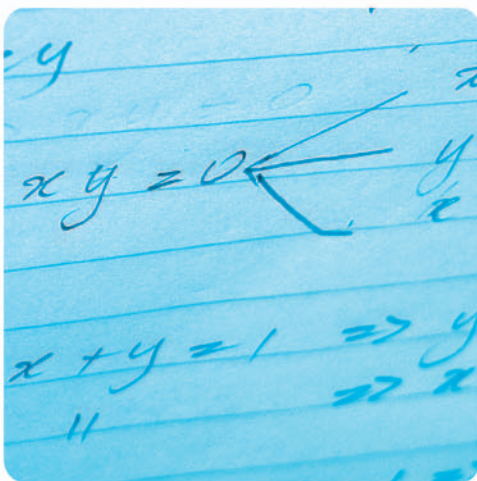


# Faculty of Natural and Agricultural Sciences

## Report 2008





**Faculty of**

**Natural and  
Agricultural Sciences**

**Report 2008**

**Issued by**

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## Preface

# From the Dean's Office

In 2008 the Faculty of Natural and Agricultural Sciences once again lived up to its vision to be acknowledged as a faculty that is at the forefront of the practice of natural and agricultural science where the highest levels of quality and credibility are reflected.

During the year the faculty not only remained one of the leaders in training and career development in the natural and agricultural sciences, but it also made a concerted effort to enlarge its international footprint and to establish itself internationally. This is evident in the visits of staff from the faculty to universities such as the USA-based University of Minnesota and Virginia Polytechnic Institute and State University (Virginia Tech) and the extension of international agreements between the University of the Free State (UFS) and these institutions. The faculty also had the privilege of hosting a high-level delegation from the University of Minnesota on the Main Campus in Bloemfontein in August 2008.

The turmoil in the international markets firstly led to very high oil prices, which spilt over to the grain markets and high food prices. This, in turn, led to high inflation levels and therefore high interest rates. Eventually the exchange rate also deteriorated against the major currencies. In the latter part of the year the whole situation was turned upside down with the collapse of the financial markets. The faculty did not escape this and the price of equipment for which orders were placed sky rocketed. Innovative skills had to be applied to remain on track with our equipment strategy.

Although 2008 was an exceptionally difficult year for the UFS and the institution had to bear the brunt of the Reitz video and the reaction of the national and international community, the faculty still managed to perform and expand its core business.

The faculty offers multi-disciplinary and holistic courses to send skilled and capable students into the South African workplace and to empower the labour force. Our general and extended programmes are continuously assessed and improved in order to improve our throughput rates and quality of teaching.

The staff at the faculty worked tirelessly this year to broaden our product offering and to provide our students with the best quality teaching in the country. I applaud their efforts of expanding capacity, developing programmes and strengthening re-



*Prof. Herman van Schalkwyk.*

lationships both within and outside the faculty and the university.

I also want to applaud the staff and students of the faculty with their achievements this year – whether it is on a personal level, in their capacity as staff member of their respective department/centre or for the faculty. To mention a few:

- Ms Estelle Heideman HIV/Aids coordinator of the Lengau Agricultural Development Centre, received a bursary to participate in a leadership programme in the United States of America (USA), which trains female leaders in South Africa who contribute to the prevention of HIV at a local, regional and national level;
- In the Department of Agricultural Economics, Prof. Johan Willemse, known for his contribution towards agriculture, was appointed on the non-executive board of Absa;

## Staff in the dean's office



The staff working in the dean's office are, from the left, front: Ms Stefanie Naborn, Manager: Marketing and Liaison, Ms René Bloem, Secretary, Prof. Neil Heideman, Vice-Dean: Faculty of Natural and Agricultural Sciences; back: Mr Clasie Claassen, Assistant Administrative Officer, Mr Johan Kruger, Faculty Manager, Ms Lorinda Rust, Secretary, and Ms Mitzie Cloete, Typist/Clerical Assistant.

- Prof. James du Preez, Departmental Chair of the Department Microbial, Biochemical and Food Biotechnology, received the silver medal for exceptional published research awarded at the biennial conference of the South African Society for Microbiology hosted in Graham's Town. It was only the seventh time since 1986 that the medal was awarded;
- A study of the UFS about how the change in the packaging of DNA with cellular development is influenced by the expression of genes, in which Prof. Hugh Patterson played a leading role, was published in a leading peer-reviewed scientific journal *Proceeding of the National Academy of Sciences* of the USA (PNAS). The PNAS journal has an impact factor of 10, which means that studies published in this journal are referred to by ten other scientific studies within the scope of two years;
- Prof. Riaan Luyt, professor in Chemistry and head of the Natural Sciences Programme at the Qwaqwa Campus, received an honorary medal from the Polymer Institute of the Slovak Academy of Sciences during a conference hosted in the High Tatras mountains of Slovakia;
- Prof. Maryke Labuschagne from the Department of Plant Sciences was the recipient of the National Science and Technology Forum's (NSTF) research capacity-development award. A team consisting of Prof. Jan van der Westhuizen and Dr Susan Bonnet from the Department of Chemistry, Prof. Kenneth Swart and Prof. Thinus van der Merwe from FARMOVS-PAREXEL also

received the innovation award for an outstanding contribution to science, engineering and technology by either an individual or a team over the last ten years from the NSTF;

- Prof. Maryke Labuschagne received a second prestigious national award for her research when the 2008 Cereal Science and Technology - SA's (CST-SA) Award for research and development was awarded to her; and
- Prof. Ivan Horak, extraordinary professor at the university's Department of Zoology and Entomology, became the third person in the history of the UFS to receive the D.Sc. degree.

In closing I would like to thank the faculty's lecturing staff for their support and enthusiasm during the past year. However, none of these achievements would have been possible without the interest and hard work of the administrative staff.

During 2008 we have all worked together to live up to the faculty's motto: "There is no substitute for excellence!" This report covers the activities of the faculty in 2008. It is a reflection of a year's commitment from a team of highly skilled academic and support staff.

**Prof. Herman van Schalkwyk**  
**Dean: Faculty of Natural and Agricultural Sciences**  
**University of the Free State**



# Faculty news

## Successful visit from delegation of the University of Minnesota

A senior delegation from the University of Minnesota in the United States of America (USA) paid a very successful visit to the University of the Free State (UFS) in May 2008 to explore ways of strengthening already existing ties between the two institutions.

Teacher training, capacity building in health sciences and student preparedness were among the areas of cooperation that were investigated, within the context of the Strategic Academic Cluster initiative of the UFS. Poverty reduction strategies were also a strong focus area.

The Faculty of Natural and Agricultural Sciences has had a cooperation agreement with the University of Minnesota's Department of Applied Economics since 2002 and the exchange of staff



*During the visit are, from the left: Prof. Herman van Schalkwyk, Dean: Faculty of Natural and Agricultural Sciences at the UFS, Prof. Robert Jones, Senior Vice-President: System Academic Administration at the University of Minnesota, Dr Meredith Quiad, Associate Vice-President and Dean: International Programmes, University of Minnesota, Prof. Teuns Verschoor, Acting Rector of the UFS and Prof. Ezekiel Moraka, Vice-Rector: Student Affairs at the UFS.*

has been taking place on a regular basis. This agreement will be expanded and both institutions are now exploring the possibility of

applying it across faculties. Both institutions have committed seed funding to formalise the cooperation agreement.

## 50 years of Agriculture celebrated



*The faculty celebrated 50 years of the teaching of agriculture at the UFS in November 2008. Part of the celebrations was a seminar with the theme "Challenges in a changing agricultural environment". Some of the guest speakers are, from the left: Mr Corwyn Botha, Chairman: Agri Business Chamber and Managing Director of the Cape Agri Group, Mr Motsepe Matlala, President of NAFU, Mr Hans van der Merwe, Executive Head: Agri SA, Prof. Herman van Schalkwyk: Dean: Faculty of Natural and Agricultural Sciences at the UFS, and Mr Sugar Ramakarane, Head: Department of Agriculture, Free State Province.*

## Winners of NSTF awards assist with recruitment of students



Here are, from the left: Dr Martin Ntwaeaborwa, senior lecturer at the Department of Physics and finalist in the category for black researchers, Prof. Kenneth Swart, FARMOVS-PAREXEL, Prof. Maryke Labuschagne, head of Plant Breeding at the UFS's Department of Plant Sciences and female recipient of the award for the development of research capacity over the past five to ten years, and Prof. Jan van der Westhuizen, Department of Chemistry at the UFS; front: Ms Kedibone Aphane, MRC. Prof. Swart and Prof. Van der Westhuizen were the leaders of the team who received the award for the development of innovation by a corporate organisation or institution.

Representatives of the South African Medical Research Council (MRC) visited the UFS to recruit students who want to study in the fields of sci-

ence, engineering and technology. To assist with the recruitment, the winners of awards made by the National Science and Technology Forum (NSTF) earlier this year,

made presentations to create an interest amongst students. The UFS had four finalists of whom two were the winners in their respective categories.

### Young scientists learn what faculty can offer



Young science lovers gathered in Sasolburg for the annual Sasol TechnoX in August 2008. The faculty's exhibition captured the learners' attention through an interactive representation of the application fields of science. Delegates from the Departments of Mathematics and Applied Mathematics, Chemistry, Zoology and Entomology, as well as UFS Marketing stood ready to answer the questions of the 20 832 learners who attended the event. Pictured here is Theo Viljoen, M.Sc. student in Forensic Entomology, sharing interesting facts regarding insects with learners.

## Two UFS academics appointed on the Land Bank Board



Prof. Herman van Schalkwyk (left), Dean: Faculty of Natural and Agricultural Sciences, and Mr Theo Potgieter from the UFS School of Management were appointed on the Land Bank Board in March 2008. Prof. van Schalkwyk was appointed as Director and Deputy Chairperson and Mr Potgieter as Director of the Board. The appointments were made by the Minister of Agriculture and Land Affairs, Ms Lulu Xingwana, and are effective for a period of four years.

## UFS extends exchange agreement with USA university



Here are, from the left, front: Dr SK de Datta, Vice-Rector: International Affairs, VT, Prof. Herman van Schalkwyk, Dean of the Faculty of Natural and Agricultural Sciences, UFS, Dr Martin Ntwaeaborwa, senior lecturer at the Department of Physics, UFS; back: Prof. Jim McKenna, Department of Crop, Soil and Environmental Affairs, VT, Prof. Izak Groenewald, Director of the Centre for Sustainable Agriculture and Rural Development at the UFS and responsible for the faculty's international liaison, Dr Michael Bertelsen, VT's international office, Dr Aldo Stroebel, Head: Internationalisation at the UFS and Dr Liesel Herselman, senior lecturer at the Department of Plant Sciences, UFS.

A delegation from the faculty visited the Virginia Tech University (VT) in the USA in June 2008 to confirm and extend the existing student exchange agreements between the two institutions.

During the visit the agreement, which started in 1997, was extended for the next five years. More than 150 students from both institutions have already taken part in this exchange agreement and it is the most successful student exchange agreement that VT is involved in. Although agricultural students from the UFS initially took part in the agreement, it was extended to other departments in the faculty and also to the rest of the UFS.

## Itjoriseng Project launched



The faculty launched the Itjoriseng Project on the Main Campus in Bloemfontein in March 2008. The aim of the project is to improve the skills of teachers in the subjects Mathematics and Physical Science for Grades 10–12. "Itjoriseng" is the Sotho word for "sharpen yourself". At the launch were, from the left: Mr Mzamo Jacobs, Director: Curriculum Development for Further Education and Training, Free State Department of Education, Mr Johan Kruger, Faculty Manager, Ms Elna Marais, Chief Education Specialist: Curriculum Development, Free State Department of Education, and Prof. Herman van Schalkwyk, Dean: Faculty of Natural and Agricultural Sciences at the UFS.

## 2007 Faculty report launched

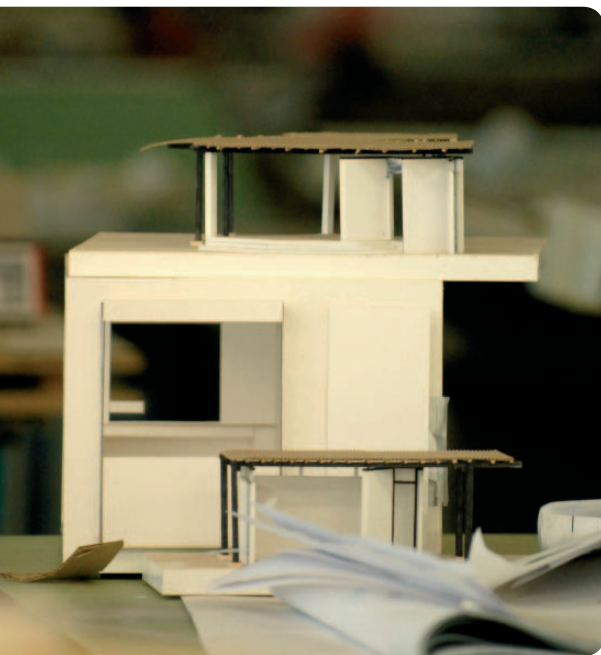


The faculty once again produced another report in which the various departments and centres highlighted their activities for 2007. The report was so well received that a second edition had to be printed. Here are some of the departmental chairpersons during the launch of the report in June 2008.

## Department of

# Architecture

“We received unconditional accreditation for all our programmes” - Prof. Jan Smit.



Prof. Jan Smit.

### Overview

The Department of Architecture will remember the year 2008 for the long-awaited changes and upgrading of its infrastructure and facilities and for the renewal and confirmation of its unconditional accreditation status with the South African Council for the Architectural Profession (SACAP), the Royal Institute of British Architects (RIBA) and the Commonwealth Association of Architects (CAA).

For 2008, the department received 350 enquiries for the B.A.S. undergraduate degree course, from which 52 students were selected to enroll. The tendency of increasing numbers of applications continues unabated.

The department received unconditional accreditation for all three degrees offered after a panel of five people scrutinised all courses and modules at the end of July 2008. The accreditation confirms the department's international status. This is a significant achievement, since this department is the only tertiary institution, of the seven that were visited, to receive unconditional status. Three further architectural institutions remain to be visited in the next few years. The department is proud and honoured: we believe that the success was due to a team effort of consistent and very hard work.

One of the highlights of 2008 was the Architecture Student

Conference (ASC) hosted by the department. This was the fourth time that the department has hosted this annual event. A total of 710 students from 11 other tertiary architectural institutions visited Bloemfontein from 24-30 August 2008. The ASC coincided with the 20<sup>th</sup> Sophia Gray Memorial Lecture, with guest speakers Ms Anja van der Merwe and Mr Macio Miszewski presenting buildings and projects from the Van der Merwe Miszewski Architects based in Cape Town.

During the week of the conference talks were presented by the following esteemed speakers: Mr Hugh Fraser spoke on *The real theatre of le Corbusier* and *The international concrete theatre*; Prof. Jan Smit presented *Landscape and laboratory*; Nnamdi Elleh presented *How is African Architecture a theatre of life?* and Pattabi Raman spoke on *Order, disorder and spontaneity*. Mr Pieter Mathews delivered a presentation entitled *Storyboard for a studio* and Mr Ludwig Hansen's contribution was *Design like you give a damn*. Mr Fanuel Motsepe presented *Morning live*.

International speakers included Messrs Graham Morrison of the London practice of *Allies & Morrison*, and Will Bruder of Phoenix, United States of America (USA), who presented the annual lecture *Poetry and Pragmatism / People and Places*, sponsored by the Southern African Institute of Steel Construction (SAISC).

At the conference Mr Charles de Jager, an honours student, pre-

sented the curriculum content at the department as experienced from a student's perspective. He was one or three national winners at honours degree level of the Carl and Emily Fuchs Foundation Student Prize.

Mr Rudolf and Ms Martie Bitzer, both lecturers at the department, presented the *Manipulation of the Planar Element: Observations on Generic Design*, based on a study tour to the Milan Furniture Fair (*Fiere Milano*), Italy in April 2007. They were also invited to deliver this talk on 18 September 2008 at the Mpumalanga Institute of Architects in Witrivier.

Students attending the above-mentioned conference could choose between a tour of landmark buildings in Bloemfontein, some special stone buildings in the Eastern Free State, the historic architecture of Kimberley or a visit to Maseru, the capital of the nearby Mountain Kingdom of Lesotho.

As part of the conference the department organised the annual Murray and Roberts Des Baker National Architectural Student Competition for all third-year students together with the SHIFT Housing Competition and ESKOM Light Competition at the Oliewenhuis Art Gallery during the conference period in August and September 2008.

Staff members serve in various national institutes and on a number of councils. Messrs Bitzer, Bosman, Du Preez, Pretorius, Ras, Swart and Ms Smit are members of the South African Institute of Architects (SAIA) and registered with SACAP. Profs Smit and Raman are also members of these bodies. Mr Kobus du Preez is a member of the SAIA Heritage Committee and chairperson of the Permit Committee of the Free State Heritage Authority.

Mr Jan Ras is a member of the SAIA Board of Representatives and the SAIA Education Committee. He also organised the 2008 Architectural Student Conference, is involved in private practice and served on several advisory committees.



SMIT Architects design, built in Oubos Eco Estate outside Bloemfontein.

Prof. Raman was invited by the *Friends of Oliewenhuis* to give a talk on *Art as a Paradigm for Architecture*. He continued serving as a technical advisor to the Freedom Park Project in Pretoria, and he was also invited by the University of Newcastle in the United Kingdom (UK) to give a lecture on contemporary architecture in

South Africa. Furthermore, he formulated a proposal for a student exchange programme. He presented lectures in *Shifting Narratives in Contemporary South African Architecture* at a School of Architecture in Mumbai and lectures on *Housing and Recent South African Works* to the Association Schools of Architecture in Puna, India.



The 20<sup>th</sup> Sophia Gray Memorial Lecture was presented by Macio Miszewski and Anya van der Merwe Miszewski of the well-known Cape Town firm Van der Merwe Miszewski Architects. The lecture, which coincided with the national student architecture conference which was presented in Bloemfontein, attracted about 700 people. At the lecture are, from the left: Prof. Jan Smit, Departmental Chairperson of the Department of Architecture at the UFS, Ms Van der Merwe, Mr Miszewski and Mr Lloyd Rubidge of Van der Merwe Miszewski Architects.

Mr and Mrs Will Bruder during the Architecture Student Conference (ASC), which was hosted by the department.



A library building designed by Mr Will Bruder.

The practice work of SM!T Architects (Prof. Jan Smit and his wife Ms Petria Jooste-Smit) received coverage in the popular press for houses designed and built in the Oubos Eco Estate and on a smallholding outside Bloemfontein. The Oubos house was featured in the local magazine *PASSI* and the smallholding house was showcased in the *Top Billing* magazine (November 2008). The latter house was also identified to appear on the *Top Billing* magazine programme early in 2009. Prof. Smit's five favourite Bloemfontein buildings were published in the *VISI* magazine (Spring 2008) and he was on the *VISI* jury panel for *Designer of the Year* award.

Ms Wilandi Esterhuysen continued lecturing at the department and utilised the outcomes of the Centre for People and Buildings to complete her master's dissertation.

A survey for the South African Netherlands Research Programme on Alternatives in Development (SANPAD) project in Bankhara Budolong near Kuruman, Northern Cape Province.

The results of post-occupancy evaluation studies of two Telkom buildings were used to determine a set of recommended minimum standards towards which the planning and design of workplaces can be guided.

Part-time lecturer Ms Martie Bitzer designed pewter art for Coca Cola SA and the Tsogo Sun Group as permanent collections of work for both of the companies' headquarters. These are used as tools in communicating their mission and vision statements through the medium of art.

Mr Gerhard Bosman attended the *TERRA2008 10<sup>th</sup> International Conference on the Study and Conservation of Earthen Architectural Heritage* in Bamoko, Mali in Western Africa from 1-5 February 2008, on behalf of the Unit for Earth Construction (UEC). He presented a poster entitled *Promoting earth construction in South Africa – Stimulating health and wealth in poor communities in South Africa*, and also joined a study tour to visit conservation projects in Timbuktu, Djenne and Mopti to learn from the restoration of the unique earth-constructed mosques, some dating back to 1325. From 2-5 October 2008 he attended a course for architects on *Designing with Natural Stone*, in Verona, Italy. He visited the International Marmomac exhibition in Verona as well as several marble and granite quarries in the Verona and Pisa mountains.

Ms Petria Jooste-Smit and Mr Gerhard Bosman, together with Prof. Das Steyn, Departmental Chairperson of the Department of Urban and Regional Planning at the

UFS, presented their final document on the Research Project: *A South African Renaissance: Acceptability of sustainable, high quality earth constructed, public and private buildings to support sustainable local economic development*. This concluded the research project funded by the South African Netherlands Research Programme on Alternatives in Development (SANPAD).

Mr Kobus du Preez spent the first semester on a sabbatical and prepared an introduction for a new book on contemporary South African architecture, edited by Prof. Ora Joubert.

Mr Gert Swart retired from academia and the department in April 2008 and Ms Alet van der Merwe left the department in May 2008 to pursue a career in London, UK.

In spite of challenging economic times, the department continued with the long-standing tradition of exposing the students through academic tours showing *The New, the Old and Architecture in Construction*. Students in their first to fourth years visited Johannesburg, Cape Town, Durban and Clarens.

Students took part in several national student competitions. In August 2008 Mr Rudolf Naudé won the annual National Student Competition of the Cement and Concrete Institute.

In August 2008 Rhonwen Baker, a second-year student, won the National Tripod Photography competition while Thelouise van Zyl, a third-year student, received the third prize. ■





Mr Rudolf Naudé won the National Cement and Concrete Institute Competition for honours students. Rudolf is shown here with his tutor, Prof. Pattabi Raman.



Rhonwen Baker won the national Tripod Photography competition with Thelouise van Zyl taking third place.



Charles de Jager, an honours student (together with two other students from other institutions), won the Carl and Emily Fuchs Foundation Student Prize.

## Research outputs

### Research articles

**Raman, P.G.** 2008. From sweatshops to places of production, global evolution of industrial buildings. *Journal of the South African Institute of Architects* July/August: 12-15.

**Raman, P.G.** 2008. Modernism public space and public art. *South African Journal of Art History* 23(1): 245-257.

**Raman, P.G.** 2008. Placeness to place: Lilliesleaf Liberation Centre: Living history. *Journal of the South African Institute of Architects* November/December: 60-67.

**Raman, P.G.** 2008. Restructuring of the central building: University of the Free State. *Journal of the South African Institute of Architects* May/June: 26-29.

### Conference contributions

**Bosman, G.** 2008. *Promoting earth construction in South Africa: Stimulating health and wealth in poor communities in South Africa*. Poster presented at the 10<sup>th</sup> International Conference on the Study and Conservation of Earthen Architectural Heritage (Terra 2008), Bamako, Mali, Western Africa. 1-5 February.

**Raman, P.G.** 2008. *Modernism, public space and public art*. Keynote address presented at the 2<sup>nd</sup> Annual Conference of the Art Historical Work Group of South Africa: Space and Places; Production, Process and Contestation, University of Pretoria, South Africa. 14-15 March.

### Staff

**Professor:** Prof. Pattabi Raman

**Associate Professor:** Prof. Jan Smit

**Senior Lecturers:** Ms Petria Jooste-Smit

**Lecturers:** Messrs Gerhard Bosman, Kobus du Preez, Jan Ras, Gert Swart

**Junior Lecturers:** Messrs Rudolf Bitzer, Henry Pretorius, Ms Alet van der Merwe

**Contract Lecturers:** Messrs Charl-Pierre Cilliers, Sergio Nunes, Riaan Steenkamp, Jaco Olivier, Mss Martie Bitzer, Paula Gutter, Nicola Wessels, Alna Bouwer, Wilandi Esterhuysen

**Secretary:** Ms Martie de Jager

**Typist/Clerk (academic year):** Ms Ansue Schultz

**Departmental Assistant:** Ms Zelda Bronkhorst

**Messenger:** Mr Alfred Oiqimana

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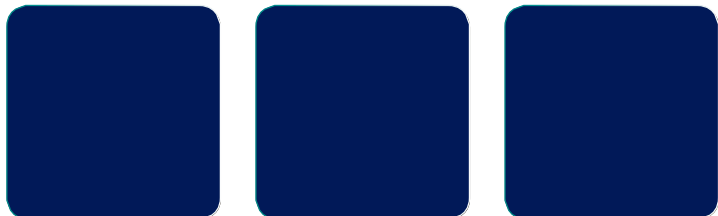
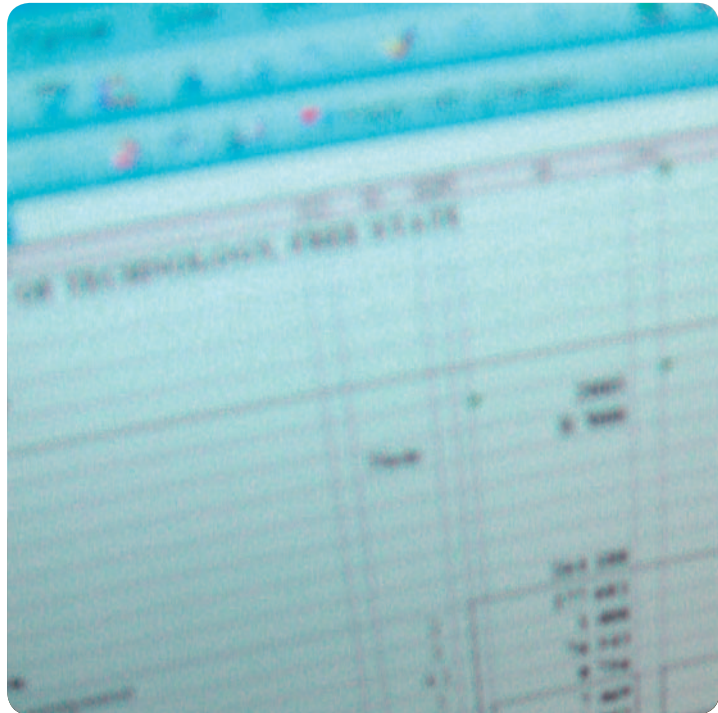
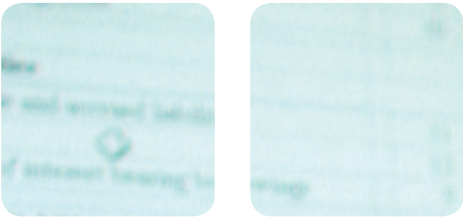
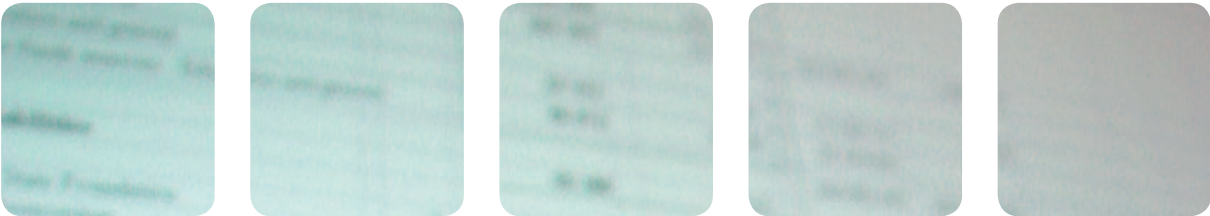
**Website:** [www.ufs.ac.za](http://www.ufs.ac.za)







# Statistical data

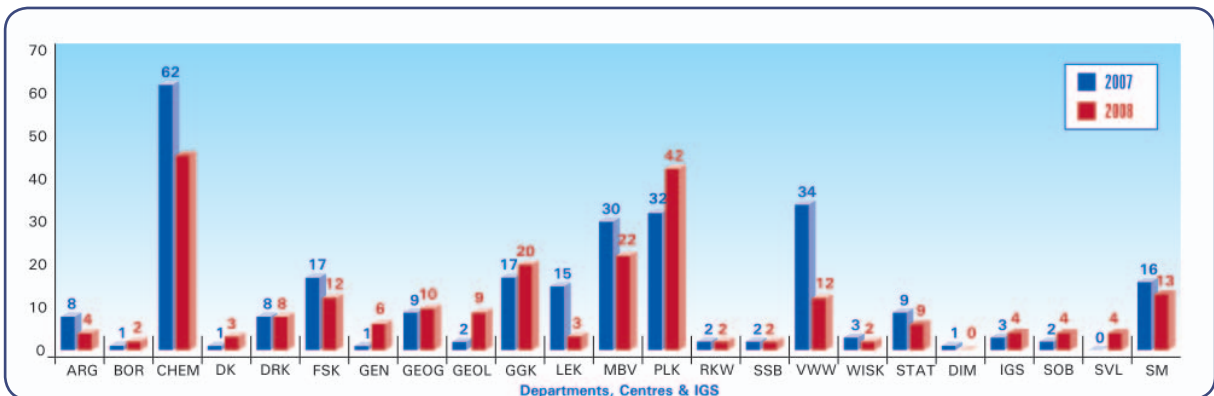


## Research outputs: 2007-2008

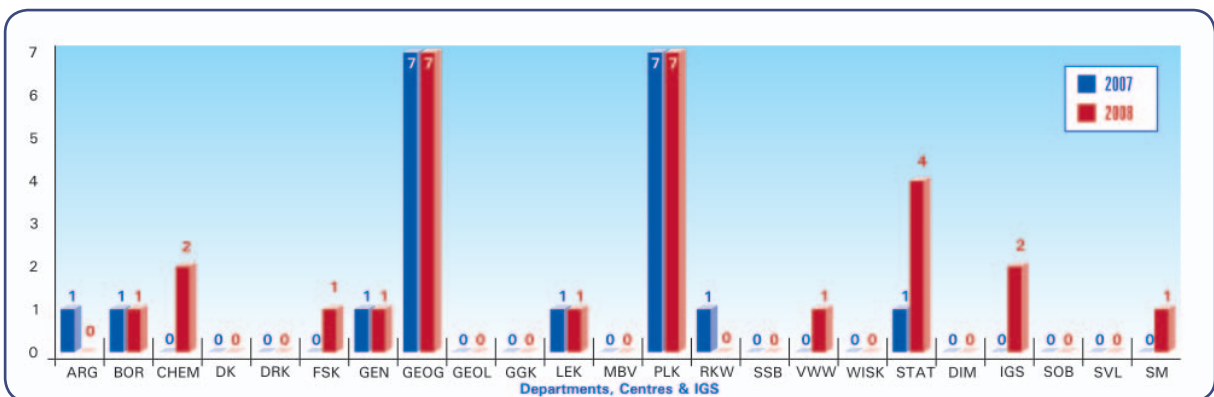
### List of abbreviations

Abbreviation	Name	Abbreviation	Name
ARG	Department of Architecture	GGK	Department of Soil, Crop and Climate Sciences
BOR	Department of Quantity Surveying and Construction Management	IGS	Institute for Groundwater Studies
SOB	Centre for Environmental Management	LEK	Department of Agricultural Economics
CEM	Department of Chemistry	MBV	Department of Microbial, Biochemical and Food Biotechnology
SM	Centre for Microscopy	PLK	Department of Plant Sciences
SVL	Centre for Sustainable Agriculture and Rural Development	RKW	Department of Computer Science and Informatics
DK	Dean's Office	SSB	Department of Urban and Regional Planning
DRK	Department of Zoology and Entomology	SRB	Disaster Management Training and Education Centre for Africa (DIMTEC)
FSK	Department of Physics	VWW	Department of Animal, Wildlife and Grassland Sciences
GEN	Department of Genetics	STAT	Department of Mathematical Statistics and Actuarial Science
GEOG	Department of Geography	WISK	Department of Mathematics and Applied Mathematics
GEOL	Department of Geology		

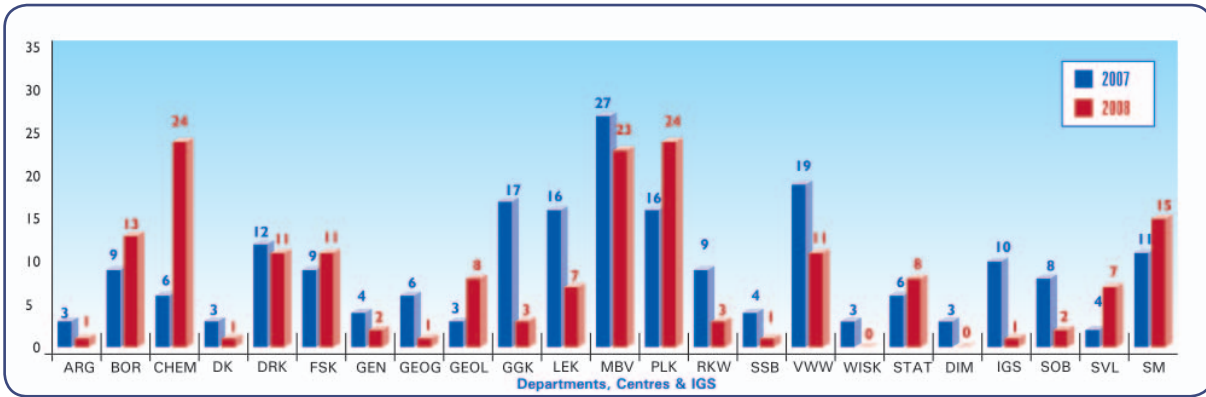
### Accredited articles



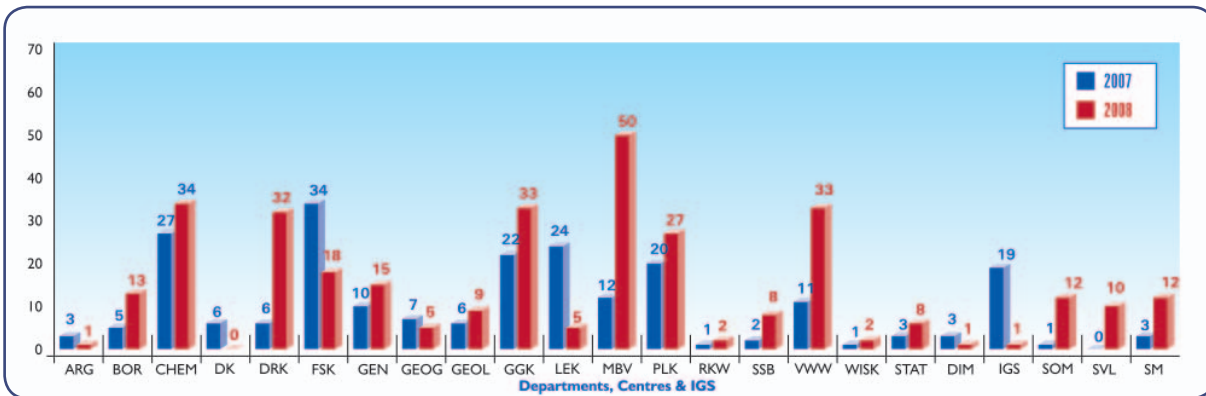
### Books



### International conferences



### Local conferences



## Student figures: 2007-2008

### Student figures

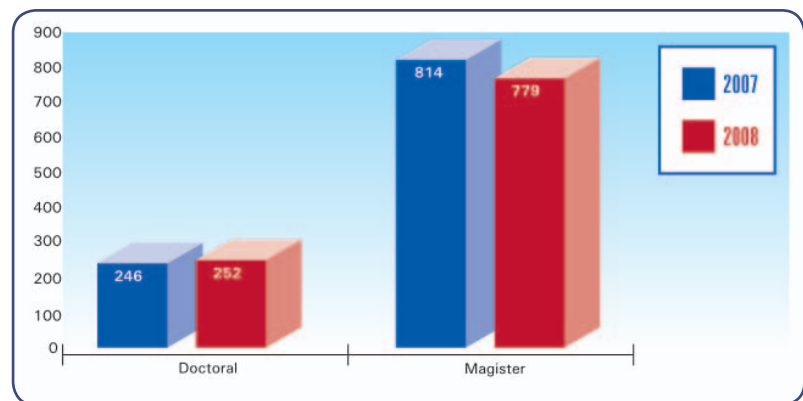
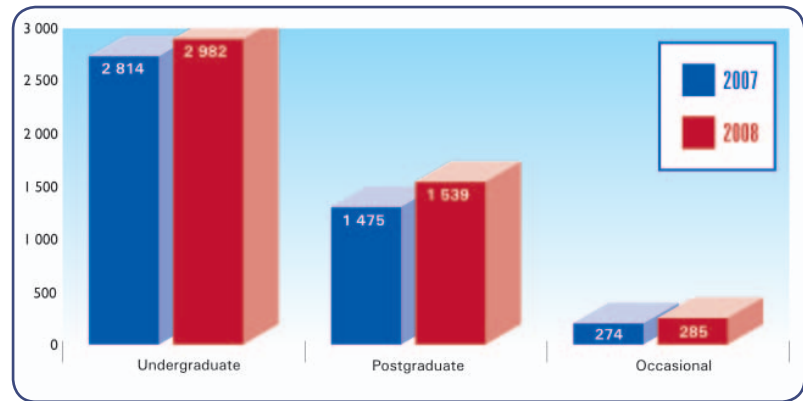
Year	Description	Black	Coloured	Asian	White	Total
2007	Undergraduate	1492	66	38	1218	2814
	Postgraduate	710	41	40	684	1475
	Occasional	230	6	2	36	274
<b>*TOTAL</b>		<b>2432</b>	<b>113</b>	<b>80</b>	<b>1938</b>	<b>4563</b>
2008	Undergraduate	1667	51	37	1227	2982
	Postgraduate	755	40	43	701	1539
	Occasional	260	5	1	19	285
<b>* TOTAL</b>		<b>2682</b>	<b>96</b>	<b>81</b>	<b>1947</b>	<b>4806</b>

### International students

Nationality	Year	Year
	2007	*2008
Angola	2	0
Asian countries	20	24
Botswana	17	23
Democratic Republic of the Congo	0	1
European countries	9	10
Lesotho	118	144
Malawi	3	5
Mauritius	2	3
Mozambique	4	7
Namibia	54	65
North America	15	5
Other African countries	47	69
South America	1	0
Swaziland	5	6
Zambia	7	7
Zimbabwe	48	60
<b>Total</b>	<b>352</b>	<b>429</b>

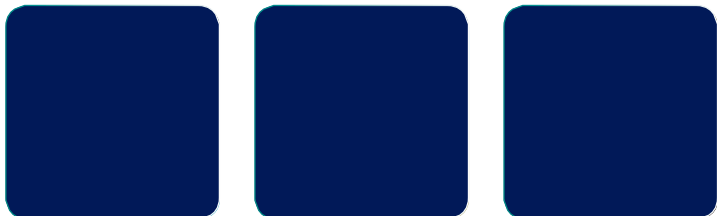
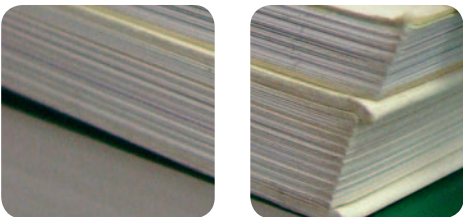
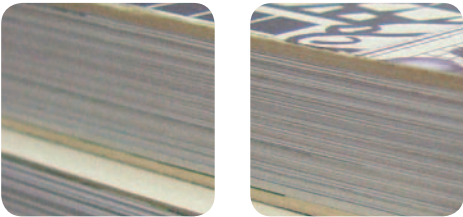
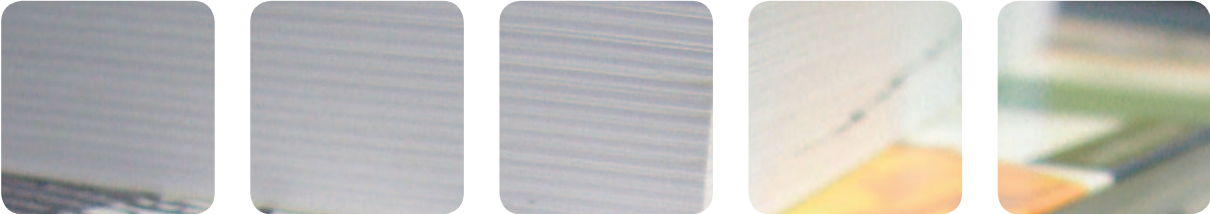
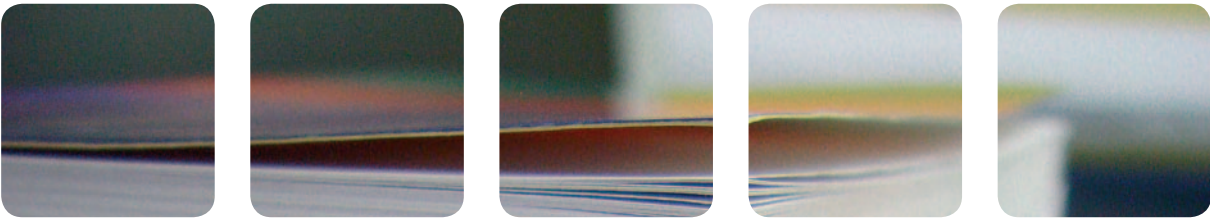
\*2008 Final HEMIS figures not available

### Comparison for the Faculty of Natural and Agricultural Sciences





# Glossary



## Glossary

### A

AACC -	American Association for Cereal Chemists
AACE -	Association for the Advancement of Cost Engineering
ADF -	Amsterdam Density Functional Programme
ADG -	Average Daily Grain
AEASA -	Agricultural Economics Association of South Africa
AEON -	the African Earth Observation Network
AGU -	American Geophysical Union
AI -	Artificial Insemination
ARC -	Agricultural Research Council
ARV -	Antiretroviral
ASC -	Architecture Student Conference
ASAQS -	Association of South African Quantity Surveyors
ASOCSA -	Association of Schools of Construction of Southern Africa

### B

BBSRC -	Biotechnology and Biological Sciences Research Council
BMBF -	Federal Ministry of Education and Research, Germany

### C

CAA -	Commonwealth Association of Architects
CANSA -	Cancer Association of South Africa
CAB -	Centro de Astrobiología
CED -	Centre for Education Development
CePHMa -	Centre for Plant Health Management
CHESD -	Centre for Higher Education Studies and Development
CHPC -	Centre for High Performance Computing
CIDB -	Construction Industry Development Board
CIOB-SA -	Chartered Institute of Building, South Africa
CSIR -	Council for Scientific and Industrial Research Organisation
CSTA -	Cereal Science and Technology Association
CUT -	Central University of Technology

### D

DiMTEC -	Disaster Management Training and Education Centre for Africa
DMISA -	Disaster Management Institute of Southern Africa
DRRW -	Durable Rust Resistance in Wheat
DST -	Department of Science and Technology
DWAF -	Department of Water Affairs and Forestry

### E

ECA -	European Crystallographic Association
EGIC -	Economic Growth and International Competitiveness
EMSA -	Environmental Management Systems Association
EMS -	Environmental Management Systems
EPWP -	Expanded Public Works Programme

### F

FAO -	Food and Agricultural Organisation
FETWater -	Framework Programme for Research Education and Training in Water
FMP -	Facilities Management Programme
FSRDPP -	Free State Rural Development Partnership Project
FTIR -	Fourier Transform Infra Red Spectrometer

### G

FGAP -	Facility for Genomics and Proteomics
GIS -	Geographical Information Systems
GMO -	Genetically Modified Organisms
GRDM -	Groundwater Resource Directed Measures
GSSA -	Grassland Science Society of South Africa
GSSA -	Geological Society of South Africa

### H

HCI -	Human-computer Interaction
HRTEM -	High Resolution Transmission Electron Microscopy

### I

IAMA -	International Food and Agribusiness Management Association
IAU -	International Astronomical Union
ICACS -	International Conference on Atomic Collisions in Solids
ICCC -	International Conference on Coordination Chemistry
ICEC -	International Cost Engineering Council
ICRISAT -	International Crops Research Institute for the Semi-Arid Tropics
ICSU -	International Council for Science
IDC -	Industrial Development Corporation
IGC -	International Geological Congress
IGS -	Institute for Groundwater Studies
IMWA -	International Mine Water Association
INCRoP -	Insects on New Crops Programme
IPMP -	Intensive Project Management Programme
ISI -	International Statistical Institute
ISME -	International Society for Microbial Ecology
IT -	Information Technology
IUMS -	International Union of Microbiological Societies

### L

LPI -	Lunar and Planetary Institute
LRAD -	Land Redistribution for Agricultural Development

### M

MCEE -	Minnesota Council on Economic Education
MDC -	Maputo Development Corridor
MEC -	Member of the Executive Council
MNS -	Material and Nanosciences Cluster
MOU -	Memorandum of Understanding
MRC -	Medical Research Council
MSA -	Masters in Sustainable Agriculture
MSSA -	Microscopy Society of Southern Africa
MUCPP -	Mangaung University Community Partnership Programme

**N**

NAMC - National Agricultural Marketing Council  
 NASA - National Aeronautics and Space Administration  
 NASSP - National Astrophysics and Space Science Programme  
 NBN - National Bioinformatics Network  
 NCEE - National Council for Economic Education  
 NDF - Neutral Detergent Fibre  
 NECSA - Nuclear Energy Corporation of South Africa  
 NERPO - National Emergent Red Meat Producers Organisation  
 NGO - Non-Governmental Organisation  
 NRF - National Research Foundation  
 NSTF - National Science and Technology Forum  
 NWGA - National Wool Growers' Association

**O**

OECD - Organisation for Economic Cooperation and Development

**P**

PAQS - Pacific Association of Quantity Surveyors  
 PDMS - Provincial Disaster Management Centre  
 PRT - Protein Research Trust

**R**

RDP - Redress and Development Programme  
 RIBA - Royal Institute of British Architects  
 RICS - Royal Institute of Chartered Surveyors  
 RIEP - Research Institute of Education Planning  
 RMMA - Red Meat Abattoirs Association  
 RPO - Red Meat Producers Organisation  
 RTPI - Royal Town Planning Institute

**S**

SA - South Africa  
 SAAPMB - South African Association of Physicists in Medicine and Biology  
 SAB - South African Breweries Limited

SABC - South African Broadcasting Corporation  
 SACAP - South African Council for the Architectural Professions  
 SACPCMP - South African Council for the Property Valuers Profession  
 SACPLAN - South African Council of Planners  
 SACQSP - South African Council for the Quantity Surveying Profession  
 SADC - Southern African Development Community  
 SAFA - South African Feedlot Association  
 SAFEFE - South African Foundation for Economic and Financial Education  
 SAFOI - South African Fryer Oil Initiative  
 SAIA - South African Institute of Architects  
 SAIM - Society for Industrial and Applied Mathematics  
 SAISC - Southern African Institute of Steel Construction  
 SANBI - South African National Biodiversity Institute  
 SANCID - South African Commission on Irrigation and Drainage  
 SANPAD - South African Netherlands Research Programme on Alternatives in Development  
 SANSA - South African National Survey of Arachnida  
 SAPOA - South African Property Owners Association  
 SAPPS - Symposium of the South African Pecan Producers Association  
 SAQA - South African Qualifications Authority  
 SASA - South African Statistical Association  
 SASHS - Southern African Society for Horticultural Sciences  
 SASM - South African Society for Microbiology  
 SAWMA - South African Wildlife Management Association  
 SAWSS - Southern African Weed Science Society  
 SCM - Scientific Computing and Modeling  
 SEG - Society of Economic Geologists  
 SEM - Scanning Electron Microscope

SLE - Senior Lecturer Equivalent  
 SSSSA - Soil Science Society of South Africa  
 SWMA - Southern African Wildlife Management Association

**T**

TEM - Transmission Electron Microscope  
 THRIP - Technology and Human Resource for Industry Programme

**U**

UCT - University of Cape Town  
 UEC - Unit for Earth Construction  
 UFS - University of the Free State  
 UJ - University of Johannesburg  
 UK - United Kingdom  
 UN - United Nations  
 UNESCO - United Nations Educational, Scientific and Cultural Organisation  
 UNU - United Nations University  
 UP - University of Pretoria  
 USA - United States of America  
 USAID - United States Agency for International Development  
 UWC - University of the Western Cape

**W**

WCAP - World Conference on Animal Production  
 WITS - University of the Witwatersrand  
 WRC - Water Research Commission

