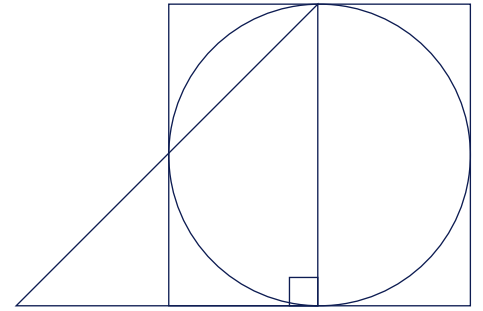


Report

05/06



Faculty of Natural and Agricultural Sciences



Faculty of Natural and Agricultural Sciences

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Lacea Loader
Leonie Bolleurs

Language revision
Nanette Lötter

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Stephen Collett

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www.ufs.ac.za.

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Contact details

Dean

Prof. Herman van Schalkwyk
+27 51 401 2535
hvs.sci@ufs.ac.za

Vice-Dean

Prof. Neil Heideman
+27 51 401 3855
heidemannj.sci@ufs.ac.za

Office of the Dean

Ms Lorinda Rust
+27 51 401 2322
rustl.sci@ufs.ac.za

Faculty Manager

Ms Corné Havemann
+27 51 401 2490
havemach.sci@ufs.ac.za

Liaison

Mr Nelis Maeder
+27 51 401 2531
maedecj.stg@ufs.ac.za

Physical address of the office of the Dean

Room 9A, Biology Building, Main
Campus, Bloemfontein

Postal address

University of the Free State
PO Box 339
Bloemfontein
South Africa
9300

Fax

+27 51 401 3728

Faculty website

www.ufs.ac.za

From the Dean's office



Prof. Herman van Schalkwyk.

The Faculty of Natural and Agricultural Sciences at the University of the Free State (UFS) leads the way in the practising of natural and agricultural sciences in South Africa and the highest levels of quality and credibility are reflected.

Our commitment, however, reaches far beyond just this. It reaches beyond the borders of the country and across continents; its multi-disciplinary and practical approach is vested in all the disciplines presented by the faculty.

In 2005/06 the Faculty experienced significant growth in measurable outputs. A contributing factor was the comprehensive apparatus strategy and plan which was implemented in 2005. With this strategy, university funds were used to leverage other funds in order to obtain huge discounts from suppliers of apparatus. In this way the faculty managed to obtain almost R50 million worth of apparatus in 2005.

The strategy was continued in 2006 when an agreement to the value of R7 542 531 was reached with Shimadzu, according to which apparatus was supplied to the faculty at discount prices. The agreement, which is valid for three years, entails the free replacement of apparatus which is purchased during this period with upgraded versions.

The new apparatus forms part of the UFS vision to compete internationally with quality research outputs in certain niche areas, to provide leadership in advanced training to students from the African continent and to establish the university as a leader among South African universities.

Two researchers with a B rating from the National Research Foundation (NRF) were also appointed. Both of these initiatives bore fruit and in 2006 the faculty increased its total research outputs by

about 13%. As an example, the Department of Chemistry's outputs increased by 100%.

The faculty has been bursting at the seams over the past couple of years. Student figures rose from 3 935 undergraduate, postgraduate and occasional students in 2005, to 4 224 in 2006. There is also strong representivity of students from other African countries and in 2005/06 almost 600 students studied at the faculty.

An extended B.Sc. programme has been presented to students since 2005. The programme aims at providing students who do not comply with all the requirements for the B.Sc. programme with the necessary sub-structure to complete the B.Sc. degree successfully. A preliminary evaluation of the results indicates that the programme is delivering the desired results.

The alignment of the Qwaqwa Campus, which was incorporated into the UFS in January 2003, remains a challenge. Regular discussions are held with staff on the campus in order to make the faculty's programmes more sustainable and to align it with the broader strategic plan of the UFS.

On a national level, the faculty is in the process of making its mark in terms of teaching and community service. In 2005 the faculty again actively began utilising its

experimental farms. A three-way agreement between the UFS, the National Farmers Union (NAFU) and the Mangaung Local Municipality led to the establishment of the Lengau Agricultural Development Centre on the Sydenham Experimental Farm. The centre provides training and mentorship to small-scale upcoming farmers.

To be dynamic and progressive requires innovative thinking. It requires commitment and a desire to deliver excellent teaching and learning opportunities to students. It requires a willingness to form partnerships, and a multi-disciplinary and practical approach to the tertiary education environment in South Africa.

This report covers the faculty's activities in 2005/06. It is a reflection of two years' commitment on the part of a team of skilled and motivated academics and support staff.



Prof. Herman van Schalkwyk

Dean: Faculty of Natural and Agricultural Sciences
University of the Free State

Zoology and Entomology



“We prepare our students for a career in adventure...”

Prof. Jo van As.

Overview

The Department of Zoology and Entomology is organised into six research groups each with its own objectives and specific study area. There is also a satellite department on the Qwaqwa Campus.

The groups collectively share common goals within the strategic priorities of the Faculty of Natural and Agricultural Sciences and the UFS. Prof. Jo van As, Departmental Chairperson, is also involved in activities of the cluster for Water Management in Water Scarce Areas at the UFS.

Aquatic Parasitology

In 2005 the group consisted of Proff. Jo van As and Linda Basson, Dr Liesl van As, Mss Candice Jansen Van Rensburg, Elindi Jansen Van Rensburg, Hafeleni Matete and Zerene Lotter, as well as Messrs Josephus Fourie and Clyde Lamberts. In 2006 Ms Deidré West joined the group and Ms Lotter and Mr Fourie left the group.

During the autumn recesses of 2005/06 the group took the third-year Zoology students on the annual excursion to the Potberg Environmental Centre in the De Hoop Nature Reserve in the Western Cape. Staff and students from the Zoology and Botany divisions on the Qwaqwa Campus have been taking part in this excursion since 2005.

In 2005 Prof. and Dr Van As, together with postgraduate students, attended the opening of the Krokovango Crocodile Farm in the Okavango Panhandle in Botswana. The Leseding Research Project of the Aquatic Parasitology group was announced during this visit. The emphasis of this project is on the fish parasite biodiversity of the Okavango Delta.

Construction at the Leseding Research Camp started in December 2004 and was completed in June 2005. Several field trips were undertaken during 2005/06 by the group to the research camp:

- In June 2005 colleagues and students from the University of Johannesburg's Department of Zoology as well as staff and students from the Department of Biology of the University of



“The emphasis of the Leseding Research Project is on the fish parasite biodiversity of the Okavango Delta.”

Limpopo joined the UFS staff and postgraduate students to conduct surveys for various fish parasite projects.

- From September to October 2005 a trip which focused on surveys about the annual catfish run was undertaken to sample information not only on fish activities and parasites, but also on the variety of birds found to be associated with the run. This annual phenomenon was also filmed by Homebrew for *KykNet* and broadcast on *Groen* in 2006.
- In 2006 Prof. and Dr Van As, together with undergraduate and postgraduate students, visited the research camp during the June/July recess and again in September and December for research on fish parasites.

In 2005 Ms Melanie Andrews, with a dissertation entitled: *A review of the Family Ergasilidae (Copepoda: Poecilostomatoida) of Africa*, received her M.Sc. degree. The Junior Neitz medal was awarded to her during the year for the best M.Sc. in Parasitology at a South African university.

Ms Candice Jansen van Rensburg attended the 34th congress of the Parasitological Society of Southern Africa at Magoebaskloof, hosted by the Department of Zoology of the University of Limpopo.

Prof. Basson, Dr Candice and Ms Elindi Jansen van Rensburg attended the 44th Microscopy Society of Southern Africa's annual conference in Pietermaritzburg, hosted by the University of KwaZulu-Natal.

In 2006 Dr Candice Jansen van Rensburg received her Ph.D. in Zoology. Her thesis: *Digenetic trematodes of freshwater fishes from the Okavango River and Delta, Botswana*, is to date the most comprehensive contribution on the biodiversity of African fish parasitic flatworms. These parasitic worms all have complicated lifecycles which include stages

occurring in snails, fishes and fish-eating birds. In her thesis she describes 18 different lifecycles which include ten new species.

Prof. Basson attended the congress of the Parasitology Association of Southern Africa (PARSA) in Windhoek, while the congress of the Microscopic Association of Southern Africa, held in Port Elizabeth, was attended by Prof. Van As, Drs Van As, Candice Jansen van Rensburg and Ms Robin Lyle.

Arachnology

The group consisted of Mr Charles Haddad and Ms Lyle.

In January 2005 Mr Haddad hosted the 8th African Arachnid Colloquium in conjunction with the National Museum in Bloemfontein. Apart from all the local spider enthusiasts, the following guests from abroad also attended the colloquium: Dr Rudy Jocqué (Royal Museum for Central Africa in Tervuren, Belgium), Mr Dirk Kunz (Senckenberg Museum in Frankfurt, Germany), Messrs Milan Rezac and Franticek Stahlavsky (Charles University in Prague, Czech Republic) and Ms Meg Cumming (from Harare in Zimbabwe).

In 2005/06 field work was done at among others the Ndumo Game Reserve in KwaZulu-Natal and the Erfenis Dam Nature Reserve in the Free State Province as part of long-term projects. Mr Haddad also joined two Slovenian researchers, Drs Matjaz Kuntner and Gregorz Atljancic, for three weeks of field work in KwaZulu-Natal during April 2006, which involved studying the biology of golden orb-web spiders (Nephilidae) and their relatives. Various conservation areas were visited, including Ndumo Game Reserve, Tembe Elephant Park, Kosi Bay Nature Reserve, Sodwana Bay National Park, Hluhluwe-Umfolozzi Nature Reserve and the Greater St Lucia Wetlands Park. As part of studies funded by the National Research Fund (NRF) for Corinnidae spiders, field work was conducted for a week along the Wild Coast in the Eastern Cape, and in Botswana, Namibia and Zambia for a three-week period.

In 2005 Ms Lyle received her B.Sc. Honours and has enrolled for her master's, focusing on the systematics of the sac spider subfamily Trachelina. Apart from attending the 8th African Arachnid Colloquium in Bloemfontein in January 2005, the Arachnologists also attended the 31st Congress of the South African Association of Botanists in Bloemfontein in January 2005 and the 15th Congress of the Entomological Society of Southern Africa in Grahamstown in July 2005.

Ms Lyle attended the annual congress of the Microscopy Society of Southern Africa

during December 2006 and presented a paper on the systematics of the genus *Austrachelas*.

Pesticide Resistance Testing Facility

In 2005 the group consisted of Mss Ellie Van Dalen (permanent staff member), Sharon Terry, Deidré West and Mr Adri Jordaan. In 2006 Ms Christa du Rand joined the group as a permanent staff member.

The collaborators are Prof. Leon Fourie from Clinvet International for circulation of tick reference strains, Dr Barry Hymann from Novartis as contact with farmers in problem areas and Prof. Ivan Horak, of the Department of Veterinary Tropical Diseases at Onderstepoort, University of Pretoria.

The brand new state-of-the-art molecular biology facility used by this group was completed in 2005. In 2006 the facility was fully operational and used for determining tick resistance to chemical control by employing conventional resistance testing.

A project commissioned by Bater for the detection of tick resistance to chemical control in the area previously known as the Transkei in the Eastern Cape, was completed in collaboration with Clinvet International and Prof. Horak. Three different tick species were collected from cattle at 50 different dip tanks and tested against three Acaricides by means of two tick resistance-testing techniques. Contract research in collaboration with Pfizer Animal Health for the registration of a tick control chemical for use in Kenya, was also conducted.

In 2006 a contract for resistance testing over a three-year period was negotiated with Bayer Animal Health (Pty) Ltd. The contract will commence in 2007. Much has also been done to promote the services of the facility to potential clients. This included a promotional presentation at the annual meeting of the Health Professions Council of South Africa (HPCSA), a television insert on *AgriTV* and an article in the *Farmers Weekly*. A web site called www.ticks.co.za, describing the services of the facility, was also developed and launched.

The purchase of equipment for use in the investigation and developing of molecular techniques for the determination of tick resistance is nearly completed. The outstanding equipment will be acquired early in 2007 to ensure a more accurate determination of the development of resistance.

Etho Ecology

In 2005 the group consisted of Prof. Ordino Kok, Messrs Hennie Butler, Johan van Niekerk and Pieter le Roux, Mss Elisma Theron and Lindi Heyns. Ms Theron left the group in 2006 and Mss Elylia Erasmus, Hanlie Groenewald and Hanri Grünewald joined the group.

In 2005/06 group members undertook an honours excursion to the Willem Pretorius Nature Reserve. An article on cattle egrets published by this team was nominated as the best contribution in the *South African Journal of Natural Science and Technology* for 2004.

The group continued in 2005/06 with research on an uranium project, in collaboration with the UFS Department of Geology. In 2006 specific attention was given to the uses of frogs as biological indicators of unrehabilitated mines were investigated. Attention was also given to the influence of such mines on the small mammal population.

Other research during 2005/06 included the general biology and ecology of larks in Central Free State and the general biology of the rock dove in the Bloemfontein area.

In 2006 attention was also given to the feeding behaviour of giraffes in the Central Free State. Research on larger animals included the comparative behaviour and ecology of the red hartebeest and the black wildebeest. A study of the etho-ecology of the blesbok and the bontebok with special reference to hybridisation was undertaken in



Dr Liesl van As and students busy preparing the laboratory for field work.



The "office" at the Leseding Research Camp is a tree house where one can escape from the heat. Here is Prof. Jo van As, Departmental Chairperson, at work.



During a visit to the Leseding Research Camp in 2006 are, from the left, front: Dr Ursula Viljoen, wife of Prof. Niel Viljoen, Chief Director: Operations at the UFS, and Prof. Viljoen; back: Proff. Frederick Fourie, Rector and Vice-Chancellor of the UFS, Jo van As and Ms Annamaria Fourie, wife of Prof. Fourie.

collaboration with the genetics division of the Department of Plant Sciences at the UFS.

Prof. Kok was invited in 2006 as a guest speaker to an international congress at St. Louis in Missouri, United States of America (USA) on the danger of birds at domestic airports.

Medical, Veterinary and Forensic Entomology

In 2005 the group consisted of Prof. Theuns van der Linde, Mss Sonja Brink and Janine Kelly, Messrs Kobus Kolver and Goddie Prinsloo (Ph.D. students), and Mss Tembisa Majola and Sonnika Otto (M.Sc. students). In 2006 Messrs Julian Liebenberg and Shaun

Hoffman, and Ms Annerie Botha (honours students) joined the group.

Although Prof. Van der Linde was kept busy supervising his students in 2005, he found time to do several crime investigations with the South African Police Services (SAPS) and wrote reports, presented training courses for the SAPS and informal lectures to various interested groups such as The Rotary Club and *Die Voortrekkers*. He also attended the 15th Entomological Congress in Grahamstown during July 2005, took part in a live radio interview on *Radio 702* about Forensic Entomology, wrote an article for *Beeld* on forensic entomology following the Lee Matthews case, acted as external examiner for an M.Sc. thesis from the National University of Lesotho and acted as referee of manuscripts from *African Entomology*.

During 2006 significantly more students registered for the Entomology 300 course. Twelve students registered for the various Entomology modules while in 2005, only three students were enrolled. Three honours students completed their research projects (year projects). Mr Liebenberg studied aspects of the bio-ecology of biting midges (*Culicoides spp.*), Mr Hoffman did a forensic entomology project and Ms Botha studied the morphology of biting lice (*Damalinia limbata*) on Angora goats with the aid of the scanning electron microscope. Doctoral degrees were awarded to Mr Prinsloo and Ms Kelly during the September graduation ceremony.

One publication in an accredited scientific journal was published by this group during 2006. Prof. Van der Linde also acted as reviewer of manuscripts from *African Entomology* and *Kudu*.

Various criminal investigations were undertaken during 2006 in collaboration with the SAPS and State Pathologists. Confidential reports were also submitted.

During June 2006 the second and third-year students visited the research institutes of the Agricultural Research Council (ARC) at Potchefstroom and Pretoria during the bi-annual excursion. A chemical company, Crompton Chemicals in Boksburg, was also visited. Prof. Gerhard Prinsloo, Professor Extraordinary arranged the visit. Prof. Van der Linde and Mr José Parau accompanied the students.

Insects on New Crops Programme

In 2005 the group consisted of Prof. Schalk Louw, Messrs Charles Haddad (part-time Ph.D. student), Vaughn Swart (full-time Ph.D. student in Environmental Management) and De Villiers Fourie (full-time M.Sc. student), Mss Fransie van Deventer (part-time M.Sc. student) and L. Theron (part-time



Students busy with water quality measurements in the flood levels of the Okavango Delta.



Researchers launching Barbus a remote controlled underwater observation apparatus used for studying the catfish pack hunting in the Okavango Delta.

M.Sc. student), Mr Johan Pretorius (part-time M.Tech. student), and Mr Burgert Muller (full-time B.Sc. Honours student). In 2006 Ms Van Deventer left the group and Ms Francisca Jordaan (full-time B.Sc. Honours student) joined the group.

In 2005/06 the Insects on New Crops Programme (INCroP) did research on pistachio nuts (client: Industrial Development Corporation, Green Valley Nuts in Prieska), walnuts (client: Industrial Development Corporation, Rotondo Walnuts in Aliwal North), cactus pear (client: SA CactusNet), kenaf (client: Sustainable Fibre Solutions in Cape Town) and hoodia (client: Phytopharm and Unilever in the United Kingdom (UK)). In 2006 the group also conducted research on the blue agave (client: Agave Distillers in Graaff-Reinet).

Ms Fransie van Deventer obtained an M.Sc. in Entomology with a dissertation entitled: *Diversity and seasonality of Chrysomelidae (Coleoptera) on kenaf, Hibiscus cannabinus L. (Malvaceae), with special reference to preference indices of Podagraca testacea (Chapuis) (Alticinae)*. The degree was awarded at the September 2005 graduation ceremony.

Prof. Louw was the founder and executive committee member of the UFS Centre for Plant Health Management (CePHMa) that was officially opened in October 2005 on the Main Campus in Bloemfontein. He was also a member of the organising committee of the 2006 International Cactus Pear Conference held in March 2006 on this campus under the auspices of CePHMa and served as editor of the conference proceedings, which were published as a book.



There is no division of work at the Leseding Research Camp. Here nets are cast to catch fish.

Academic staff

Main Campus

Professors: Proff. Jo van As, Linda Basson, Ordino Kok, Schalk Louw, Theuns van der Linde

Professors Extraordinary : Proff. Leon Fourie, Gerhard Prinsloo

Senior Lecturers: Drs Liesl Van As, Léan van der Westhuizen

Lecturers: Dr Candice Jansen van Rensburg, Messrs Hennie Butler,

Charles Haddad, Ms Ellie van Dalen
Affiliated Researchers: Proff. Dawie Kok, Ivan Horak, Drs Johan Welman, Jennifer Botha

Qwaqwa Campus

Lecturers: Dr Michael Cunningham, Messrs Sibusiso Mtshali, Johann van As, Ms Hafeleni Matete

Contact details

Prof. Jo van As
Department of Zoology and Entomology
University of the Free State
PO Box 339
Bloemfontein
South Africa
9300

Telephone: +27 51 401 2427
Fax: +27 51 444 5943
E-mail: vanasJG.SCI@ufs.ac.za
Website: www.ufs.ac.za

Research outputs

Publications

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Statistical data of the faculty



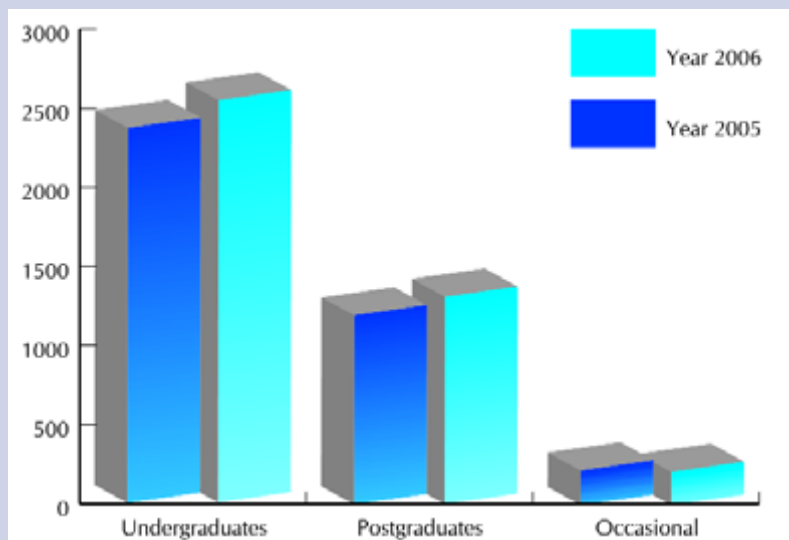
Student figures

Faculty of Natural and Agricultural Sciences, 2005/06

Male					
2005					
Description	African	Coloured	Indian	White	Total
Undergraduate	676	31	26	724	1457
Postgraduate	351	22	15	400	788
Occasional	84	3	4	17	108
Total 2005	1111	56	45	1141	2353
2006					
Description	African	Coloured	Indian	White	Total
Undergraduate	729	28	21	768	1546
Postgraduate	385	21	16	431	853
Occasional	68	2	2	23	95
Total 2006	1182	51	39	1222	2494

Female					
2005					
Description	African	Coloured	Indian	White	Total
Undergraduate	563	41	11	394	1009
Postgraduate	206	16	11	221	454
Occasional	101	5	2	11	119
Total 2005	870	62	24	626	1582
2006					
Description	African	Coloured	Indian	White	Total
Undergraduate	641	39	17	401	1098
Postgraduate	243	15	17	234	509
Occasional	103	2	2	16	123
Total 2006	987	56	36	651	1730

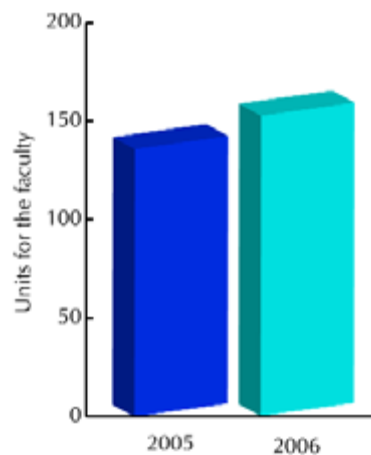
Total					
2005					
Description	African	Coloured	Indian	White	Total
Undergraduate	1239	72	37	1118	2466
Postgraduate	557	38	26	621	1242
Occasional	185	8	6	28	227
Total 2005	1981	118	69	1767	3935
2006					
Description	African	Coloured	Indian	White	Total
Undergraduate	1370	67	38	1169	2644
Postgraduate	628	36	33	665	1362
Occasional	171	4	4	39	218
Total 2006	2169	107	75	1873	4224



Student figures

Student nationality		
Nationality	2005	2006
Angola	1	
Asian countries	21	18
Botswana	20	20
European countries	6	6
Lesotho	142	142
Malawi	2	1
Mauritius		2
Mozambique	8	7
Namibia	40	42
No information	1	
North America	4	4
Other Africa	45	48
South Africa	3610	3893
South America		1
Swaziland	13	13
Zambia	4	6
Zimbabwe	18	21
Total	3935	4224

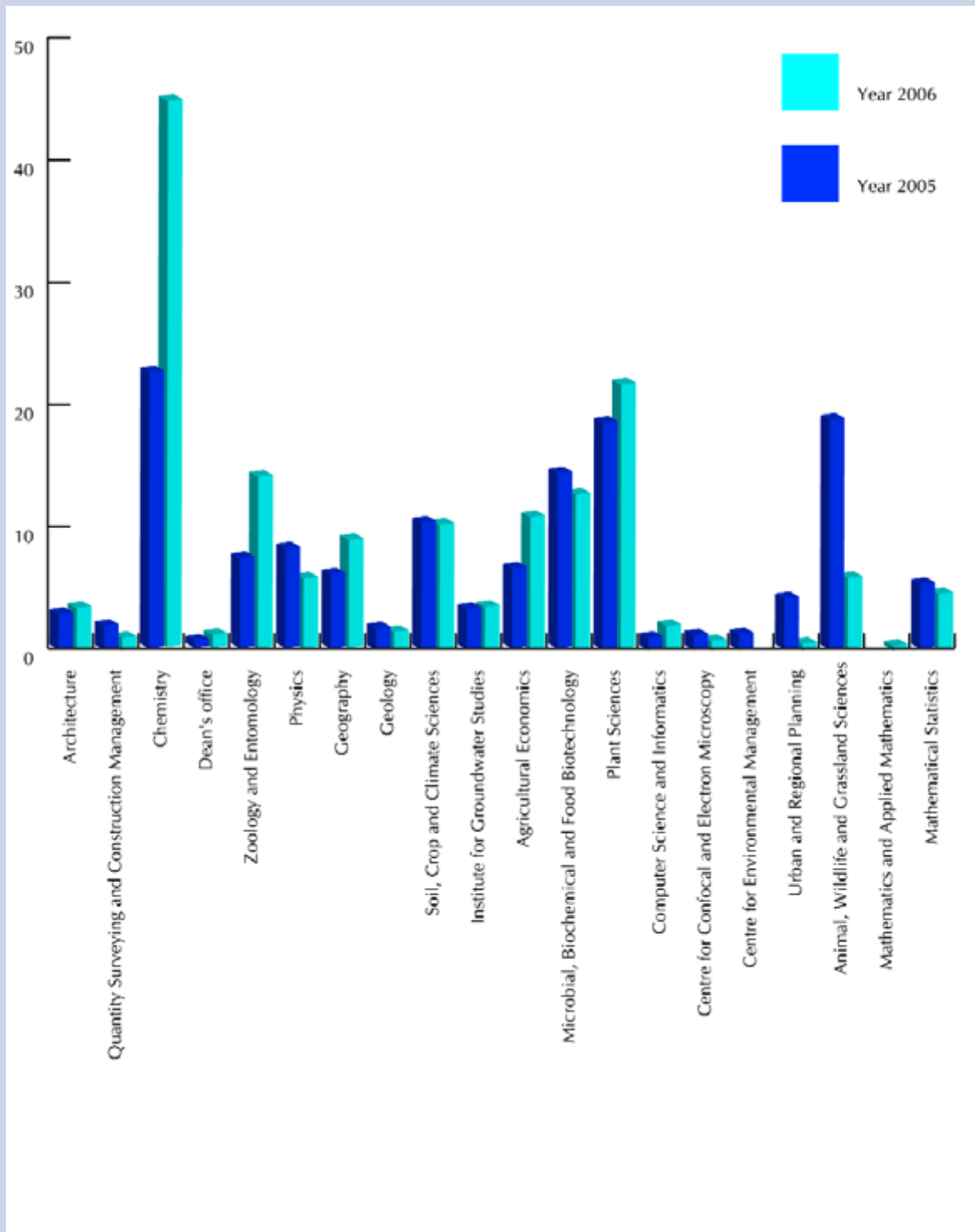
Research outputs for the Faculty of Natural and Agricultural Sciences



Articles published in accredited approved research journals.

Departmental research outputs

Articles published in accredited approved research journals, 2005/06



Glossary



Glossary

A

ACIAR	Australian Centre for International Agricultural Research
AEASA	Agricultural Economics Association of South Africa
ALPRU	African Large Predator Research Unit
ARC	Agricultural Research Council
ARMSCOR	Armaments Corporation of South Africa
ARS	Agri Risk Specialists
ASAQS	Association of South African Quantity Surveyors
ASSA	Anatomical Society of South Africa
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
AVS	American Vacuum Society

C

CANSA	Cancer Association of South Africa
CATSA	Catalysis Society of South Africa
CBD	Convention of Biological Diversity
CCEM	Centre for Confocal and Electron Microscopy
CePHMa	Centre for Plant Health Management
CfPB	Centre for People and Buildings
CIAT	International Centre for Tropical Agriculture
CIDB	Construction Industry Development Board
CIMMYT	International Maize and Wheat Improvement Centre
CIOB	Chartered Institute of Building
CIOB-SA	Chartered Institute of Building - South Africa
CSACEE	Central South African Council on Economic Education
CSIC-INTA	Centro de Astrobiología
CSIR	Council for Scientific and Industrial Research
CSIRO	Commonwealth Scientific and Industrial Research Organisation

D

DEAT	Department of Environmental Affairs and Tourism
DiMTEC	Disaster Management Training and Education Centre for Africa
DMISA	Disaster Management Institute of South Africa
DST	Department of Science and Technology

E

EAAP	European Association for Animal Production
EASA	Education Association of South Africa
ECA	European Crystallographic Association
EIGG	Environmental Inorganic Geochemistry Group
EPWP	Expanded Public Works Programme
ESBES	European Symposium on Biochemical Engineering Science
ESREL	European Safety and Reliability
ESRP	Economic and Social Rehabilitation Programme

F

FAO	Food and Agriculture Organisation
FEMS	Federation of European Microbiological Societies
FMP	Facilities Management Programme
FOTIM	Foundation of Tertiary Institutions of the Northern Metropolis

FSRPO	Free State Red Meat Producers Organisation
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G

GIS	Geographical Information Systems
Glen ADI	Glen Agricultural Development Institute
GM	Genetically Modified
GMBA	Gauteng Master Builders' Association
GMO	Genetically Modified Organisms
GWK	Griekwaland-Wes Koöperasie

H

HIV	Human Immunodeficiency Virus
HPCSA	Health Professions Council of South Africa
HPLC	High Performance Liquid Chromatography
HSPCM	Health and Safety Programme for Construction Managers

I

IAGOD	International Association on the Genesis of Ore Deposits
IAH	International Association of Hydrogeologists
ICCC	International Conference on Coordination Chemistry
ICEC	International Cost Engineering Council
ICID	International Commission on Irrigation and Drainage
ICP	Inductively Coupled Plasma
ICRBM	International Conference on Rodent Biology and Management
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDC	Industrial Development Corporation
IGS	Institute for Groundwater Studies
IITA	International Institute of Tropical Agriculture
INCRoP	Insects on New Crops Programme
INTSORMIL	International Sorghum and Millet Research Support Programme

IPMA

IPMA	International Project Management Association
IPMP	Intensive Project Management Programme
IRDP	Institutional Research and Development Programme
IRWH	In-field Rainwater Harvesting
IUCr	International Union of Crystallography
IUMS	International Union of Microbial Societies
IUPAP	International Union of Pure and Applied Physics

J

JFM	Journal of Facilities Management
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L

LExEn	Life in Extreme Environments
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M

MIRCHEN	Microbiological Resources Centre
MIT	Massachusetts Institute of Technology
MRM	Mineral Resource Management
MSA	Master's Degree in Sustainable Agriculture
MSSA	Microscopy Society of Southern Africa
MUCPP	Mangaung University Community Partnership Programme
MURP	Master's Degree in Urban and Regional Planning

N

NaCOF	National Climate Outlook Forum
NAFU	National African Farmers Union
NAMC	National Agricultural Marketing Council
NASA	National Aeronautics and Space Administration
NASSP	National Astrophysics and Space Science Programme
NCEE	National Council for Economic Education
NDA	National Department of Agriculture
NECSA	National Energy Commission of South Africa
NELSAM	Natural Earthquake Laboratory in South African Mines
NERPO	National Emergent Red Meat Producers' Organisation
NGO	Non-Governmental Organisation
NML	National Metrological Laboratory
NMMU	Nelson Mandela Metropolitan University
NMR	Nuclear Magnetic Resonance
NRF	National Research Foundation
NUFU	Norwegian Council of Universities Committee for Development, Research and Education
NWGA	National Wool Growers' Association

O

OABS	Optimal Agricultural Business Solutions
OECD	Organisation for Economic Co-operation and Development

P

PARSA	Parasitological Association of Southern Africa
PDMIW	Processing and Disposal of Mineral Industry Wastes
POT	Peaks over Threshold
PPP	Public Private Partnership
PRT	Protein Research Trust

R

RICS	Royal Institute of Chartered Surveyors
RIEP	Research Institute of Education Planning
RNA	Research Niche Area
RPO	Red Meat Producers' Organisation

S

SA	South Africa
SAACE	South African Association of Consulting Engineers
SAB	The South African Breweries Limited
SACI	South African Chemical Institute
SACPCMP	South African Council for the Project and Construction Management Profession
SACPVP	South African Council for the Property Valuation Profession
SACQSP	South African Council for the Quantity Surveying Profession
SADC	Southern African Development Community
SAFMA	South African Facilities Management Association
SAFOI	South African Fryer Oil Initiative
SAIP	South African Institute of Physics
SAISC	Southern African Institute of Steel Construction
SAMSI	Statistical and Applied Mathematical Sciences Institute

SANCIAHS	South African National Committee for the International Association of Hydrological Sciences	SEDA	Small Enterprise Development Agency	UNEP	United Nations Environment Programme
SANCU	South African National Consumer Union	SMME	Small, Medium and Micro Enterprises	UNESCO	United Nations Educational, Scientific and Cultural Organisation
SANPAD	South Africa-Netherlands Research Programme on Alternatives in Development	SRC	Student Representative Council	USA	United States of America
SAPOA	South African Property Owners' Association	SRL	Sustainable Rural Livelihood	USAID	United States Agency for International Development
SAPS	South African Police Services	SSAG	Society of South African Geographers	UTCHEM	University of Texas Chemical Compositional Simulator
SAQA	South African Qualifications Authority	T		UWC	University of the Western Cape
SASAS	South African Society for Animal Science	THRIP	South African National Research Foundation Thrust for Industry-Related Projects	W	
SASQUA	Southern African Society for Quaternary Research	TUE	Technical University Eindhoven	WARFSA	Water Research Fund of Southern Africa
SAVAH	South African Association of Visual Arts Historians	U		WATOC	World Association of Theoretically Orientated Chemists
SBE	Sustainable Built Environments	UCT	University of Cape Town	WFP	World Food Programme
		UFS	University of the Free State	WITS	University of the Witwatersrand
		UJ	University of Johannesburg	WRC	Water Research Commission
		UK	United Kingdom	WUA	Water Users' Association
		UN	United Nations		