot be seen with the naked eye, such as bacteria, fungi, algae and viruses. Essentially, the microbiology study programme, with its focus on the structure, function and classification of microbial species, is the gateway to the fascinating microbial world.

Students enrolled for this degree will be exposed to a wealth of tools and theoretical information, which can be applied to exploit and control microbial activities for improving industrial and agricultural processes, as well as for improving the lives of animals, humans and plants in the ecosystem.

Who is the ideal candidate?

Aspiring microbiologists should have a solid background in science and are expected to demonstrate curiosity about how biological systems function in their environments. Microbiology overlaps with areas such as botany, chemistry, zoology, physiology, genetics, medicine, nutrition and environmental sciences.

Candidates recognise that the field of microbiology has evolved, and continues to evolve, to cut across scientific disciplines, and understand that microbes impact every aspect of life on earth.



What career opportunities exist for graduates?

Since the field of microbiology has many branches, graduates can follow various careers in industry or in academia, where they can contribute to increasing scientific knowledge, or they can establish their own businesses.

What makes this programme unique?

In microbiology, students learn about the different types of microbes which, even though invisible to the naked eye, represent the most abundant life forms on earth. It is believed that many microbes have not yet been discovered, and others are well adapted to survive in extreme conditions (eg in hydrothermal vents) that resemble conditions believed to have been prevalent when life began on earth billions of years ago. Microbiology is also one of only a few degree programmes that unites a diverse group of individuals (eg immunologists, geneticists, bioinformaticians, computational biologists, environmental scientists, etc) under one umbrella.

Which companies employ our graduates?

Graduates with microbiology degrees are employed by leading research institutes in South Africa, including the CSIR, ARC, FABI, NICD, SASRI, MRC and NRF, and by biotech industries such as Inqaba Biotech, CapeBio, Akili Labs and BioTech Africa. Generally they are employed as:

- Managers (eg Land remediation/ Laboratory manager)
- Food technologists
- Laboratory technicians
- Quality assurance specialists
- Plant pathologists
- Medical/Clinical microbiologists
- Biomedical scientists
- Bioinformaticians
- Agricultural scientists
- Scientific writers

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Microbiology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Biological Sciences

Human Physiology

BSc (Human Physiology)

During the first year of study for this degree, students are exposed to a generic range of subjects from the biological and agricultural sciences. In the second year they study physiological systems, which include the neurophysiological, haematological, cardiovascular, pulmonary, renal, nutritional and digestive, endocrinological and reproductive systems, with biochemistry as a compulsory subject.

The study programme for the third and final year includes a selection of integrated physiology modules, such as exercise and nutrition physiology, cellular and developmental physiology, applied and pathophysiology, higher neurological function and industrial physiology. At the third-year level, students have an opportunity to select elective modules in the programme. The BSc (Human Physiology) programme will appeal to scientifically minded students who are inquisitive by nature.

What makes this programme unique?

Physiologists study the mechanisms by which the body functions from the molecular and cellular levels through progressive differentiation to tissue, organs and systems, and eventually the integrated interactions and control of body functions.

This core knowledge is applied in research undertaken to investigate normal and abnormal life processes.

What career opportunities exist for graduates?

Research is undertaken in cooperation with medical teams in private and government research laboratories at, for example, the Council for Scientific and Industrial Research (CSIR), the Medical Research Council (MRC), the South African Bureau of Standards (SABS), pharmaceutical firms, universities, veterinary and industrial institutions, state departments (for example the Department of Health) and health farms.

Physiologists also make contributions in the fields of education (as teachers, lecturers and instructors), sports physiology, biostatistics, bioengineering, industrial hygiene, journalism, medical technology and, in the industry, as representatives of pharmaceutical firms.

Which companies employ our graduates?

Our graduates are employed by:

- Academia
- State departments (eg the Department of Health)
- Medical and pharmaceutical companies
- Private and government research laboratories (CSIR, MRC, NHLS, ARC, NRF, SANBI and NICD)
- Computational biology and bioinformatics companies
- Biomedical science communication companies
- Corporate and sales businesses
- Wellness companies



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Human Physiology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Biological Sciences

Human Physiology

BSc (Human Physiology, Genetics and Psychology)

During the first two years of study, students are exposed to fundamental core scientific and biology-related modules. Final-year studies include modules from all three disciplines (Physiology, Genetics and Psychology), thus creating opportunities to continue with postgraduate studies in any of the three disciplines. The BSc (Human Physiology, Genetics and Psychology) programme is recommended for individuals with a passion for biological and related sciences who wish to gain core knowledge in these fields.

What career opportunities exist for graduates?

Many of the career options are research oriented. Research is conducted in cooperation with medical teams at private and government research laboratories, pharmaceutical firms, universities, veterinary and industrial institutions. Further study can lead to careers in genetic counselling and psychology.

Graduates who have obtained this degree are also employed in the fields of:



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Human Physiology, Genetics and Psychology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

What makes this programme unique?

The structuring of the programme, which allows students to choose any one of three majors for postgraduate studies, is quite unique. Another notable feature is the transdisciplinary inclusion of Psychology as a humanities module, which offers additional opportunities.

Which companies employ our graduates?

Our graduates are employed by:

- Academia
- State departments (eg the Department of Health)
- Medical and pharmaceutical companies
- Private and government research laboratories (CSIR, MRC, NHLS, ARC, NRF, SANBI and NICD)
- Veterinary and industrial institutions
- Computational biology and bioinformatics companies
- Biomedical science communication companies
- Corporate and sales businesses
- Wellness companies
- Human and medical genetics laboratories

Biological Sciences

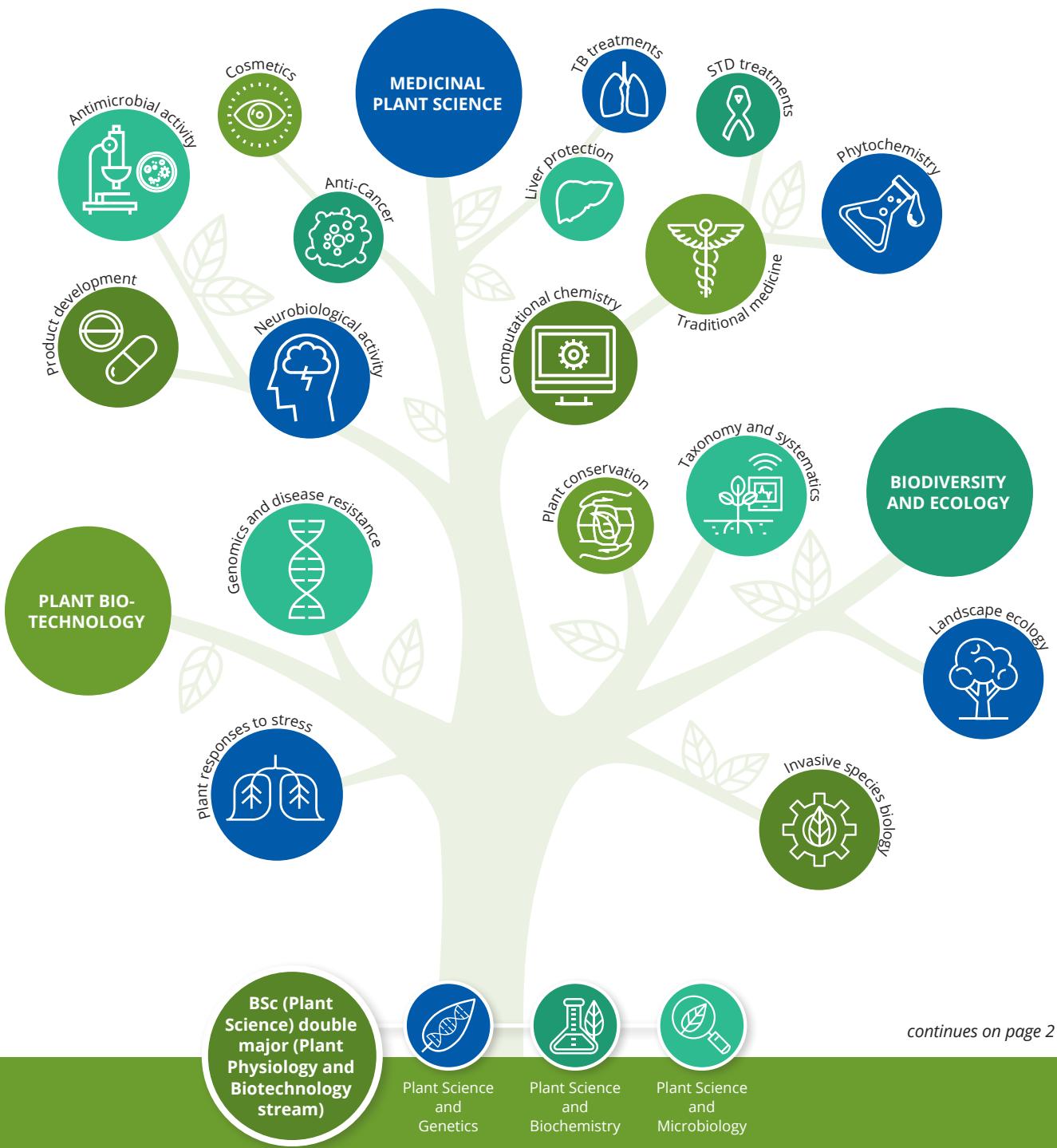
Plant and Soil Sciences

BSc (Plant Science)

Although plants are amazing organisms, we actually know very little about their potential uses. It is, however, well known that plants are the best factories for synthesising valuable natural products.

A degree in plant sciences is a three-year degree that broadly covers all relevant aspects of plant sciences. Further studies allow students to specialise in medicinal plant science, plant biotechnology or ecology and biodiversity.

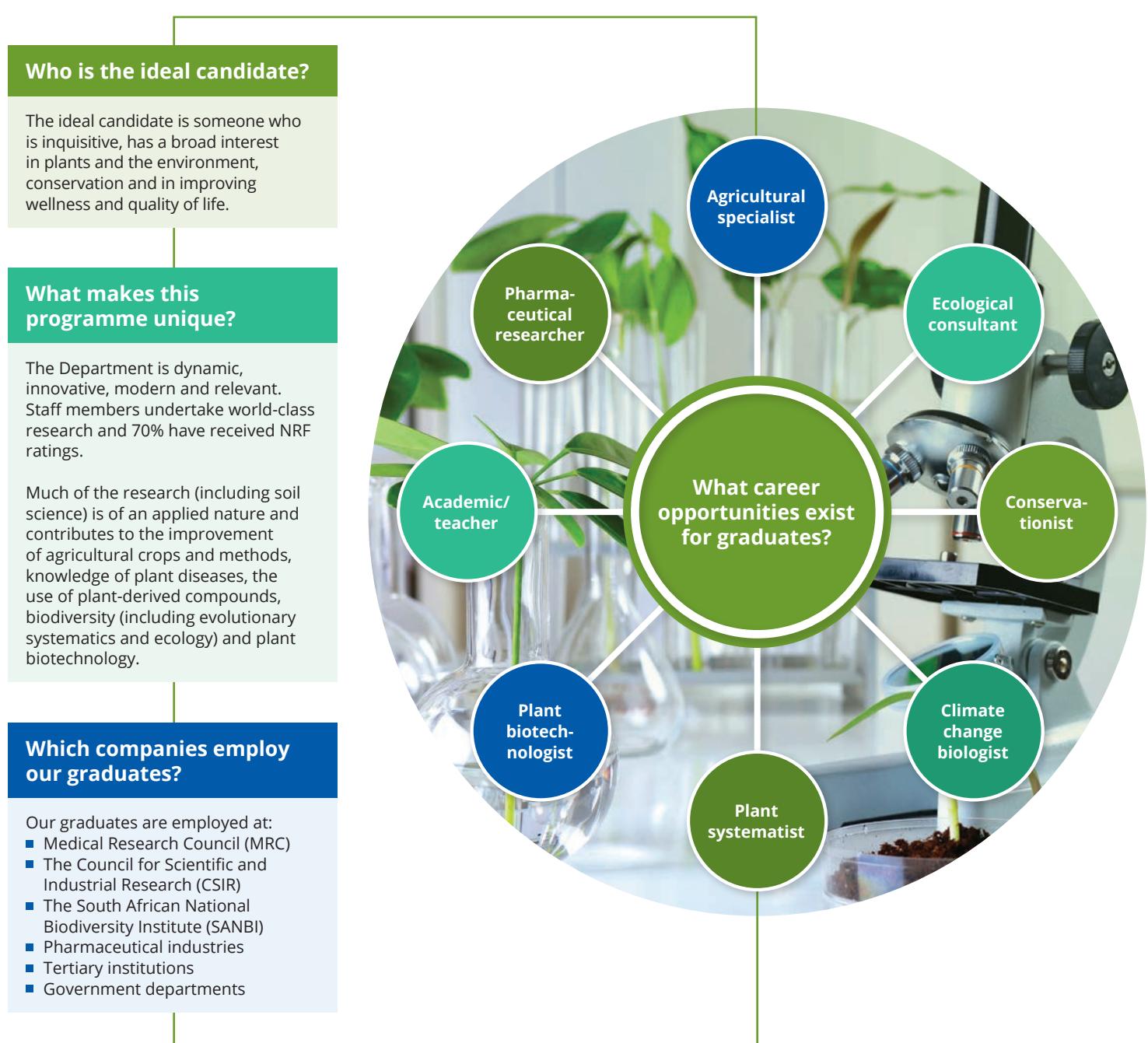
In medicinal plant sciences, students learn about the discovery and use of plant medicines and phytotherapeutically important molecules obtained from plants. Students studying Plant Biotechnology learn about molecular tools and the use of model plants to study plant physiology. In the study of plant diversity and ecology, students learn about South Africa's rich and diverse vegetation and its origin, and how to facilitate conservation and management strategies for future generations.



Biological Sciences

Plant and Soil Sciences

BSc (Plant Science) (continued)



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023				APS	
	Achievement level			Mathematics		
	English Home Language or English First Additional Language	Mathematics	Physical Sciences			
BSc (Plant Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	5	32	

Biological Sciences

Zoology and Entomology

BSc (Ecology)

The BSc (Ecology) programme explores how animals and plants interact with each other and the natural environment. It will allow you to contribute to their conservation and solve the challenges threatening life on Earth. If you want to pursue a career in biodiversity conservation, environmental consultancy, land rehabilitation or wildlife management, this programme is for you.



Minimum admission requirements

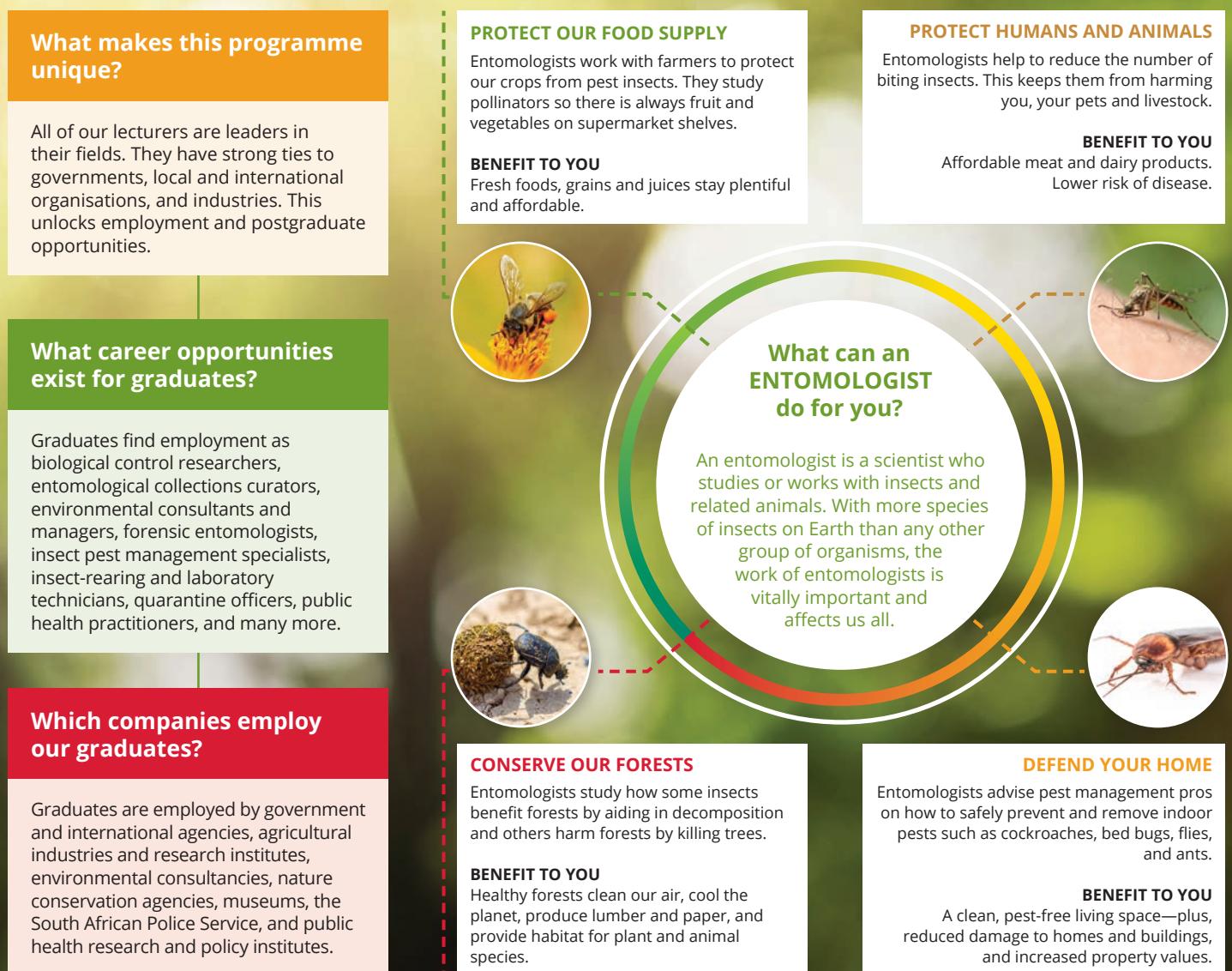
Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Ecology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

Biological Sciences

Zoology and Entomology

BSc (Entomology)

The BSc (Entomology) programme gives exciting insights into insect diversity, conservation, ecology and physiology. As a graduate you can help to protect our crops, livestock, human health and the environment. This programme is right for you if you want a career in forensics, environmental affairs, or plant, animal or public health.



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Entomology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Infographic text sourced and adapted from www.entsoc.org

Biological Sciences

Zoology and Entomology

BSc (Zoology)

Zoology is the scientific study of animal life. In the BSc (Zoology) programme you will gain the knowledge and skills needed to understand, protect and manage the diversity of wild African animals. This will involve training in animal evolution and diversity, physiology, behaviour and ecology, as well as related scientific fields.

Who is the ideal candidate?

The BSc (Zoology) is the ideal programme if you want to know how animals interact with each other, sense and respond to their surroundings, can be harvested sustainably and can be protected against human threats.

What makes this programme unique?

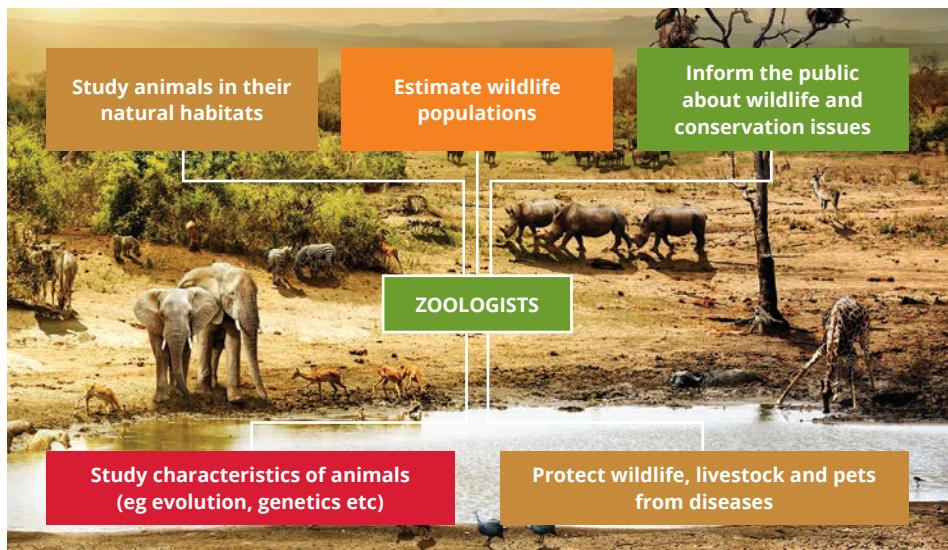
The University of Pretoria is the top-ranked institution in Africa for the subject of Zoology and is home to the internationally renowned Mammal Research Institute.

What career opportunities exist for graduates?

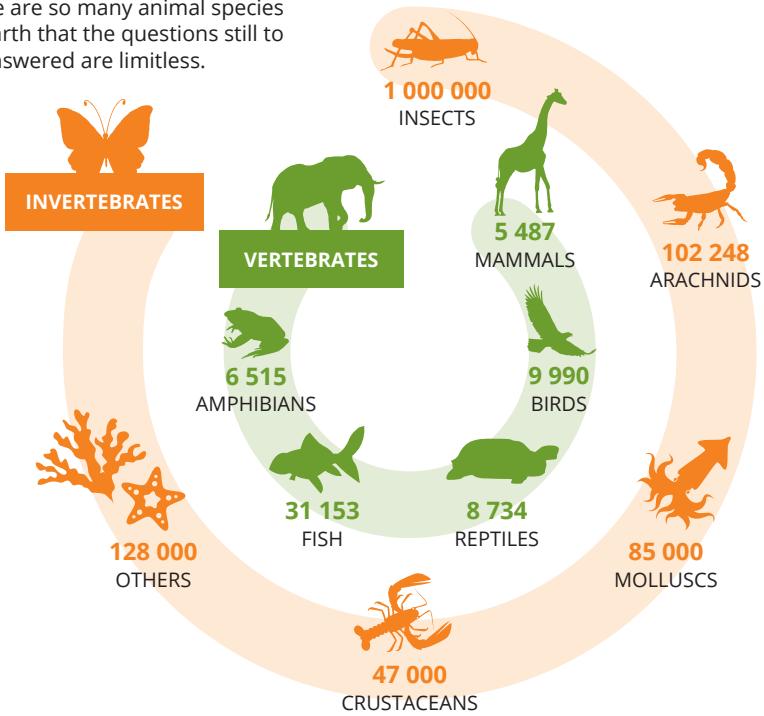
This degree can lead to a career as a wildlife or marine biologist, biology teacher, conservation officer, animal welfare officer, environmental consultant or manager, zoo or aquarium curator, museum collection curator, game ranger, epidemiologist and researcher, among others.

Which companies employ our graduates?

National, provincial and local governments, international and private conservation organisations, zoos and aquariums, museums, environmental consultancies, environmental education initiatives, academic and training institutions, and many more.



There are so many animal species on Earth that the questions still to be answered are limitless.



Infographic adapted from The Brazilian Biodiversity Information System

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023				APS	
	Achievement level					
	English Home Language or English First Additional Language	Mathematics	Physical Sciences			
BSc (Zoology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32		

Agricultural and Food Sciences

Agricultural Economics, Extension and Rural Development

BScAgric (Agricultural Economics and Agribusiness Management)

The BScAgric (Agricultural Economics and Agribusiness Management) programme provides students with an overview of the global food and agricultural sector and teaches them vital skills in business and science. These skills enable them to build careers in food and agricultural value chains, from seed to plate, and everything in between.



Who is the ideal candidate?

The BScAgric (Agricultural Economics and Agribusiness Management) programme is ideal for students who have competencies in science and business subjects and are passionate about these fields.

What makes this programme unique?

The programme develops problem solvers with unique skill sets who contribute to feeding and clothing the world.

Which companies employ our graduates?

Companies, where our alumni are employed, include; commercial banks (eg ABSA, FNB, Landbank, Nedbank, and Standard Bank), insurance companies (Santam), agricultural input providers (Syngenta, Omnia, and John Deere), agricultural service providers (Afgri, NWK, TWK and VKB), agricultural producers organisations (AgriSA, Agri WC, GrainSA, Potato SA, SAPPO and VinPro), agricultural associations (Agbiz), grain trading companies (Majesty Oil, Louis Dreyfus Company and Grainvest), investment groups (Russell Stone Group), food manufacturers (Tiger Brands), government departments (Department of Agriculture, Land Reform and Rural Development and Department of Environment, Forestry and Fisheries), research institutes (Agricultural Research Council and Bureau for Food and Agricultural Policy), and international bodies (Food and Agriculture Organization and World Bank) to name a few.

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BScAgric (Agricultural Economics and Agribusiness Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32



'If you want to do more than study the theory and instead learn how to make money, Agricultural Economics is the degree for you. With the real-life economic skills learnt in this programme, you can be an asset to any company; and help solve their problems.'

This degree also teaches you how to trade on SAFEX, which allows you to become a registered broker on the JSE. Having this skill is valuable to any agribusiness and if your future is on the farm, it allows you to sell your produce at the highest prices.'

- Oliver Eggers (final-year student)



'My postgraduate studies take a multidimensional approach to policy economics and aims to determine how we can maintain and assure the global supply and flow of food, especially in the difficult times we are facing. We balance science and numbers and use the results to inform policy changes to establish sustainable and resilient agricultural supply chains to feed nations.'

- Dipuo Boshomane (postgraduate student)



'People will always be hungry; therefore there will always be a need for agriculture. Agriculture is the foundation of economics, trade, capital and finances. If you want to know what the whole world revolves around, study Agricultural Economics. You won't regret it!'

- Adelene van Zyl (final-year student)



'As a foodie, my degree has made me more appreciative of food and where it comes from. We have a wide variety of food on this continent, and thanks to global food supply chains, we all have unlimited opportunities for experiencing the world of food. It gives me joy and a sense of fulfilment to know that through my studies, I am part of solving the problem of feeding the world.'

- Chikomborero Chiobvu (postgraduate student)

Agricultural and Food Sciences

Agricultural Economics, Extension and Rural Development

What career opportunities exist for graduates?

Employment opportunities for agricultural economists exist in, for example, the government, commercial banks, multinational agribusiness companies, agribusinesses, commodity trading houses, food processors and manufacturers, and research councils. The work done by our agricultural economists includes:

Training of smallholder farmers by providing extension services

Advising the government on how to ensure that there will be enough food for all South Africans

Trading of financial instruments and agricultural commodities on global and local stock markets



Agricultural and Food Sciences

Animal Science

BScAgric (Animal Science)

Livestock, pig and poultry production is one of the major sectors in South African agriculture and contributes substantially to the economy of the country. Animal Science is the science of livestock production, with a focus on animal breeding and genetics, animal nutrition, and production animal physiology (growth and reproduction physiology). Animal science covers all aspects of animal production and animal welfare in intensive and extensive production systems. This includes the husbandry of several livestock species (cattle, sheep, goats, pigs, poultry, ostriches and horses), and the products derived from them (meat, milk and dairy products, wool, mohair, eggs, skins, leather and feathers). It also includes the nutrition and breeding of companion animals.

Who is the ideal candidate?

The ideal candidate is someone who has a passion for science and working with livestock, game and companion animals, as well as those interested in sustainable animal production for food and profit.

What makes this programme unique?

BScAgric (Animal Science) graduates can register as professional animal scientists and make a meaningful contribution to improve animal husbandry practices and sustainable food production for profit.

Which companies employ our graduates?

Our graduates are employed by:

- Animal feed companies and feed mills
- Pharmaceutical companies,
- Agricultural Research Council,
- Universities and Universities of Technology
- Private consultants
- Agricultural co-operatives
- Semen and embryo collection and artificial insemination companies
- Breeders' societies
- SA Studbook
- Nature reserves and game farms
- NGOs and Department of Agriculture

What career opportunities exist for graduates?



Depending on the level of specialisation in animal science, employment opportunities may be found in the following fields:

- Agricultural development institutions (eg NGOs, Department of Agriculture)
- Animal husbandry industry (eg feed companies, small or large livestock production systems ranging from small farms to large systems like feedlots or abattoirs, and animal breeding companies, animal breed societies, or in the corporate sector)
- Animal products industry (eg dairy and poultry products)
- Breeding organisations (eg breeders' societies, SA Studbook)
- Consultancy and advisory services (eg private consultant, agricultural co-operatives)
- Educational institutions (eg universities, technical colleges)
- Feed industry (eg animal feed production companies)
- Legislative/regulatory institutions (eg Department of Agriculture)
- Nature conservation institutions (eg nature reserves, game farms)
- Pharmaceutical industry (eg pharmaceutical companies)
- Research institutions (eg the Agricultural Research Council)
- Semen and embryo collection and artificial insemination companies

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level		Mathematics		
	English Home Language or English First Additional Language	Physical Sciences			
BScAgric (Animal Science) [4 years] CLOSE ON AVAILABILITY OF SPACE: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Agricultural and Food Sciences

Consumer and Food Sciences

BSc (Culinary Science)

Culinary science is a broad-based discipline that combines food chemistry, microbiology, culinary art and food product development, and lends itself to innovation and entrepreneurship. The practical training includes the characterisation of various food ingredients and their utilisation in recipe development. The research component focuses on understanding the functional properties of various food types and their application in the food service industry.

This degree is for those who are not only interested in creating food that tastes and looks great, but also want to understand why food tastes and looks the way it does.

Any candidate wishing to pursue a career in the culinary science stream requires not only technical ability, but also has to be an analytical problem solver who pays attention to detail.

What makes this programme unique?

This degree offers a seamless integration of culinary art and science to equip future graduates with a degree embedded in science and technology and tailored to changing culinary trends.

Which companies employ our graduates?

Research institutions, food processing companies (McCain, Enterprise, BRM Foods, Mondelez), flavour houses (McComick, Firmenich), the food service industry (Famous Brands), Leading retailers (Woolworths, Pick n Pay, Checkers), government institutions and various institutions of higher learning.

What career opportunities exist for graduates?

Culinary scientists, culinologists, sensory analysts, food researchers, food product developers, food service managers, safety and quality assurers, food production managers, entrepreneurs and food legislation experts.

I was very excited when I heard about the BSc (Culinary Science) programme. I enrolled because it offers a perfect mix between food and science, which are two of my major passions. I really enjoy my course because it includes cooking and recipe development, but does not neglect the science behind what happens to the food on the molecular level. The BSc (Culinary Science) degree opens the door to many careers in the food industry, but my dream job is to be a flavour scientist.

- Danae Bezuidenhout: BSc (Culinary Science) graduate

This degree combines the creativity of culinary arts with the rationality of food science and through my studies I have obtained a unique scientific view of food service management. Over the past four years I have realised the importance of consumer satisfaction to both food service managers and food technologists. I believe that my degree will open many doors for me in the future, notably in my main field of interest, which is recipe development. I enjoy applying my specific scientific knowledge while experimenting with food.

- Christine Janik: BSc (Culinary Science) graduate

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Culinary Science) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Agricultural and Food Sciences

Consumer and Food Sciences

BSc (Food Science)

This programme focuses on the chemical composition, structure and nutritional value of food. The interaction of food components during processing, preservation and storage is studied by making use of chemistry, physics, biological and mathematical principles. Candidates who are likely to excel are those who enjoy science and are keen on understanding food production from farm to fork.

What makes this programme unique?

Candidates study a product that is used daily by all people and therefore prepare themselves to play a role in feeding the nation. A graduate with a BSc (Food Science) degree is eligible for registration as a natural scientist with the South African Council of Natural Scientific Professions (SACNASP).

Which companies employ our graduates?

Our graduates are employed by all major food production companies eg Nestlé, RCL Foods, In2Foods, Unilever and the Rhodes Food Group; by major food retailers eg Shoprite and Checkers, Woolworths, Pick n Pay; by flavour and additive producing companies eg SAAFFI and Cell-Chem; and laboratories that specialise in analysing food in South Africa and all over the world.



Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Food Science) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

Agricultural and Food Sciences

Consumer and Food Sciences

BSc (Nutrition)

The BSc (Nutrition) programme involves the study of concepts from various disciplines, including food chemistry and food composition, biochemistry, physiology and human nutrition. An ideal candidate is someone who has analytical skills and a keen interest in the science of food and nutrition.

What makes this programme unique?

This is an interfaculty programme presented jointly by the Departments of Consumer and Food Sciences (Natural and Agricultural Sciences) and Human Nutrition (Health Sciences).

BSc (Nutrition) graduates will become nutritional scientists eligible for registration as natural scientists with the South African Council for Natural Scientific Professions and the Nutrition Society of South Africa.

What career opportunities exist for graduates?

A varied field with numerous career opportunities, which include:

- Food product and supplement development to meet specific nutritional needs of the consumer
- Project management and implementation of food programmes and legislation for government departments, international organisations and NGOs
- Entrepreneurship and small business development
- Nutrition research in the food industry or research institutes



'I have found the four-year BSc (Nutrition) degree course to be very interesting as it consists of a variety of modules that cover topics ranging from human physiology to food sciences. Being taught by the experts in the department has really made studying very enjoyable. This degree caters perfectly for my two passions, which are science and helping others. I dream of becoming a policy developer and making a contribution towards ending hunger.'

– Natasha Howes



'My journey as a BSc (Nutrition) student has exceeded all my expectations. The workload is intense, which forced me to grow personally and perform academically. Our exposure to different science disciplines broadens our understanding of the world of science and helps us to incorporate the role of a nutritional scientist with the roles of scientists in other disciplines. My dream is to partner with major organisations to help reduce nutrition-related diseases and teach people how to maintain good health affordably.'

– Ntsepase Princess Matete

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Nutrition) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32	

BSc (Nutrition) is an interfaculty degree programme, presented jointly by Consumer and Food Sciences (Faculty of Natural and Agricultural Sciences) and Human Nutrition (Faculty of Health Sciences).

Agricultural and Food Sciences

Consumer and Food Sciences

BConSci (Clothing: Retail Management)

Clothing Retail Management combines clothing construction, design, fashion, textiles, consumer behaviour, and retail and merchandising subjects with various marketing and business modules to prepare students for the exciting and ever-changing textile and clothing industry. Candidates who excel in this programme are those who are both creative and analytical, and can function well under pressure and in team-oriented environments.

What makes this programme unique?

This is a vocational programme that balances theory, practical application, and experiential training in the industry. Through the programme students are exposed to the entire clothing supply chain and can specialise in a particular area of interest once they graduate.

Graduates are well-trained and ready to venture into the many different areas offered in the textile and clothing industry.

What career opportunities exist for graduates?

Graduates are typically employed as clothing buyers and planners, allocation planners, brand managers, product developers, fashion designers, fashion marketers, social media content managers, quality assurance managers, sourcing coordinators, textile technologists, visual merchandisers, and pattern technologists or can become entrepreneurs.

Which companies employ our graduates?

All the major clothing retailers in South Africa (eg, Mr Price (MRP), Truworts, TFG group, Pep, Woolworths, Cape Union Mart) and various brands (eg, Lacoste, Guess) employ our graduates.

Students are also appointed as merchandisers, account managers, or production coordinators at suppliers, production companies, and licensing companies (eg, Blue Horizon for Mattel, Character group, Cosmic Options).



'I thoroughly enjoyed this degree programme as it combines my two passions, namely fashion and business, and develops the students' creative and analytical abilities to achieve all-round excellence.'

I appreciated the focus on sustainability, especially in the final year, which provides the tools needed to have a positive environmental impact in the clothing and textile industry. I dream of becoming a sustainable fashion planner/buyer.'

- Shanna Howarth: BConSci (Clothing: Retail Management) graduate 2020



'I have always dreamed of working in the fashion industry, specifically as a buyer. This degree opens the doors to all sections of this industry. Unlike many other degrees, it has the ability to develop and test both the creative and business sides of the brain and prepare students of all personality types for any aspect of the fashion industry.'

- Tannah Metzler: BConSci (Clothing: Retail Management) graduate 2020

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BConSci (Clothing: Retail Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	28

Agricultural and Food Sciences

Consumer and Food Sciences

BConSci (Food: Retail Management)

Food retail management covers the entire food supply chain in one programme—from farm to fork. The food retail programme focuses on incorporating not only the fundamentals of food preparation, food service management, nutrition, food safety and hygiene, but also recipe development and standardisation, consumer aspects of foods and sustainable food retail logistics. Emphasis is placed on future retail trends, such as omni-channel retailing, blockchain and the creation of immersive customer experiences. The programme also includes various marketing and business modules. In order to fit into the dynamic world of retailing, candidates need to be inquisitive, confident team players with good numerical and organisational skills and a degree of commercial awareness.

What makes this programme unique?

Students are exposed to every aspect of the food retail industry through on-site visits and exposure to guest speakers from local and international industries. Students are also required to complete experiential training/internships.

What career opportunities exist for graduates?

Food retail graduates pursue managerial positions as brand or sales managers, store managers, food and beverage buyers and planners, food stylists, food product marketers, food product category managers, quality assurance managers, visual merchandisers, consumer insight specialists and entrepreneurs.

Which companies employ our graduates?

All key South African retailers (Woolworths, Shoprite – Checkers, Spar, PnP, Dischem), related subsidiary companies and/or other supply chain stakeholders (such as Freshmark, RCL, In2Food, SABMiller, DotActiv, RSA Market Agent). Graduates have also been employed by various consumer research companies, such as Consulta and Ask-Africa.

'The wealth of knowledge that I gained throughout my four years of study has taught me everything from economics all the way through to consumer behaviour and sustainability in the retail environment. This degree has helped me to put my passion for sustainability into practise. We live in a time when it is simply unacceptable not to think about the impact that you have on the earth. That is why I would like to become a chief sustainability officer at a major retailer.'

– **Daniella Klut: BConSci (Food: Retail Management) graduate 2020**

'This programme has given me valuable insight into various disciplines and has taught me how to work well with a diverse group of people. I learnt that consumer science is not only relevant, but is central to the well-being and sustainability of our society. I dream of becoming a consumer insights specialist.'

– **Kathryn Geldenhuys: BConSci (Food: Retail Management) graduate 2020**

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BConSci (Food: Retail Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	28

Agricultural and Food Sciences

Consumer and Food Sciences

BConSci (Hospitality Management)

Hospitality management seeks to prepare students for employment with leading food companies, master chefs working in top kitchens and other experts in the food and hospitality industry. Graduates will not only learn to create exceptional dishes, but will also be involved in culinary art, food product development, recipe development, food styling, large-scale food production, restaurant management and events management. Various marketing and business modules are also included in the programme. To fit into the vibrant, innovative and creative hospitality world, candidates must be team players who are curious by nature and service oriented, and have a passion for food and the hospitality industry. If you have boundless patience, perseverance and creativity, this degree is perfect for you.

What makes this programme unique?

Students are introduced to every aspect of the hospitality and tourism industries through hands-on training and site visits, and are exposed to guest speakers from local and international industries. They are also required to complete experiential training/internships, which allow them the opportunity to familiarise themselves with the workplace and gain first-hand experience of the real-world hospitality industry.

This degree is unique as it combines science, creativity, art and business management practices to create a practical hands-on experience that provides students with many possible work opportunities to choose from after graduating. In South Africa, this programme is one of only a few hospitality degrees that is still being offered in a traditional university setting.



Which companies employ our graduates?

Graduates who completed the degree have been employed in the following fields, among others:

- Hotel and tourism management
- Small business enterprises and recipe/product development
- Consumer research and food journalism
- Academia and teaching



What career opportunities exist for graduates?

Hospitality Management graduates pursue managerial positions such as accommodation managers, catering managers, conference centre managers, events managers, hotel managers, fast food managers, game and lodge managers, restaurant managers (both back- and front-of-house) and public house managers.

This degree also opens up many work opportunities in the culinary world, including chef, food stylist, food photographer, sommelier, menu engineer, recipe and product developer, product marketer, food safety consultant, improvement specialist, culinary idea conceptualisation specialist and entrepreneur. Many graduates also choose to become academics or teachers.



'This amazing degree programme not only taught me a lot about food and cooking, but also about conducting business. I chose this degree as it qualifies students for just about any position in the hospitality industry. I have learnt how to manage a business, I know what consumers want and I have food preparation experience. My dream job is to own and manage my own wedding/events venue and this qualification will help to make my dream come true.'

– **Melissa Fourie: BConSci (Hospitality Management) graduate 2020**



'The extensive and in-depth nature of this four-year degree in Consumer Science Hospitality Management has ensured that I have a strong business, entrepreneurial and culinary background, which will stand me in good stead in my future endeavours in the hospitality sector. My years as a student at UP have enabled me to grow as an individual, broaden my knowledge and develop a genuine appreciation of the industry. The opportunities I have been given and the skills that I acquired will enable me to pursue a future in food media and photography.'

– **Taylen Kench: BConSci (Hospitality Management) graduate 2020**

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BConSci (Hospitality Management) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	4	28

Agricultural and Food Sciences

Plant and Soil Sciences

BScAgric (Plant Pathology)

The BScAgric (Plant Pathology) programme entails the study and control of plant diseases.

The ideal candidate is a creative thinker who wants to explore and understand problems, why and how they arose, and to find solutions. Finding the culprit (ie the pathogen) that caused disease or even death (of plants) is very much like being a detective working at a crime scene to figure out what happened. Like veterinary scientists and medical doctors, plant pathologists also work with patients but with the difference that they cannot communicate with the plant. They therefore have to rely on observation, experience and intuitive knowledge to figure out what is wrong and to find a solution.

A student who does well in this programme is often one who is curious, creative, passionate, driven and ambitious, wanting to explore new challenges.

Agricultural scientists often work in the field or in plant nurseries, farms, pack houses, processing plants, markets or retail. They may also be involved in the local or international food trade. They are multifaceted thinkers who enjoy solving problems, are curious about nature and want to provide food for the table by ensuring healthy plants, crop protection, high yields and reduced waste and losses.

What makes this programme unique?

The programme covers both basic and applied research and ensures safe food and food security for all.

Which companies employ our graduates?

Our graduates are employed at:

- National Department of Agriculture
- Agricultural Research Council
- Agrochemical companies
- Seed and plant production companies
- Undercover crop production endeavours, eg vertical farming, greenhouses and hydroponics
- Tissue culture laboratories
- Diagnostic laboratories
- Biological control companies
- Nurseries and garden centres
- Lawn and landscape maintenance firms
- Agricultural cooperatives
- Private agricultural estates, farms and big corporate estates
- The SA Bureau of Standards (SABS) and Council for Scientific and Industrial Research (CSIR)
- Exporting or importing companies
- Fresh Produce Markets and Retailers
- National and International certification bodies such as auditors, assessors or technical experts in good agricultural practices or food safety
- United Nations, Food and Agricultural Organisation, World Health Organisation, World Trade Organisation or International Standards Organisations
- Researchers and lecturers at Colleges, Technical universities or Universities

What career opportunities exist for graduates?



Consultant plant pathologists often collaborate with economists, soil scientists, horticulturists, entomologists and farmers, big corporates, pesticide companies or retailers. They not only advise, but also influence governments, industry and the general public regarding critical matters such as trade, phytosanitary and sanitary matters, and the right to food.



Lecturers and researchers at universities and technical colleges provide quality creative education and share their skills and experiences with students to prepare them for careers in the flower industry, turf grass or horticultural sectors, crop production, viticulture, agronomy, soil sciences and entomology, as well as agricultural economics. They are classical transdisciplinary thinkers who can solve mega problems and are innovative in finding practical solutions for farmers and others in the agricultural sector.



Agricultural scientists and researchers at various companies and academic institutions research many different aspects of plant health, crop protection, food security and food safety.

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BScAgric (Plant Pathology) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

Agricultural and Food Sciences

Plant and Soil Sciences

BScAgric (Applied Plant and Soil Sciences)

BScAgric (Applied Plant and Soil Sciences) is a four-year, full-time degree programme. It teaches the principles of plant-based agriculture within the disciplines of agronomy, horticultural science, pasture science and soil science. Graduates can embark on a diverse range of careers in the agricultural and environmental fields.

Who is the ideal candidate?

Students who have a keen interest in plants and soil, would like to improve their understanding of the environment and want to make a difference in the world are the ideal candidates for this degree.

Graduates make a direct contribution to sustainable food production, while simultaneously protecting our natural resources.

What makes this programme unique?

This programme is unique in terms of the combination of disciplines taught within the degree. Students are exposed to the various fields within plant production and soil sciences, which ensures that graduates are well-rounded and able to access a wide array of career opportunities, or make informed decisions on specialisation should they wish to continue with postgraduate studies.

Our graduates are highly sought after and often have to choose between several offers of employment.

The degree is accredited by the South African Council for Natural Scientific Professions (SACNASP) and graduates can be registered as professional natural scientists.

What career opportunities exist for graduates?



Public sector

The Agricultural Research Council (ARC); government departments that address issues related to agriculture and rural development, water supply, conservation and the environment; the Council for Scientific and Industrial Research (CSIR); provincial departments of agriculture and nature conservation; the South African National Biodiversity Institute (SANBI); municipalities; South African National Parks; and national farming and food production agencies.



Entrepreneurial

Consultants to producers of crops, pastures, vegetables, medicinal and aromatic plants, and ornamental and cut-flowers; landscaping enterprises; managing own farms and nurseries for extensive (field) or intensive (tunnel/greenhouse) production systems involving various crops; and managing companies specialising in irrigation, reclamation and soil conservation.



Private sector

Companies involved in seed, fertilizer and plant protection research, development and marketing; environmental planning and management; nurseries; vegetable, fruit, ornamental and cut flower production; and irrigation.



Extension services involving knowledge transfer

Nature conservation; national and provincial departments of agriculture and the environment; environmental management and rehabilitation, including mine lands; nurseries; crop, turf grass and weed management; private companies servicing field crops, vegetables, medicinal and aromatic plants, fruit, ornamental and cut-flower production.

Agricultural and Food Sciences

Plant and Soil Sciences



'What I enjoyed most about this degree is that it exposed students to the diverse range of disciplines that form the basis of crop production, and that each discipline is unique yet connected to the others. Crop production is the perfect field for anyone who enjoys working on solving complex problems to have a meaningful impact on people's quality of life. My dream job is to continue with the work I am doing for my postgraduate studies, which is to find ways of making agricultural science accessible to smallholder farmers and the public in order to build a more equitable food system.'

– Richard Hay (MSc Student)



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BScAgric (Applied Plant and Soil Sciences) [4 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	32

Physical Sciences

Chemistry

BSc (Chemistry)

Chemistry is the study, understanding and analysis of substances and materials and how they interact. This is achieved through carefully designed laboratory experiments using sophisticated instrumentation, mathematical calculations, data processing and modelling.

Who is the ideal candidate?

The ideal candidate will have the following characteristics:

- Ability to work with high precision and accountability
- Good time management
- Proficiency in scientific writing
- Ability to work in a team
- Good management skills
- Environmental consciousness in work ethic

What career opportunities exist for graduates?

Graduates are equipped for careers in the following fields:



What makes this programme unique?

BSc (Chemistry) graduates have the ability to combine concepts across different fields. They develop excellent analytical and problem-solving skills, which can also be applied in less traditional fields, for example the financial sector and information technology. Chemistry is the central science and links with many other subjects, including physics, mathematics, biochemistry, computer science, geology, etc.

Which companies employ our graduates?

Our graduates are employed by:

- chemical manufacturers;
- mining companies;
- government departments;
- the media;
- law firms;
- laboratories;
- cosmetic companies;
- instrument manufacturers;
- pharmaceutical companies; and
- education companies.



'Chemistry used to be that one class I dreaded taking back in high school, but that completely changed for me when I started taking chemistry in my first year as a BSc student. Chemistry went from this impossible amount of memorization to this fascinating field of logic that I got to witness in my everyday life. I started realizing how applicable the principles of chemistry are in my life and found myself wanting to learn more for that reason. When it came to choosing a career, I decided to focus on biochemistry and delve into how chemistry plays a role in biotic factors and am now pursuing a career in food safety.'

- Chrizelda Visser



'If someone had told me while I was in high school that I would one day enroll for a degree in chemistry, I would have called them crazy. Not that I did not like the subject but I did not find it interesting. When I registered for the module in first year, it was just a core module that I had to do but when I started learning more, I fell in love with it. For the first time, everything that I had been introduced to in high school made perfect sense. It was even more amazing that I could explain why and how certain reactions take place. My dream has always been to work in the field of forensic science. The added fact that it is such a broad field makes forensic chemistry my destination.'

- Daisy Mdeka

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Chemistry) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34	

Physical Sciences

Geology

BSc (Geology)

Geology is the study of the Earth and includes aspects related to its formation, composition, structure and processes. South Africa is known for its large reserves of gold, platinum, chromium, vanadium and other metal ores, as well as substantial diamond and coal reserves. A mere hour's drive from UP takes one to the Karoo coalfields, the site where the Cullinan diamond was discovered, the Bushveld platinum mines and the gold mines of the Witwatersrand. South Africa also has some of the Earth's oldest well-exposed geology and significant fossils informing us about the history of the planet.

Who is the ideal candidate?

The programme requires an appreciation for mathematics and chemistry. A love for the Earth and working outdoors, and an interest in geology or geomorphology will be beneficial. Depending on your personality, you can decide how you would like to divide your time between working in the field and working in the office.

What makes this programme unique?

UP is well situated within easy reach of the mining and applied geological industries and offers a strong programme in the applied fields of economic geology, structural geology and mechanics, and engineering geology and hydrogeology. Candidates who successfully complete this programme qualify for professional registration as geological scientists.

What career opportunities exist for graduates?

Geology is split into many subdisciplines which include mineralogy (the study of rock-forming minerals), petrology (the study of rock formation), structural geology (the deformation and behaviour of rock under stress) and economic or mining geology (identification of mineral resources and contribution to the day-to-day operations of mines).

As a geologist, you can choose whether you would prefer to work in a mine or laboratory, or as an exploration geologist in the field. The programme also allows entry into applied geological professions such as hydrogeology and engineering geology.

Apart from working in the mining industry, candidates also find employment at analytical facilities, in forensics, or in the insurance industry.

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Geology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34	



GEOLOGY



Which companies employ our graduates?

Our graduates are employed as economic or exploration geologists in the mining industry, or work for parastatals (Council for Geoscience, CSIR, Mintek) or government (Mineral Resources; Energy).

Physical Sciences

Geology

BSc (Engineering and Environmental Geology)

The degree offers further specialisation in engineering geology and hydrogeology. Engineering geology is the study of the behaviour of ground (soil and rock) and how likely it is to affect engineering works. It comprises geotechnical studies and relates to construction (eg founding or excavation) on and with geological materials (eg construction materials), and to the influences of geological, geomorphological and hydrological processes on construction and development. Hydrogeology refers to the occurrence, distribution and movement of water below the Earth's surface. The study of groundwater is generally both quantitative (eg water supply, safe abstraction and the influences of pumping) and qualitative (eg contamination, remediation and drinking water).

Who is the ideal candidate?

The programme requires a strong understanding of mathematics and mechanics. Genuine concern for Planet Earth, a desire to work outdoors and an interest in geology or geomorphology will be an advantage. Depending on your personality, you can choose how you would like to divide your time between doing fieldwork and working on a computer.

What makes this programme unique?

Very few universities offer professional qualifications in engineering geology and hydrogeology. UP offers both, which places it in a strong position on the interface between infrastructure development and subsurface water. The qualification complies with the requirements for professional registration.

ENGINEERING GEOLOGY



GEOLOGY



HYDROGEOLOGY

What career opportunities exist for graduates?

Engineering geologists work closely with civil engineers, mining engineers, town planners and environmental scientists. Your work will require you to identify geological hazards, source building materials and supply foundation solutions.

As a hydrogeologist you will be involved in the supply of water for urban, agricultural and industrial use. Nowadays many graduates work in contaminant transport and remediation, which involves identifying sources of pollution and finding suitable remediation solutions.

Which companies employ our graduates?

Our graduates are employed by civil and infrastructure industries, the mining industry and parastatals (Council for Geoscience; CSIR), as well as by government (Department of Water Affairs; the NHBRC; local governments).

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Engineering and Environmental Geology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34

Physical Sciences

Geography, Geoinformatics and Meteorology

BSc (Geography and Environmental Science)

Geographers and environmental scientists study processes, relationships and the interdependence between the natural environment and humans. Anyone who has a passion for the environment and has a background in the sciences will be interested in the BSc (Geography and Environmental Science) programme.



What makes this programme unique?

The programme enhances students' understanding of the physical, social and constructed environments, incorporating all the natural processes that take place on earth, as well as the socio-political and cultural activities that dominate the planet.

Which companies employ our graduates?

- In the private sector, graduates are generally employed by real estate, planning, architectural and engineering firms, and by banks, tourism organisations, environmental conservation bodies and industry.
- Government departments such as the Departments of Environment, Forestry and Fisheries (DEFF), Agriculture, Land Reform and Rural Development (DALRRD), Water and Sanitation (DWS), Tourism (DT), Basic Education (DBE) and Higher Education and Training (DHET), and Statistics South Africa (Stats SA)
- Parastatal organisations such as the South African Bureau of Standards (SABS), the South African Biodiversity Institute (SANBI) and the Council for Scientific and Industrial Research (CSIR).
- Self-employed, working mainly in areas such as marketing, planning, development, tourism, cartography, remote sensing, environmental analysis, social impact assessments and environmental auditing.

Geography and environmental sciences offer a range of career paths, including teaching, research (for a variety of bodies) and careers requiring the application of geographical knowledge and skills in practice. Graduates can focus on environmental management; urban development issues, regional and rural development; and environmental health or environmental issues, including pollution, climate change and the understanding and addressing of negative impacts on biodiversity/ecosystem services through activities such as mining, agriculture and tourism.



Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Geography and Environmental Sciences) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34

Physical Sciences

Geography, Geoinformatics and Meteorology

BSc (Geoinformatics)

The BSc (Geoinformatics) programme entails the collection, storage, analysis, visualisation and management of geospatial information by using an assortment of geospatial analytical methods and tools to help with decision making and providing solutions to geographic problems. Our graduates have a passion for geography, an interest in collecting, processing, displaying and analysing geographic information, and deriving, geospatial data products, and an interest in using computing technology and quantitative techniques to address geographical problems.



What makes this programme unique?

The programme is accredited by the South African Geomatics Council for registration as candidate Geomatics Technologists in GISC (GTg, GISC).

What career opportunities exist for graduates?

Web programmer, geospatial data officer, geospatial software developer, mobile app developer, geovisualisation specialist, GIS project manager, GISC consulting, map designer, spatial data analyst, earth observation data analyst and systems analyst.

Which companies employ our graduates?

Graduates with a BSc (Geoinformatics) readily find work at organisations such as:

- The Environmental Systems Research Institute (ESRI) South Africa;
- Intergraph Systems Southern Africa;
- The Council for Scientific and Industrial Research (CSIR);
- The Agricultural Research Council (ARC);
- AfriGIS; GeoTerralmage; GISCOE; Aurecon;
- The South African National Space Agency (SANSA);
- South Africa's national mapping organisation (National Geospatial Information (NGI));
- Any municipality in the country;
- Many government departments (eg Environmental Affairs, Forestry and Fisheries (DEFF); Science and Innovation (DSI); Statistics South Africa; and Agriculture, Land Reform and Rural Development (DALRRD); and Water and Sanitation (DWS)).

What makes this programme unique?

What career opportunities exist for graduates?

Which companies employ our graduates?

'I enjoy the BSc (Geoinformatics) degree programme because we are exposed to many different fields in a short time: geography, business, IT, law, mathematics, remote sensing, cartography, geodesy and statistics. This degree programme is challenging, yet extremely interesting. I am never bored! I enjoy statistics and analysis, this combination can be used in GIS. Any job that combines these activities would definitely be my dream job! Most of all I dream of working in Google's spatial department!'

- **Kayla Theron**

'Geoinformatics is a fascinating degree as it allows you to work in a variety of fields from agriculture to transport planning which I enjoy as I have many interests. I enjoyed the visual and programming aspects of the degree as they are very rewarding as you can see a final product at the end. In the future, I aim to be a GIS specialist that can work on projects that can help impact people's lives for the better by creating spatial solutions.'

- **Terisha Pillay**

'I have a passion for solving real-world issues and enjoy working with state-of-the-art technologies. The BSc (Geoinformatics) programme also teaches problem solving, critical thinking, project management and other highly sought-after skills. My dream job is to work for a GIS consultancy. This will allow me to work in many different industries while I continue learning.'

- **Nicholas de Kock**

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Geoinformatics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34

Physical Sciences

Geography, Geoinformatics and Meteorology

BSc (Meteorology)

The BSc (Meteorology) programme focuses on the study of atmospheric processes. An ideal candidate is someone who is fascinated by weather phenomena and is interested in all things concerned with natural science.



What makes this programme unique?

This is the only Meteorology programme offered in South Africa and the SADC region.

A student who has successfully completed the BScHons (Meteorology) degree will be regarded as a Class 1 Meteorologist by the World Meteorological Organisation.

The BScHons (Meteorology) degree, which is required to become a professional meteorologist, complies fully with the Manual on the Implementation of Education and Training Standards in Meteorology and Hydrology Volume I – Meteorology.

Which companies employ our graduates?

Meteorologists are employed by institutions involved in the study, interpretation and prediction of weather and climate-related phenomena.

Our graduates are employed at:

- The South African Weather Service (SAWS)
- International Weather Services and companies (for instance in New Zealand, Dubai and Australia)
- The Council for Scientific and Industrial Research (CSIR)
- Universities in South Africa and abroad

Researchers

They research all aspects of the weather and climate to improve man's understanding of atmospheric phenomena. Atmospheric modellers use supercomputers to solve complex flow dynamic equations of the atmosphere. The monitoring of air quality and the modelling of the impact of air pollution on society are two important aspects that need to be addressed. Research on climate change is receiving increasing attention.

Weather forecasters

The weather forecaster must analyse data and predict the weather by using models that are run on supercomputers. Weather forecasts are issued on different time scales, from very short-range forecasting to forecasts that are valid for months ahead, as well as seasonal forecasts.

Private positions for people with this qualification include presenting the weather forecast on television.

What career opportunities exist for graduates?



Climatologists

They manage essential data sets that contain large volumes of information gathered by the SAWS and other organisations.



Consultants

Some meteorologists who work as consultants in the private sector and at universities provide specialised research services.



Lecturers

A few academic positions for meteorologists and climatologists are available at South African universities.

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			
	Achievement level			APS
	English Home Language or English First Additional Language	Mathematics	Physical Sciences	
BSc (Meteorology) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34

Physical Sciences

Physics

BSc (Physics)

The useful and transferable skills that physics students acquire in theoretical, experimental and computational physics equip them for a variety of career options. The BSc (Physics) programme will appeal to students who are passionate about understanding nature, are driven by curiosity, are interested in mathematics and are willing to put in the required effort.

What makes this programme unique?

Physics students will develop their creativity, inventiveness, problem-solving abilities, analytical thinking skills and their ability to communicate complex ideas.

Which companies employ our graduates?

Our graduates are employed by:

- Nuclear Energy Corporation of South-Africa (NECSA)
- South African Astronomical Observatory (SAAO)
- Square Kilometre Array (SKA)
- South African National Space Agency (SANSA)
- iThemba LABS (Laboratory for Accelerator-based Sciences)
- The Council for Scientific and Industrial Research (CSIR)
- DENEL and IBM

What career opportunities exist for graduates?

Lecturers at universities

Researchers in national laboratories and industries

Developers of renewable energy sources

Medical scientists and biophysicists

Radiation scientists

Science advisors for non-governmental organisations, industry or government

Geophysicists, innovators and entrepreneurs

Computational scientists

Atmospheric scientists and climatologists

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023			APS	
	Achievement level				
	English Home Language or English First Additional Language	Mathematics	Physical Sciences		
BSc (Physics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	5	5	34	

Mathematical Sciences

Actuarial Science

BSc (Actuarial and Financial Mathematics)

The modern financial world has a growing need for graduates who are well skilled in analytical problem solving, modelling and other quantitative techniques. The programme provides students with a broad education and skills development in these areas. Students can tailor their coursework to either an actuarial or a financial mathematics option.

The actuarial programme is structured to provide the aspiring actuary with the opportunity to fulfil the requirements needed for exemption from the Actuarial Society of South Africa examinations in the shortest possible time. For aspiring financial analysts or financial engineers, the programme provides depth and develops the student's ability to design and analyse financial products.



Who is the ideal candidate?

The ideal candidates are students who achieve seven or more A's easily in high school. They are involved in a variety of sports and cultural activities and usually hold leadership positions throughout high school. They are well-balanced and very motivated.

While not prerequisites at school, prospective students are probably taking and enjoying an AP Mathematics course, where possible. They are also likely to enjoy coding or solving problems using a computer where these opportunities are available.



What makes this programme unique?

The study programme prepares students for qualification as actuaries or financial engineers. Specialisation in either of these fields occurs in the third year of study and continues at postgraduate level.

The programme is accredited with the Actuarial Society of South Africa and gives students the opportunity to earn exemptions from the A100 and A200 subjects of the Actuarial Society during their undergraduate degree. To achieve further exemptions, a follow-up honours degree is recommended.

We prepare our students to compete in the actuarial workplace. Large employers of actuarial students speak highly of our graduates and some actively seek students from our programme.

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BSc (Actuarial and Financial Mathematics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	7	36

What is an actuary?

An actuary is a professional who applies analytical, statistical and mathematical skills to financial and business problems. This is especially valuable when facing real-world problems that involve uncertain future events or financial risk. This ability to quantify that which is unclear helps individuals and businesses to safeguard their future, confidently and at a fair price, in an ever-changing world. (Actuarial Society of South Africa).



What career opportunities exist for graduates?

Many actuaries follow careers in the more traditional fields of insurance and retirement funds. However, actuaries are also increasingly working in other fields following recognition of their analytical skills. This includes healthcare, financial consulting, risk management and banking. Because of their unique skills, many actuaries are appointed to senior management positions after their initial analytical roles.

Financial engineers can be employed by banks and financial institutions, brokerage firms and investment institutions. They are essential in portfolio and risk management. Activities include asset management (trading in bonds, futures and derivative instruments such as options), designing new financial products and devising strategies to control credit risk.



Which companies employ our graduates?

BSc (Actuarial and Financial Mathematics) graduates are generally employed by:

- accounting firms
- banks
- consulting firms
- insurance companies
- investment companies
- medical schemes
- universities

Mathematical Sciences

Mathematics and Applied Mathematics

BSc (Mathematics) and BSc (Applied Mathematics)

Mathematics, which originated from arithmetic and geometry, is based on patterns and structures and is the fundamental language of science and technology. Applied mathematics is concerned with the modelling and treatment of real-life problems in a variety of fields, such as engineering, finance, statistics, physics and biology. The power of mathematics and applied mathematics lies in their abstract, analytical and computational nature. Nowadays, mathematics is essential for all technological, financial and managerial industries, which form the backbone of the South African economy.

BSc (Mathematics)

Compulsory subjects are:

- Analysis
- Abstract algebra
- Geometry (third-year level)
- Calculus
- Linear algebra
- Differential equations
- Discrete structures (second-year level)
- Mathematical modelling
- Mathematical statistics
- Numerical analysis
- Dynamical processes (first-year level)

BSc (Applied Mathematics)

Compulsory subjects are:

- Analysis
- Continuum mechanics
- Numerical analysis
- Partial differential equations
- Dynamical systems (third-year level)
- Calculus
- Linear algebra
- Discrete structures
- Differential equations (second-year level)
- Mathematical modelling
- Mathematical statistics
- Dynamical processes (first-year level)

Who is the ideal candidate?

Mathematics students who enjoy the course and excel in it are those who enjoy solving problems and have a strong background in the basics of the subject.

What makes this programme unique?

The Department of Mathematics and Applied Mathematics is not only one of the largest departments on the Hatfield Campus, but also one of the largest mathematics departments in the country, with approximately 17 500 student enrolments for mathematics modules. The Department prides itself on excelling in teaching and research, as well as in community-based activities.

The diverse and competent staff has expertise in various fields. The Department regularly hosts international visitors and its researchers frequently travel abroad to attend conferences and pay research visits. No fewer than 31 of its researchers have received NRF ratings in fields ranging from more traditional abstract analysis to contemporary epidemiology, where the modelling of biological phenomena leads to exciting options.

A degree in mathematics trains students to apply, evaluate and adapt existing problem-solving techniques, or to develop new mathematical models and techniques to solve problems stemming from natural, technological and financial phenomena.

What career opportunities exist for graduates?

Graduates in mathematics and applied mathematics are employed by research institutions, in education (universities and schools), the public sector (government and medical institutions) and the private sector (engineering companies, financial institutions and the computer industry).

The training of these graduates in abstract, analytical and computational thinking provides them with the versatile background required to easily adjust to changing circumstances in the professional environment and to construct mathematical models of natural, technological and financial phenomena. Mathematicians and applied mathematicians apply, evaluate and adapt existing problem-solving techniques or develop new techniques to solve those problems.

Which companies employ our graduates?

A BSc (Mathematics) or BSc (Applied Mathematics) degree is a solid foundation for a professional career in many fields. Many of our graduates are employed by the banking and financial sector, but also in new fields like bioinformatics, genetics, management consulting, weather forecasting, etc. As there is a general shortage of mathematicians in South Africa, top performing students opt for further studies and an academic career.

Minimum admission requirements

Programmes	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BSc (Mathematics) BSc (Applied Mathematics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	34

Mathematical Sciences

Statistics

BSc (Mathematical Statistics)

Statistics is the science of extracting information from a variety of data sources utilising cutting-edge technologies that enable companies and institutions to remain abreast and to be globally competitive. Statistics and data science form the foundation on which so much future development takes place. Superb opportunities exist for students who are keen to distinguish themselves in this field. You will not only enjoy an extraordinary and rewarding career, you will also receive an above-average remuneration package.

Who is the ideal candidate?

An ideal candidate for this programme is someone with:

- strong numerical skills;
- interest in computers and computer programming;
- logical reasoning ability and critical thinking skills; and
- strong problem-solving skills.

What makes this programme unique?

The Statistics programme can uniquely combine students' interest in mathematical statistics with their interest in, for example, insurance science, economics, mathematics and applied mathematics.

By completing this programme you will therefore be positioned at the forefront of analytical thinking and application in the statistical, computational and interdisciplinary environments of the future.

Which companies employ our graduates?

- Commerce companies (especially online shopping, customer analytics and recommender systems)
- Financial and banking companies
- Health companies
- Information technology companies
- Insurance and accounting companies
- Logistics and transport companies
- Pharmaceutical industries
- Research and development organisations
- Telecommunication companies
- Universities and other education bodies

What career opportunities exist for graduates?

A circular diagram showing various career paths for Statistics graduates, including:

- Data analyst
- Investment analyst
- Consultant in banking and finance
- Geospatial information scientist
- Bio-statistician
- Artificial intelligence scientist
- Environmental scientist
- Financial risk analyst
- Forensic investigator
- Market researcher
- Quality analyst
- Business analyst
- Statistical software engineer
- Data scientist

Minimum admission requirements

Programme	Minimum requirements for NSC and IEB for 2023		
	Achievement level		APS
	English Home Language or English First Additional Language	Mathematics	
BSc (Mathematical Statistics) [3 years] Close on availability of space: As soon as the number of places available for this programme are filled, it will be closed for further applications.	5	6	34

QR Code

Student life/Community engagement initiatives

Student life

NATHouse

NATHouse is the official student house of the Faculty of Natural and Agricultural Sciences. By default, all students registered with the Faculty of Natural and Agricultural Sciences are members of NATHouse. Our logo, which shows a stem sprouting leaves, represents our belief that the desire to learn is a guide to life. It expresses our drive to continuously overcome daily difficulties by looking for new methods to solve them. Science is, after all, focused on research and innovation.

We aim to help students to reach their academic goals and achieve optimal academic performance. The House also assists with non-academic issues and provides some 'off-the desk' activities to help students take a break from their studies.

Our Vision

We believe that the love of learning is a guide to life and aim to

- motivate our student members to achieve academic excellence in the sciences;
- connect our members with the working sector, inspiring them to cultivate their talents and contribute to society;
- emphasise the value of sciences – on campus and in our communities;
- participate in University activities on various levels; and
- provide students with the necessary personal and professional development through personal and professional well-being sessions, various community engagement projects and sports.

Contact information

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A problem shared is a problem halved! Visit us at our offices to discuss any issues, academic or non-academic that might be troubling you. We are here to assist you, and while we are at it, we may even offer you some coffee!

Community engagement initiatives

Sci-Enza

Sci-Enza, a science centre at the University of Pretoria, is the oldest science centre on the African continent and has been involved in raising science awareness and communicating science to the South African public for more than 40 years. Our mission is to make science accessible to learners of all ages in a fun and entertaining way and, in doing so, to raise science awareness.

Our vision is to promote greater understanding and awareness of science and technology among South Africans and to foster public engagement with science. We are committed to creating a learning environment where SCIENCE AND IMAGINATION UNITE! This is achieved through interactive exhibits, exciting programmes and memorable experiences with science both on the premises and through outreach. Sci-Enza is open during office hours on weekdays.

Please contact +27 (0)12 420 3767 or email sci-enza@up.ac.za for more information and to make an appointment.



Periodic Table of the Elements

1	2	IIIa	IVa	Va	Via	VIIa	VIIa
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- Pink (left): the s block elements (consisting of hydrogen, alkali metals, alkaline earth metals, alkali metals, alkali earth metals, alkali metals, alkali earth metals, alkali metals, alkali earth metals).

Yellow (right): the p block elements (consisting of some metals, metalloids, non-metals, noble gases, and halogens).

Peach (two rows at the bottom): the f block elements (they are the inner transition elements, consisting of actinides and lanthanides).

H Hydrogen 1.0079 1s ¹	He Helium 4.0026 1s ²	Boron B 10.811 [He] 2s ² p ¹	Carbon C 12.011 [He] 2s ² p ²	Nitrogen N 14.007 [He] 2s ² p ³	Oxygen O 15.999 [He] 2s ² p ⁴	F Fluorine 18.998 [He] 2s ² p ⁵	Ne Neon 20.18 [He] 2s ² p ⁶
Li Lithium 6.941 1.0 [He] 2s ¹	Be Beryllium 9.0122 1.5 [He] 2s ²	Magnesium Mg 12.990 1.0 [Ne] 3s ²	Sodium Na 22.990 1.2 [Ne] 3s ²	Scandium Sc 39.908 1.0 [Ar] 3d ¹ s ²	Titanium Ti 44.956 1.2 [Ar] 3d ² 4s ²	Vanadium V 50.942 1.3 [Ar] 3d ³ 4s ²	Chromium Cr 51.996 1.5 [Ar] 3d ⁴ 4s ²
K Potassium 39.098 0.9 [Ar] 4s ¹	Ca Calcium 40.078 1.0 [Ar] 3d ¹ s ²	Rb Rubidium 85.468 0.9 [Kr] 5s ²	Sr Strontium 87.62 1.0 [Kr] 5s ²	Y Yttrium 88.906 1.1 [Kr] 4d ¹ 5s ²	Zr Zirconium 91.2245 1.2 [Kr] 4d ² 5s ²	Nb Niobium 92.906 1.3 [Kr] 4d ³ 5s ²	Mo Molybdenum 95.94 1.4 [Kr] 4d ⁴ 5s ²
Cs Cesium 132.91 0.9 [Xe] 6s ²	Ba Barium 137.33 1.0 [Xe] 6s ²	La Lanthanum 138.91 1.1 [Xe] 5d ¹ 6s ²	Ta Tantalum 180.95 1.2 [Xe] 4f ¹ 5d ¹ 6s ²	Hf Hafnium 178.49 1.3 [Xe] 4f ² 5d ¹ 6s ²	Db Dubnium 261.11 1.0 [Rn] 6d ¹ 7s ²	Rf Rutherfordium 227.03 1.0 [Rn] 6d ¹ 7s ²	Ac Actinium 226.03 1.0 [Rn] 7s ²
Fr Francium 223.02 0.9 [Rn] 7s ¹	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Sm Samarium 61 1.0 [Xe] 4f ⁶ 6s ²	Eu Europium 63 1.1 [Xe] 4f ⁷ 6s ²	Gd Gadolinium 64 1.1 [Xe] 4f ⁸ 6s ²	Tb Terbium 65 1.1 [Xe] 4f ⁹ 6s ²
Ce Cerium 140.12 1.1 [Xe] 4f ⁹ 6s ²	Pr Praseodymium 140.91 1.1 [Xe] 4f ¹⁰	Nd Neodymium 144.24 1.1 [Xe] 4f ¹¹	Pm Promethium 146.92 1.1 [Xe] 4f ¹²	Sm Samarium 150.36 1.1 [Xe] 4f ¹³	Eu Europium 151.96 1.1 [Xe] 4f ¹⁴	Dy Dysprosium 162.50 1.1 [Xe] 4f ¹⁵	Tm Thulium 167.26 1.1 [Xe] 4f ¹⁶
Th Thorium 232.04 1.1 [Ra] 5f ⁷ 7s ²	Pa Protactinium 231.04 1.1 [Ra] 5f ⁶ 6d ¹ 7s ²	U Uranium 238.03 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²	Np Plutonium 237.05 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²	Cm Curium 244.08 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²	Am Americium 244.06 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²	Fm Fermium 251.08 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²	Md Mendelevium 258.10 1.2 [Ra] 5f ⁶ 6d ¹ 7s ²
No Neptunium 259 [Ra] 5f ⁷ 7s ²	Lu Lutetium 174.97 1.1 [Xe] 4f ¹⁵ 5d ⁶ s ²	Yb Ytterbium 173.04 1.1 [Xe] 4f ¹⁴ 5d ⁷ s ²	Tm Thulium 168.93 1.1 [Xe] 4f ¹³ 5d ⁸ s ²	Er Erbium 164.93 1.1 [Xe] 4f ¹² 6s ²	Ho Holmium 169.93 1.1 [Xe] 4f ¹¹ 6s ²	Dy Dysprosium 158.93 1.1 [Xe] 4f ¹⁰ 6s ²	Tb Terbium 167.26 1.1 [Xe] 4f ⁹ 6s ²
Lr Lawrencium 262.11 [Ra] 5f ⁷ 6d ¹ 7s ²	Lu Lutetium 174.97 1.1 [Xe] 4f ¹⁵ 5d ⁶ s ²	Yb Ytterbium 173.04 1.1 [Xe] 4f ¹⁴ 5d ⁷ s ²	Tm Thulium 168.93 1.1 [Xe] 4f ¹³ 5d ⁸ s ²	Er Erbium 164.93 1.1 [Xe] 4f ¹² 6s ²	Ho Holmium 169.93 1.1 [Xe] 4f ¹¹ 6s ²	Dy Dysprosium 158.93 1.1 [Xe] 4f ¹⁰ 6s ²	Tb Terbium 167.26 1.1 [Xe] 4f ⁹ 6s ²
Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²	Ra Radium 226.03 1.0 [Rn] 7s ²



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