

2021



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

UP

IN A NUTSHELL



Our vision is to be

A leading research-intensive university in Africa, recognised internationally for its quality, relevance and impact, and also for developing people, creating knowledge and making a difference locally and globally.

Our goals are to

- Enhance access and successful student learning
- Strengthen the University's research and international profile
- Foster and sustain a transformed, inclusive, and equitable University community
- Optimise resources and enhance institutional sustainability
- Strengthen the University's social responsiveness and impact in society.

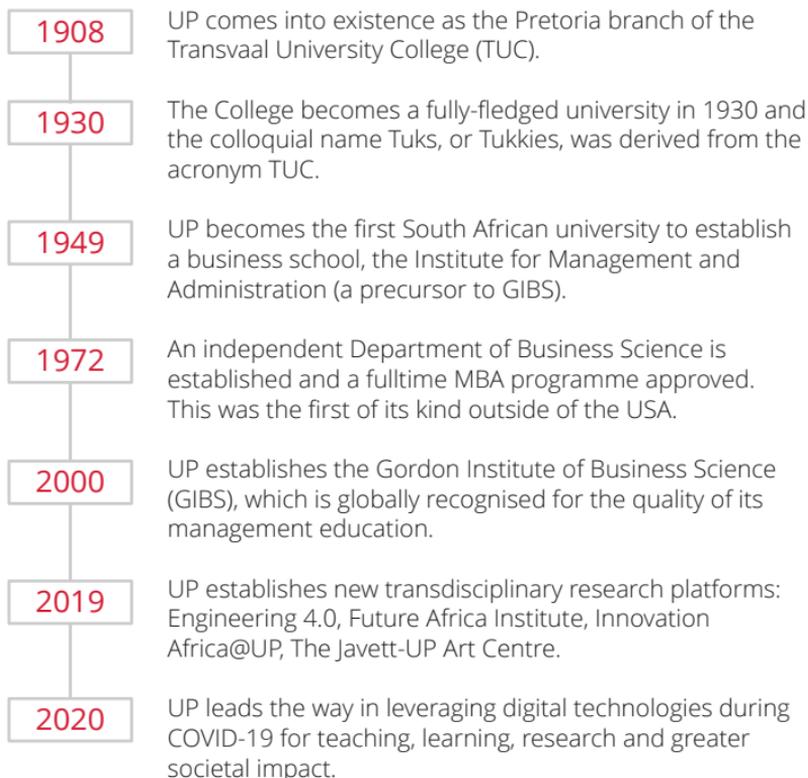
This is how we do it

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Overview

We see ourselves as a key contributor to our nation's and the continent's economic growth and social development, exerting influence through three major pathways: teaching, research, and service to society.

How an African giant was born



UP AT A GLANCE

UP has 9 Faculties and a Business School



EDUCATION



HUMANITIES



LAW



HEALTH
SCIENCES



THEOLOGY AND
RELIGION



VETERINARY
SCIENCE



ECONOMIC AND
MANAGEMENT
SCIENCES



NATURAL AND
AGRICULTURAL
SCIENCES



ENGINEERING,
BUILT
ENVIRONMENT
AND
INFORMATION
TECHNOLOGY



GORDON
INSTITUTE
OF BUSINESS
SCIENCE (GIBS)

GIBS

#1 business school
in Africa

#1 business school
in the world for
gender balance

Source: UK Financial Times

Academic offering

4 Centres of Excellence

51 Research Chairs

1 112 Study programmes

120 Academic departments

134 Undergraduate programmes

72 Research Institutes and Centres

180 Degrees, certificates and diplomas

A world-class University

#48

Mineral and Mining
Engineering*

#49

Veterinary
Science**

#60

Law*

* Universal Ranking by Academic Performance (URAP) for subjects

** 2020 QS World University Rankings and Shanghai Rankings

International profile

TOP 1%

UP ranks in the top 1% internationally in 10 fields.

Source: Web of Science Essential Science Indicators



AGRICULTURAL SCIENCES



BIOLOGY & BIOCHEMISTRY



CLINICAL MEDICINE



ECONOMICS & BUSINESS



ENGINEERING



ENVIRONMENTAL/
ECOLOGY



IMMUNOLOGY



MICROBIOLOGY



PLANT
AND ANIMAL
SCIENCES

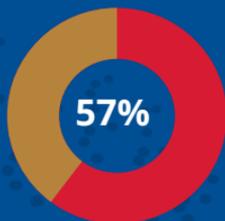


SOCIAL
SCIENCES

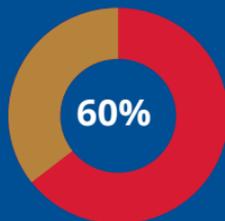
Student profile

55 738

Total number of students enrolled



Women students registered



Black students registered

7x110x884

The university is spread over seven campuses in 884 buildings on 110 properties



Producing quality

We are recognised as leaders in quality education delivered by a talent bank of educators.

In an age of overwhelming choices, the University of Pretoria continues to attract discerning students and staff in great numbers. Course quality, university reputation, and location are just some of the aspects that direct their choice.

That we produce graduates who are highly sought after is evidenced by our ranking among the top four SA universities in the Quacquarelli Symonds (QS) 2020/2021 Graduate Employability Survey.

We also remain a destination of choice for students with outstanding school-leaving results. Over 700 students who achieved six or more distinctions in the 2020 school-leaving examinations applied for admission to UP.

Quality graduates

We are resolute in our intended outcome of producing quality graduates who can contribute to South Africa's knowledge economy.



Auditorium: Future Africa Research Institute

Since 2010, we have been developing an integrated approach to student success that supports them physically, mentally and emotionally from the second they step onto the campus. This has, we believe, contributed to our ongoing high examination pass rate. In 2020, 94% of full-time undergraduates passed their exams, which reflects an ongoing upward trend.

#ChooseUP is a free, online, university preparation course for provisionally-accepted first-year students that aims to develop a range of skills such as time management, note taking, study skills, goalsetting and academic reading before these prospective students enter university.

FLY@UP provides students with support and actionable options to succeed in their studies and graduate in minimum time. FLY stands for the Finish Line is Yours.

Fly Higher@UP was introduced to improve the throughput and success of postgraduate students and help them complete their studies in the minimum time.

e-Technologies in teaching and learning are used alongside traditional lecturing. We have been working for several years on implementing a system-wide hybrid approach to teaching and learning and this made the transition to online learning during the COVID-19 pandemic near-seamless. Just over 95% of all undergraduate modules have an active online presence.

Alumni success



Daniel Ndima, who graduated from UP with an MSc degree in Biochemistry (Structural Biology) in 2016, has developed a groundbreaking COVID-19 test kit that provides results in just over an hour.



Faculty of Engineering, Built Environment and Information Technology alumnus **Dr Sunveer Matadin** has invented a kinematic robotic arm that provides six degrees of freedom. This robotic system is lightweight, performs well and can be reconfigured for industrial robot application, exoskeletons and prostheses.



Thobo Khathola, Faculty of Economic and Management Sciences, 2015, made it on to the Forbes Africa 30 Under 30 list, and the cover of the April 2020 issue of Forbes Africa magazine.

Social learning spaces mimic real-world work and social environments, which encourage interaction and cross-disciplinary problem solving. This enhances accessibility and promotes successful student learning, which is one of our critical goals.

Connected campuses – Wi-Fi coverage extends to around 400 lecture venues across all campuses. When not on campus, students can access academic content without incurring any data cost through UP Connect, a unique portal developed by UP.

Our reputation for producing quality graduates gains traction through our over 303 000 alumni, many of whom are luminaries in the business, social, political, sporting and cultural arenas, making a positive difference world-wide. We keep contact with them via UP's Alumni App, which has been ranked as the fastest growing alumni platform in the world. In 2020, UP became the first university in Africa to launch its alumni events on LinkedIn Live.

Student success

94%

Full-Time undergraduates who passed their 2020 exams



2018:
82.4%

2019:
87.5%

2020:
94%

100%

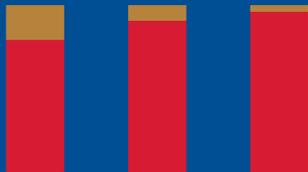
SAICA CA qualifying exam pass rate

TOP 4



UP ranked among the top four SA universities in the QS 2020/2021 Graduate Employability Survey, which shows our graduates are highly sought after

Academic strength



2018:
460

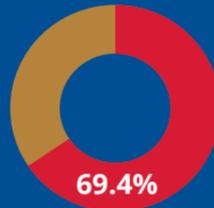
2019:
528

2020:
565

Growth in the number of NRF-rated researchers

16 **A**

A-rated researchers



Staff with PhDs



Quality teaching

None of our achievements would be possible without a strong academic corps and our researchers remain prolific producers of knowledge in their quest for solutions.

In addition, our academic staff continue to improve their qualifications and close on 69% have doctoral degrees. The national average is 48%.

A further measure of our quality teaching corps is the number of researchers who have achieved a National Research Foundation (NRF) rating. This number now stands at 565, with 16 of them A-rated

researchers who are recognised as leading international scholars in their field.

The visibility of our lead researchers is demonstrated in the Essential Science Indicators (ESI) database. The ESI database covers 22 knowledge fields, and we are rated among the top 1% globally in ten fields: Agricultural Sciences, Biology and Chemistry, Clinical Medicine, Economics and Business, Engineering, Environment/ecology, Immunology, Microbiology, Plant and Animal Sciences, and Social Sciences. UP was the top-ranked university in South Africa in the fields of Engineering and Plant & Animal Sciences.

UP has been ranked No 1 in South Africa for:



School of Engineering¹



Department of Materials Science and Metallurgical Engineering²



Department of Law³



School of the Arts (Information Design)⁴

Source: 1. 2020 US News and World Report Rankings on the Best Global Universities for Engineering 2. Minerals Education Trust Fund, 2020 3. THE World University Rankings by Subject 2021 4. Loerie Awards, 2020

The Quacquarelli Symonds World University Rankings by Subject for 2021 place UP as the leading university in South Africa for four subjects:



Theology, Divinity & Religious Studies



Engineering (Electrical and Electronics)



Mathematics



Accounting & Finance

Being relevant

UP has consistently achieved research outcomes that place it among the top-performing research institutions in Africa. We intentionally focus on 'research that matters', and thematic areas that demonstrate the impact on society.

Our vision of becoming a leading research-intensive institution known for cutting-edge research, excellence and innovation found further traction in 2020. Some of the breakthroughs that have placed UP, South Africa and Africa on the world stage include:

- Designing a 3D-printed insert of polyvinyl alcohol that can be placed in a face mask which can detect tuberculosis in just an hour with an accuracy of 86%
- Solving a puzzle in X-shaped radio galaxies by observing a galaxy situated 800 million light years from Earth
- Developing sound-level monitoring headphones with smartphone feedback to reduce the risk of hearing loss among young people
- Performing *in vitro* fertilisation to support dwindling rhinoceros populations.

We have the world's leading laboratory in DNA typing of rhinoceros and are Africa's lead laboratory in malaria control. UP's Department of Speech-Language Pathology and Audiology has been designated as a WHO Collaborating Centre for the prevention of deafness and hearing loss. This is the first WHO Collaborating Centre in Africa, and a big step towards improving hearing healthcare on the continent.

UP also hosts Africa's first Virtual Reality Centre for mine design and the continent's first independent transport reference and testing facility.

Our current research focus is on 21st Century-relevant areas, in particular Artificial Intelligence (AI), Food Security, Sustainable Environments and Societal Wellbeing. Four of our 51 research chairs specialise in AI, data science, machine learning and cybersecurity.



Nowhere to hide

The MeerKAT radio telescope has helped UP researchers discover secret galaxies and uncover the secrets of black holes.

A UP master's student has discovered a large group of 20 galaxies, likely the most neutral hydrogen gas-rich group ever discovered. The MeerKAT observations show a galaxy group in its early stages of formation, which is extremely rare. This group inhabits an area of sky that has been studied by many other telescopes, but the group structure has been revealed for the first time due to MeerKAT's excellent sensitivity.

Research by an international team of scientists led by the UP's Dr Jack Radcliffe has clarified the eating habits of massive black holes. There is an intimate link between the creation of new stars and the growth of the central black hole within the same galaxy. For this to occur, there must be some interaction or 'feedback' between the two. This is a crucial area of research in astronomy, as the Universe we see today is dependent upon the interaction between these two processes.

UP's research focus areas

- Agriculture and sustainable food systems
- One Health
- Water
- Energy
- Inequalities, Social Justice and Human Rights
- Heritage studies
- Economic development and sustainable futures
- Smart infrastructure and innovation
- Climate change and the environment

First for partnerships



First SA institution to partner with the Joint Institute for Nuclear Research



First SA university admitted to Alliance for African Partnership (AAP) led by Michigan State University



First institution in Africa chosen to host the Nobel Prize dialogue, the theme of which was 'The Future of Work'



Lead university in the Food Systems Research Network for Africa



Principal coordinator of Dirisana, a medical capacity-building project



Number of patents granted

- International
- South African



Having an impact

A university is shaped as much by what happens on campus as what happens off campus and we work tirelessly to ensure that we remain relevant by working for society, with society. Our intention is for our students to also emerge as citizens with a deep sense of civic responsibility.

International rankings, partnerships and research breakthroughs show how committed we are to transforming South Africa's and Africa's future. However, we take particular pride in our social responsiveness and engagement.

UP was ranked among the top universities in the world in the THE Impact Rankings for 2020, featuring in the 101-200 band overall. This is the only ranking system to evaluate universities against the United Nation's Sustainable Development Goals (SDGs). The data obtained from 766 universities is a good



way for universities to benchmark themselves according to their economic and social impact.

UP's remarkable performance in the five SDGs for which it submitted data re-affirms our commitment to making a positive impact on society.

- SDG 3: Good Health and Wellbeing
- SDG 4: Quality Education
- SDG 9: Industry, Innovation and Infrastructure
- SDG 16: Peace, Justice and Strong Institutions
- SDG 17: Partnerships and Goals.

Graduate employability

Our intention at UP is not just for our students to graduate successfully. Employability is the unspoken outcome of our teaching and we are

pleased that 93% of our graduates are employed within six months or go on to further their studies.

Their employability skills are honed through UP's Work-readiness and Entrepreneurship programme (WREn). This co-curricular programme facilitates student learning outside the formal learning programme for their degrees, thereby equipping them with attributes required for success in the world of work.

UP is also home to the first Library MakerSpace in South Africa, a creative laboratory where people with ideas can get together with people who have the technical ability to make these ideas become a reality.

BE YOUR OWN BOSS

Starting your own Logistics and distribution company?

THE UP WAY

Register on ClickUP for the free Entrepreneurship online course and learn how.

Preparing our students for the future world of work

Anywhere, anytime

Our Ready for Work programme, which prepares students to excel in the workplace, has introduced a module on the “gig” economy, which is becoming increasingly important in a digital world that allows people to work from anywhere in the world and at any time.

As their own boss

The Centre for Entrepreneurship enhances employment opportunities and supports entrepreneurs. The Entrepreneurship Training Programme offers free support services and courses to potential and new entrepreneurs on campus, while TuksNovation is a high-tech business incubator for start-up companies.

Nobel Laureates discuss the future of work

UP hosted the first Nobel Prize Dialogue held in Africa in May 2021. With ‘The Future of Work’ as its theme, Nobel Laureates from across the world discussed the working skills people will need in future, and what can be done to create hope for a younger generation, given technological developments.



R1.86bn

Total of loans and bursaries awarded in 2020



33 000

Students involved in community projects



Only one in Africa

UP is the only representative from Africa in the University Social Responsibility Network, an international group of 16 top universities in the world selected for their responsiveness to their local context



Student Funding Support

Access to student funding remains a major factor inhibiting access to higher education. It is therefore a priority for UP as we strive to serve the national goal of increasing access to affordable university education for all deserving students.

In 2020, UP awarded just over R1.86bn in loans and bursaries, with contributions from UP's own funds increasing to R171m.

Community Engagement

We derive great satisfaction from the success of our community engagement programme, which has been running for more than a decade. Students earn credits towards their degrees, while

applying their knowledge in the service of the community.

Close on 33 000 of our students are involved in curricular community engagement projects at 1 500 sites. Volunteers from 120 registered student societies also contribute to the sustainability of the various community projects.

Our community engagement initiatives were significantly strengthened by our involvement in the University Social Responsibility Network (USRN), a global network of 16 top universities in the world selected for their responsiveness to their local context. We consider it critical that we use knowledge to make a decisive difference to the lives of the people in our communities.

Developing people

Our primary goal is to not only produce quality graduates but also to produce graduates with attributes that go beyond mastery of their fields of study; graduates who can interact successfully in a globally interdependent world, and who are prepared for the challenges of a diverse world.

Student wellbeing

UP supports student wellbeing through a variety of programmes.

The **Student Counselling Unit** offers professional counselling and therapeutic support to ensure that students are equipped to deal with trauma, personal and academic stress, make correct career choices, and be academically successful.

The **Student Health Services Unit** provides basic health services to students on all campuses through full-time nursing staff and session doctors.

The **Triple L + 1 programme** promotes an environment that fosters academic success, diversity

and community building in our university residences. The programme focuses on conversation to achieve understanding (Listening), creating a sense of belonging and the holistic development of all residents (Living), promoting Learning, and leaving a positive and innovative Legacy.

Through the University's **Disability Unit**, first-year students with visual disabilities complete mobility training sessions, which include basic cane skills and route training to the bus stops and other campus common facilities and buildings. Tactile paving on campuses help staff and students who are visually impaired to safely and easily move around the University.



The COVID connection

As a result of the COVID-19 pandemic, the University had to quickly move its teaching and learning online. Thanks to alumni and staff donating to the UP Solidarity Fund, and sizeable contributions from donors, UP was able to purchase over 3 000 laptops and tablets for needy students.

Sports and the Arts

Sport is a source of pride for the University and we are recognised as a sporting powerhouse in Africa. Despite COVID-19's restrictions on movement and gatherings, our athletes continued to astound.

Thirty-two UP athletes,, alumni, coaches and one referee were selected to represent South Africa at the 2020 Olympic Games in Tokyo, Japan.

UP athletes have a proud tradition when it comes to competing at the Olympics. During the 2012 London Games in England and 2016 Rio Olympics, Brazil, UP athletes won six medals – two gold, three silver and one bronze.

Our Sportswoman and Sportsman of the Year produced sterling performances in the run-up to the Olympics. Swimmer Tatjana Schoenmaker won the 200m breaststroke in one of the fastest times ever during the Olympic trials in Gqeberha. She also set African records in the 50m and 100m breaststroke. Akani Simbine finished second in the men's 100m at the World Athletics Diamond League meeting in Monaco after setting a new South African and African record in Hungary. Over the past four years,

Simbine has outsprinted most of the world's best runners at least once.

South Africa's 4 x 100m and 4 x 400m relay team will also feature Akani, along with other UP sprinters Gift Leotlela (who ranks as one of the eight fastest sprinters in the world) and Clarence Munayi.

South Africa's rowers, who are all based at UP, medalled at the 2012 London Games (gold), and the 2016 Rio Games (silver).

Many of our athletes were nurtured at the TuksSport High School, a specialised school that allows current and potential high-performance athletes to train and travel internationally, while still staying in school. In 2020, the school had a 98.2% matric pass rate and in 2021 five of the athletes who qualified for the Tokyo Olympic Games matriculated from TuksSport High School.

Creativity did not take a backseat to COVID-19 and the Information Design division at the School of the Arts was named the top design institution for 2020 during the Loerie Awards. Six of the top 20 design students in Africa for 2020 also came from this division.



Photo credit: @sasportsimages (Anton Geyser)

Olympic star, fastest by far

Tatjana Schoenmaker won Gold at the Tokyo Olympic Games, setting a new world record for the 200m breaststroke. She also won silver in the 100m breaststroke event.



32

Number of Tuks athletes, coaches, referees and alumni who represented South Africa at the Tokyo Olympic Games in athletics, swimming, rowing, hockey, fencing, water polo, rugby and judo.

Best SA sprinter

Akani Simbine delivered the best result by a SA sprinter in a 100m final at a world championship. He narrowly missed out – by 4/100ths of a second – on a bronze medal in the 100m event at the Tokyo Olympics.





Creating knowledge

From our hybrid teaching and learning style to our interdisciplinary methods of research, our aim is to create graduates who are future-focused and can facilitate research that solves social problems.

Statistics released by the Department of Higher Education and Training (DHET) confirm that UP remains one of the largest producers of graduates in a wide range of fields that include identified scarce skills such as engineering, financial sciences and health sciences.

We produce all of the country's veterinarians, almost a third of all engineers (28.4%) and just under 15% of all doctors.

Our students consistently rank as top achievers in the South African Institute of Chartered Accountants (SAICA) examination, with a 100%



Future Africa Research Institute

examination pass rate in the 2021 Initial Test of Competence.

About 44% of the research we conduct is done with international collaborators, and we place great value on the inclusion of international students, postgraduates and academics. Of the 272 postdoctoral fellows at UP in 2020, almost 60% (161) were international students, with the majority coming from Africa and Europe.

Social problems, especially complex ones, require us to think, teach, learn and create knowledge across disciplinary boundaries. This is the only way to beat current pandemics

and crises of the future. It is the way that best assures humanity and the environment a better, more sustainable future.

We are therefore particularly proud of the four new major transdisciplinary platforms UP has developed: Future Africa Institute and Campus, the Javett-UP Art Centre, Engineering 4.0 and the Innovation Africa @UP Initiative. They foster a transdisciplinary research culture across the university community and help create a critical mass of researchers for new knowledge generation and scale to address the current and future challenges.

Making a difference

While the COVID-19 pandemic threatened to shake our world, it also provided UP with opportunities to rethink and reimagine our future and role. Above all, it became clear how necessary it is to reposition ourselves as a knowledge-creating institution that is relevant to solving not only this health crisis, but all the endemic crises that face the world.

We remain committed to making a decisive difference to transforming South Africa's and Africa's future through excellence in knowledge creation, relevant and impactful research, high-quality academic programmes, innovative teaching and learning, and social responsiveness and engagement.

The pandemic has certainly fast-forwarded our future, the one

that sees UP making a decisive difference by being innovative and contributing to the realisation of socio-economic prosperity, genuine democracy and the sustainability of humanity and the environment.

While we are proud of our existing achievements, we are focused on how our actions today will deliver impact tomorrow.



Imagine:

Smart roads and infrastructure talking to smart vehicles to reduce traffic congestion and ensure the safety of passengers and cargo.

It's real:

UP's Engineering 4.0 research and training hub, which includes Africa's first independent materials testing facility and National Reference Lab, is working on this.



Imagine:

Small-scale farmers diagnosing their crops' health before they are destroyed by pests or diseases.

It's real:

Innovation Africa@UP Initiative is helping smallholder grain farmers to connect with the Forestry and Agricultural Biotechnology Institute Diagnostic Clinic via its digital platform.



Imagine:

Everyone in Africa has enough food to eat.

It's real:

InnoFoodAfrica is a multidisciplinary consortium of 20 partners – 15 in Africa and five in Europe – developing new ways to add value to climate-smart African crops with great nutritional value. UP is representing South Africa in this R115m programme.



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